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**THE CRITICAL SUCCESS FACTORS OF
ENTERPRISE ARCHITECTURE**

By Thomas Hope

A thesis submitted in fulfilment of the requirements for the degree of
Doctor of Philosophy in Information Technology

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DEDICATION

For my Anna-Lisa who put up with so much for so long and for the two other Tom Hopes I know. My father whose life's circumstances conspired against his education and my son, in the hope that one day it might inspire him.

CERTIFICATE OF AUTHORSHIP / ORIGINALITY

I certify that the work in this thesis has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree except as fully acknowledged in the text.

I also certify that I am the author of this the thesis and that any help that I have received in my research and preparation of this thesis has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

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ABBREVIATIONS and TERMS

AoEA	Association of Enterprise Architects
BA	Business Analyst
BPM	Business Process Model
COP	Community of Practice
CSF	Critical Success Factor
EA	Enterprise Architecture
GERA	Generic Enterprise Reference Architecture
IEEE	Institute of Electrical and Electronic Engineers
IASA	International Association of Software Architects
IS	Information Systems
IT	Information Technology
PDAP	Purpose Driven Architecture Practice
PM	Project Manager
PMO	Project Management Office
SME	Subject Matter Expert
TOGAF	The Open Group Architecture Framework
UML	Unified Modelling Language

ABSTRACT

After more than twenty five years of development many organizations still struggle to harness Enterprise Architecture's potential with, according to the literature, perhaps only five per cent of them succeeding.

Seeking the critical success factors (CSFs) of Enterprise Architecture, the research begins with a systematic analysis, to minimize subjectivity, of an eclectic but extensive collection of literature. With few extant sources directly addressing the question much of the data is discursive. Overall, this methodology-centric literature offers, as a result of an ascendant "Builders' paradigm", a plethora of advice on WHAT artefacts to create and HOW to create them, but little on the socially constructed realities of architecture.

While an initial list of CSFs is derived from the literature, tainted by the methodological discourse, they are individually inadequate and collectively less than a compelling explanation of this complex socio-technical phenomenon. So, concluding that EA's historical development has resulted in a deficient body of knowledge, and influenced by Hevner, March, Park and Ram's (2004) call for alignment with real world experience, the research embarks on the transdisciplinary engagement of primary sources, architects. Over 200 architects from 20 countries and 16 industries were surveyed while architects from both successful and failed programmes were interviewed.

The subsequent analytical integration and interpretation of literary, survey and interview data creates a new rich empirically-founded resource for researchers to exploit and extend that suggests the origins of many of the salient features of architecture. From this integrated analysis an insightful understanding of EA "practice" emerges – in the sense of a "tacit mastery" of the architects. The analysis concludes that the cultivation of a legitimized, purposeful, and socially reproduced *practice*, by the actions of the architects, *is* the foundation of success.

The core contribution of the research is a new sociologically-centric body of knowledge called Purpose Driven Architecture Practice (PDAP). This is a significant alternative 'paradigm' to the prevailing artefact centrality that dominates architecture. PDAP employs empirically substantiated success factors to provide a socio-centric practice framework that management and architects can use to develop an "enabling" enterprise architecture programme.

The thesis closes with a call for further research into the sociological aspects of architecture.

1 INTRODUCTION

“There is nothing more difficult to take in hand, more perilous to conduct, or more uncertain in its success, than to take the lead in the introduction of a new order of things.” (Niccolò Machiavelli 1469 – 1527)

1.1 Motivation

Over a period of more than a decade, while working for a major software vendor, I observed that many organizations were unable to make enterprise architecture (EA) work and I wondered why?

At one organization the question “What is the purpose of architecture at X?” (Name intentionally omitted) was written in large letters on a whiteboard in the EA office, where it remained on public view for months. While many passers-by commented on it being a good question, none ever offered an answer. One evening the question was surreptitiously erased, never to be raised again. The pursuit of that question ultimately led to this thesis.

John Zachman describes architecture as *“critical to the very survival of every Enterprise of any substance”* (1996) and Gartner predict that by 2020, *“the majority of Global 1000 organizations will support EA as a distinct discipline”* (Burton and Allega 2012: 3)

Yet, despite over twenty five years of development, deriving value from Enterprise Architecture (EA) remains a challenge (Ernst 2008) with many programmes failing to *“get beyond the end of the runway”* (Schekkerman 2005: 31). Sessions reports predictions that 40% of programmes will shut down within three years (2008: xv). While Ross, Weill and Robertson maintain that *“what makes this capability [EA] a competitive advantage is that only a small percentage of companies do it well – we estimate 5 percent of firms or less”* (2006: ix).

Although less overt than individual project failures, dysfunctional architecture programmes have profound implications for alignment, integration and agility (Lankhorst et al. 2005; Goethals, Snoeck, Lemahieu and Vandenbulcke 2006). They also degrade the organization’s social fabric *“influencing confidence, trust and risk-taking”* (Reich and Benbasat 2000: 108).

Many explanations are offered for these failures. Ambler (2003) points to management claiming that *“organizations put their efforts at risk by focusing on governance”*. Balabko and Wegmann (2006) suggest methodological failures leave architecture *“caught in the middle”* with misaligned requirements.

Perera's (2006) reports of power struggles are clearly sociological, while Armour, Emery, Houk, Kaisler and Kirk's organizational isolation is perhaps best characterized as an alignment issue:

"in many organizations the enterprise architecture effort is not tightly coupled and integrated with other enterprise level programs such as investment management and system development processes" (Saha 2007: 237).

Blumenthal (2007: 63) identifies poor focus and low quality output, *"Enterprise architecture plans are useless without clear relevant information"* and *"Unfortunately enterprise architecture has been focused more on creating information rather than on the value of that information."* O'Neill, Denford, Leany, and Dunsire (Saha 2007) similarly identify practice suggesting the onset of a kind of architectural mindlessness (Langer, Blank and Chanowitz 1978).

"Sadly, the current practice of EA seems preoccupied with "box-ticking" implementations of "best practice" frameworks, processes and toolsets. All too often enterprise architects are more concerned with creating endless documentation than any real architectural evolution." (Saha 2007: 194)

The diversity of these explanations makes them collectively bewildering. While each statement is doubtlessly authoritative, their specificity undermines any universal applicability. Plainly, *"Establishing crystal-clear style guides and standards"* (Rico 2006: ix) cannot address Perera's (2006: 65) inter-departmental struggles.

1.2 Developing the Question

This research began with a literature analysis designed to uncover potential critical success factors (CSFs). While furnishing a plethora of advice on execution and considerable speculation on the attributes of successful architecture this epistemologically challenging literature has, as Nakakawa, van Bommel and Proper (2011) note, its limitations.

Nakakawa et al. (ibid) categorize the literature as, (A) reporting drawbacks to be avoided, (B) providing guidelines for improving development, and (C) approaches to overcoming difficulties in development. They also note the significance of communication in general and that the category (C) literature often

remains ambiguous *“in generic form – remaining somewhat silent on some essential or operational details”* (ibid: 89). Langenberg and Wegmann (2004) make similar observations, concluding that *“Although a wide range of topics is covered, the discipline is lacking basic research.”* and that, reflecting Noran’s (2003) view on theoretical development, *“enterprise architecture is a new discipline and it will not mature unless substantial basic research will be made”*. The search for these neglected basics shapes this research.

Early in the research an initial list of CSFs is derived from the literature, but, tainted by a methodologically obsessed literary discourse, it is less than compelling. The de-contextualization of the composition process disrupts any sense of consistency and raises suspicions that the CSFs may only be indicative (rather than definitive) of more complex phenomena. Furthermore, even if accepted, the list only marginally extends an arguably unsatisfactory body of knowledge; a situation that Alvesson and Sandberg (2011) suggest is common when research generates *“questions by identifying or constructing specific gaps in the existing literature”*. Finally, the experiences that motivated this research seem at odds with *“the literature’s underlying assumptions”* (ibid: 249) that methodology can secure success.

As validation, the literary CSFs were tested by survey against real world experiences. The results were largely at odds, further highlighting the shortcomings noted by Nakakawa et al. (2011) and raising concerns about the utility of secondary sources and the appropriateness of objectivist methods.

With the secondary sources inconclusive, the research resorted to primary sources, practicing architects. Overwhelmingly the interviewed architects’ concerns are sociological. Although detectible in the earliest literature (Nolan and Mulryan 1987; Spewak and Hill 1992), sociological concerns are often marginalized by a methodological discourse using vague notions like *“soft skills”* or *“communication”*. However, the interview data clearly identifies a practice¹ problem space that promises *“more interesting and influential theories.”* (Alvesson and Sandberg 2011: 251).

With the sociological turn complete enterprise architecture practice becomes the focus of the research requiring the appropriation of a sociological foundation. Structuration theory (Giddens 1984) is used as a scaffold for a sociologically-centric theory synthesized from management and organization theory concepts.

¹ Practice is used here as defined in *“Strategy as Practice”* (Johnson, Langley, Melin and Whittington 2007), which is founded on the works of Giddens (1984), Bourdieu (1990), Schatzki (1996) and is similar to that employed by Pentland and Feldman (2003, 2007, 2008), Feldman and Orlikowski (2011) and others.

Discussed later, Structuration unites two fundamental social science concepts, agency and structure, in a relationship of recursive agent actions that establish and reproduce social structures. Structures are the institutions and moral codes that make up society by both restricting and enabling agents' behaviour. Structures are both the creators and the outcome of the practices that they organize. This duality is the core of Structuration theory.

Established in the reflexivity of day-to-day transactions structures have rules that are understood by the agents but, are typically not recorded or backed by sanctions. However, when these rules are broken people can react angrily.

Viewed through Structuration theory the van den Berg and van Steenbergen (2006) architecture maturity model can be seen as the intersection of two such structures – Architectural Thinking and Organizational Integration. Described later, this work is used to illuminate the axes of the Wagter, van den Berg, Luijpers and van Steenbergen's (2005) Quadrant model.

Architectural Thinking (ibid) is the positivist paradigm of system builders based on a methodological body of knowledge signified by the artefacts produced. The structure of an architecture community is replicated through the repetition of its methodology. The models, templates and instructions for creating artefacts and completing tasks are the ostensive aspect of the methodology's routines (Pentland and Feldman 2008) and one of the foundations of architecture as an organizational capability (Winter 2000).

It should be noted that, unlike other positivist disciplines – such as engineering for example – an architectural methodology does not guarantee a successful outcome. A point that suggests the existence of an additional dimension and that architecture methodology is more like a medical protocol, with generally similar but varying outcomes, than an engineering process.

Organizational integration (van den Berg and van Steenbergen 2006) is the application of Architectural Thinking to the real world. This requires the engagement of various communities who might not understand architecture or benefit from its application. Founded on a dialogue between IT and business, organizational integration is reproduced by the boundary-spanning routines of the methodology. The performative aspect (Pentland and Feldman 2008) of these routines is prescribed by the methodology, in the intent of their ostensive aspects. So, it can be seen that the theoretical architectural methodology, the ostensive aspect of routines and their execution (performative aspect) have separate

existences. The first is the purpose of the routine and the second the execution.

Recognizing this separation, the investigation and uncovering of the fundamental theories of enterprise architecture practice becomes the focus of the research. The separation of ostensive and performative aspects is crucial to the sensemaking (Weick 1988) of the variable performance of theoretically consistent routines. This variability, as demonstrated later by the empirical data, is the “Achilles Heel” of methodological claims to be the CSF. This is not to say that methodology does not contribute to success, plainly it does, but perhaps not only in the way one might expect. Within this context, and not bound any particular persuasion, this research pursues two questions.

One can be considered theoretical:

What are the critical success factors of enterprise architecture?

And the other practical:

How these factors are influenced by, or influence, the practice of architecture?

1.3 Definitions

The research takes a transdisciplinary approach, using a variety of quantitative and qualitative techniques; a choice made necessary by the need to analyse and interpret disparate literature, survey and interview data. Consequently concepts and terminologies from a range of disciplines including IS Studies, Management Studies and Sociology are encountered in this thesis. These concepts and related terminology are defined in this section.

1.3.1 Architecture

The definition of Enterprise Architecture is a contested space that blurs the boundaries of definition, purpose and scope. Taking care not to constrain the research with inadequate scope, perspective based definitions are used. The terms enterprise architecture or architecture in an Information Systems context is considered to be any of the following in Table 1.

Table 1: Perspective-Based Definitions of Architecture

Perspective	Definition
Business Owner	A structure for value creation
Business Planner	A strategic management tool used to create the architectural blueprint for value creation and an attendant sustainable competitive advantage.
Business System	The architectural blueprint that fuses organization, process and information

Designer	technology into an integrated business whole.
Business System Builder	Provides the methodology to develop business solutions to achieve the integrated business whole.
Architect	The activity (practice) necessary to design and implement the architectural blueprint.
Enterprise	<i>“creates the ability to understand and determine the continual needs of integration, alignment, change and responsiveness of the business to technology and the market place”</i> . (O’Rourke, Fishman & Selkow 2003)

There is ample precedence for defining architecture from a number of perspectives. Nakakawa et al. (2011: 84) for example opt for theoretical and practical definitions, *“the normative restriction of design freedom”* and *“a consistent and coherent set of design principles”* drawn from Dietz (2008). Bernus, Nemes and Schmidt’s Handbook of Enterprise Architecture (2003), by assigning chapters to, Corporations, Consultants and Engineers, Managers and Project Leaders, Researchers and Graduates, Business Managers and IT Vendors (ibid: VI) implicitly employs perspectives.

Arguably, any methodology that employs meta-models is multi-perspective. TOGAF for example has Business Process, Applications, Data and Technology perspectives (Schekkerman 2004: 125). The Nolan Norton Framework shifts the viewpoint from the technical offering five perspectives, Content and Goals, Architecture development process, Architecture process operation, Architectural competencies and Costs / Benefits (Lankhorst et al. 2005: 30), Bernard has the EA3 cube (2005: 52), Grigoriu (2007: 87) value-driven perspectives and Zachman his framework, while Tambouris, Zotou, Kaalpokis and Tarabanis (2012) define architecture as activity which perhaps could be considered an observer’s perspective.

“Enterprise architecture (EA) implementation refers to a set of activities ultimately aiming to align business objectives with information technology infrastructure in an organization. EA implementation is a multidisciplinary, complicated and endless process” (ibid: 128)

Greefhorst and Proper (2011) arguably add depth to this “activity perspective” by suggesting architecture has three roles, regulative, instructive and informative; which could be considered purpose nuanced perspectives.

So a multi-perspective definition is credible. It seems that what constitutes architecture depends on its intended use. This makes purpose, scope and definition perspective-dependent and conceptually inter-dependent suggesting that each instance of architecture is its own truth.

Later in Chapter six when the structure of architecture is discussed we will see why it is important to

consider architecture as a continuum that covers everything from the technical to the to the enterprise level. And why failing to accept this view may undermine efforts to understand architecture.

1.3.2 Methodology

Methodology is considered to be an ordered set of related routines for developing artefacts for the conduct and governance of architecture. The composition of this set of routines may be determined by the organization's contextualization of a generic methodology like TOGAF. In instances where a template approach is taken to methodology opportunities for contextualization can be limited.

Some methodologies, TOGAF or RM-ODP for example are published by organizations. Commercial methodology publications, (Spewak and Hill 1992; Cook 1996; Carbone 2004; Theuerkorn 2005; Minoli 2008; Schekkerman 2008; Evans 2010; Woodworth 2013 and many others), that elaborate their authors' methodologies, the most accessible literature for practicing architects, are a key research resource.

1.3.3 Programme

An Architecture Programme is defined as the organizational structure through which architecture is enacted. It is concerned with but independent of and different from the methodology and the daily conduct of its architects. However, as the organizing instrument of intent, a programme is also considered a structure in the sociological sense.

1.3.4 Agreed Programme Strategy

An Agreed Programme Strategy is an agreement between the business and the architects that defines the purpose of the architecture thus setting its primary attributes of scope and purpose. This establishes the programme's formal authority and responsibilities. We will see that programmes often operate with only a vague strategy and tacit authority.

1.3.5 Alignment

Alignment, a term frequently encountered in IS literature, has many definitions. Reich and Benbasat's (2000) definition, "*the degree to which the information technology mission, objectives, and plans support and are supported by the business mission, objectives and plans*", is favored. Because its bidirectional trait reflects Henderson and Venkatraman's (1993) Strategic Alignment model presented later (Figure 2) which is used to contextualize EA.

1.3.6 Structuration Theory

Structuration theory developed by Giddens (1984) unifies two competing sociological paradigms -

Agency that presumes social phenomena results from agents' actions, and Structure which posits that the agent's influence is minimal.

Structuration leans heavily on the concept of duality. *"According to the notion of the duality of structure, the structural properties of social systems are both the medium and the outcome of the practices that they recursively organize."* (ibid: 25).

The elaboration of some Structuration concepts is necessary.

Agents/Actors	<i>"All humans are knowledgeable agents."</i> (ibid: 281)
Structures	<i>"The most important aspects of structure are rules and resources recursively involved in institutions"</i> (ibid: 24) <i>"the properties that make it possible for discernibly similar practices to exist across varying spans of time and space and which lend them a systemic form"</i> (ibid: 17)
Legitimation	The process by which an act becomes accepted and normative by a group.
Signification	<i>"Structures of signification always have to be grasped in connection with domination and Legitimation"</i> (ibid: 31)
Modality	<i>"Actors draw upon the modalities of structuration in the reproduction of systems of interaction, by the same token reconstituting their structural properties."</i> (ibid 28) Modalities can be considered as the exercise of the rules and or resources of a structure.
Durée	<i>"The durée of day-to-day life occurs as a continuous flow of intentional action."</i> (ibid: 3, 8)
Social Reproduction	<i>"the day-to-day activities of social actors draws upon and reproduces structural features of wider social systems"</i> (ibid: 24)
Reflexivity	<i>"should be understood not merely as 'self-consciousness', but as the monitored character of the ongoing flow of social life"</i> (ibid: 3)

Structures both function through and are created by social reproduction which occurs largely unnoticed in the durée of daily activity. *"The most important aspect of structures are rules and resources recursively involved in institutions. Which by definition are the more enduring features of social life."* (ibid: 24)

The significance of this lies in Giddens' observation that *"many seemingly trivial procedures followed in*

daily life have a more profound influence upon the generality of social conduct,” (ibid: 22) And that *“the prescriptions involved in the structuring of daily interaction are much more fixed and constraining than might appear from the ease with which they are ordinarily followed. “* (ibid: 23)

To these curtly described concepts we add power. For Giddens there is no more elemental concept than power (ibid: 283). Ubiquitous and often subtle it is *“the capacity to achieve outcomes”* (ibid: 257).

Structuration illuminates the mechanics of power, describing how it flows *“seamlessly through”* and is legitimized by structures of domination. While structure and authority are intuitively obvious, legitimacy is perhaps not so. However, legitimation cannot be separated from the structures of domination - *“it is the means of consolidation of the governmental authority”* (ibid: 267).

Structuration theory is not without its critics. John B. Thompson (1989) in particular considers Giddens’s concept of rules too broad and the theory too general. However, Structuration has been used in a variety of IS research (Orlowski and Robey 1991; Orlikowski 1992; Leidner and Kayworth 2006 and others).

1.3.7 Organizational Capability

Winter defines Organizational Capability as:

“An organizational capability is a high-level routine (or collection of routines) that, together with its implementing input flows, confers upon an organization’s management a set of decision options for producing significant outputs of a particular type.” (2000: 983)

Felin, Foss, Heimeriks and Madsen (2012) decompose capability, suggesting three “microfoundations”, - individuals, processes and structure - that are *“enmeshed in different interactions within an organization (individuals and individuals, individuals and processes, etc.)”* (ibid: 1357). While organizational structure in the managerial sense is not the focus of this research, social structures, individuals, in the guise of architects, and processes, as methodology are.

Conceptually microfoundations are the elemental interaction of methodology, knowledge and authority when a dialogue is a *“process of collective thinking and generative learning”* (Brown and Isaacs 1996: 2).

1.3.8 Organizational Routines, Practice and Mastery

Organizational Routines are defined by Feldman and Pentland (2003: 95) as *“repetitive, recognizable patterns of interdependent actions, carried out by multiple actors”*. Generally considered sources of stability, inertia, deskilling, de-motivation and mindlessness (ibid: 98). Feldman and Pentland surmise the traditional view of routines has three forms, individual habits, which characterize actors as the limbs of the organization; performance programs, which can be likened to scripts and routines as genes in an evolutionary analogy.

Extending the traditional notion of routines, Feldman and Pentland, by the addition of subjectivity, agency and power, noting that *“a routine is energized and guided by the subjective perceptions of the participants”*, (ibid: 109) see routines as more flexible than is often assumed:

“Another problem is that the premise of the traditional story is contradicted by observational data. Organizational routines are certainly repetitive, but they are not necessarily fixed or unchanging.” (ibid: 100).

This research entertains all four views noting that *“our subjective understanding and interpretation is the glue that binds the actions into the patterns we recognize as the routine”* (ibid: 109) and is germane to participants’ understandings.

Pentland and Feldman (2008) attribute routines with two aspects: ostensive, which is the understandings of the participants, the *“embodied and cognitive understandings that guide actions taken in the enactment of routines”* (ibid: 242); and performative which pertains to their actual execution. They note how the performative aspect modifies the ostensive as *“participants construct routines from a repertoire of possibilities”*.

They also connect organizational routines and practice (Bourdieu 1990) through their performative aspect, noting how the self-monitoring (reflexivity) of participants (Giddens 1984) makes the performative aspect *“inherently improvisational”* (Feldman and Pentland 2003: 102). This inherent improvisation of the performative connects routines with the notion of (tacit) mastery.

Practice as a sociological phenomenon a *“tacit mastery”*, as opposed to the application of a formal body of knowledge, has struggled for acceptance (Toulmin 1991).

“Since the 1970s, the social sciences and humanities have been finally

escaping the old Enlightenment faith in detached and abstract rationalism that had become so dominant for the preceding two centuries” (Johnson, Langley, Melin and Whittington 2007: 31).

Giddens, Taylor and Bourdieu among others make practice the “*central social phenomena by reference to which other social entities are understood*” (Schatzki 1996: 11). Integral to this concept are three ideas “*that situated actions are consequential in the production of social life*”; that “*dualisms are rejected as a way of theorizing*”; and that “*relations are mutually constitutive*” (Feldman and Orlikowski 2011). Although theorists may work the concept differently the principle of consequentiality is found throughout practice theory (ibid: 1241). This “*nature*” of practice has implications for architecture.

The sociologically driven, mutually constitutive ostensive and performative aspects of routines are central to the efficacy of the modalities of structures like organizational capabilities and architectural methodologies. With the former, organizational capability, being the performative impetus and the latter, architectural methodology, being the ostensive organizer. Architecture practice in the sense of applied mastery is both driven by and drives this phenomenon.

Organizational Capabilities and as such, architectural methodologies, are a collection of routines on whose performative aspect their success depends. It is the execution of these routines the “*situated actions*” that replicate the “*social life*” of the programme, making the programme and the execution of the methodology “*mutually constitutive*”. In short, practice is the performative adaptation of the methodology’s routines to a particular situation. So, the methodology affects the programme’s practice and the execution of the practice affects the methodology, either enhancing or degrading the programme’s and architecture’s legitimacy.

By way of definition Bourdieu is invoked, who in *The Logic of Practice* (1990: 52) develops habitus, a constructed “*durable transportable set of dispositions*”, as a container of tacit mastery that enables the proficient performance of tasks, an:

“unconscious orchestration of action that does not presuppose agency or intentionality ... habitus is a set of internalized predispositions [that] enables actors to cope with the unexpected and changing situations by invoking non-deliberate responses that, while always containing a degree of local improvisation, nevertheless reproduce the regularities

that make most human action appear eminently sensible or reasonable.”

(Chia 2004: 30)

Mastery, a level of competence at which the practitioner achieves insight beyond that *“taught in the classroom as bodies of formal, generalizable knowledge”* (Whittington 1996: 733) is acquired through *“a workplace learning process and reflection that improves upon the classroom education”* (Raelin 2007: 503).

Intuitively mastery might be considered the attribute of an individual. However, it should not be misconstrued as limited to individual agents. Many practices are shared or require a cooperative group. Ballroom dancing for example or, as Barnes (2001: 18) suggests, the manoeuvre of a troop of cavalry. Architecture is such a shared practice, in two senses. Like Barnes’s cavalry the architects must manoeuvre in unison, but also in a more transactional sense with those less closely choreographed agents, the “stakeholders,” who in turn have their own practice.

1.3.9 Architecture as Practice

The literature positions architecture as a methodological business strategy execution capability. However, the epistemological difficulties of IS research observed by Kanellis and Papadopoulos (Carter-Steel and Al-Hakam 2009: 8) and by O’Neill et al. (Saha 2007: 193) warn us against accepting architecture as a one-dimensional concept. Moreover, if the idea that architecture is simply the application of a body of knowledge (methodology) were correct then success would be routine. However, the survey (Chapter 4) and the interviewee (Chapter 5) data demonstrate that this is not so.

While the literature (Chapter 3) is largely silent on the operational application of architecture (Nakakawa et al. 2011: 89) the interview data strongly suggests that this is a critical element. Johnson, Langley, Melin and Whittington (2007: 3) report a similar situation with business strategy research:

“those who research strategies and strategy processes will readily agree that ‘doing’ in relation to strategy is important, but often they seem not to recognize the full significance of this as a research issue. Either they tend to assume what people do, attributing behaviour on the basis of observed outputs and deducing from these the actual activity; or they raise ‘doing’ to a level of abstract categorization, such as planning or change.” (ibid: 3)

Such methodological kinds of assumptions deny a social context that the interview data (Chapter 5) insists is vital. This leaves a situation that requires a (re)conceptualization of architecture as “*something that people do*” (ibid) rather than “*something organizations have*” (ibid).

The concept of architecture as *practice* (Toulmin 1991) resonates well with O’Neill et al.’s (Saha 2007: 193) pondering on EA as noun or verb and reflects a distinction that the Integrated Architecture Framework deems necessary to articulate “*between the content of architecture and an architecture process*” (Op’tland, Proper, Waage, Cloo and Steghuis 2009: 95).

The concept of *practice*, the differentiator between theoretical methodological execution and reality, is crucial to our analysis, fundamental to understanding methodology, contributes to the explanation of organizational capabilities and possibly accounts for many of the discipline’s ambiguities. The promise of resolving these issues draws the thesis to Johnson et al.’s (2007) definition of Strategy Practice: “*a concern with what people do in relation to strategy and how this is influenced by and influences their organizational and institutional context*” (ibid: 7). And so *practice* in an architecture context is considered as:

Concerning what people do in relation to architecture and how this is influenced by and influences their organizational and institutional context.

The rejection of architecture as simply the application of methodology aligns with the research’s multi-perspective definition of architecture allowing a sociological refocusing.

1.3.10 Communities of Practice

The Community of Practice (COP) concept was developed by Lave and Wenger (1991) when they concluded that learning occurs mostly amongst students. Wenger went on to define COPs as a “*group of people informally bound together by shared expertise and a passion for a joint enterprise*” (Wenger and Snyder 2000).

This research considers three such communities. (1) The business which, while considered as one often consists of several. (2) The IT Department, which differs from others in the scope of its responsibilities and in its supportive function. And (3) the architects, who while often sharing an affinity with IT, have a different mission.

1.3.11 Situational Learning

Situational Learning was proposed by Lave and Wenger (1991) as a model of learning in communities of practice. They argue that learning is more than just the transfer of information between individuals. It is a social process embedded in a particular environment. The members of the communities learn by socialization and imitation. For example, orchestras rehearse together.

1.3.12 Knowledge Brokers

Pawlowski and Robey (2004: 646) describe the role of Knowledge Brokers as facilitating *“the transfer of knowledge among organizational units, thereby contributing to organizational learning”*. They note that, while knowledge management and transfer are significant academic topics, that the role of IT professionals is not well understood.

Knowledge Brokers are organizationally positioned to transfer knowledge between communities of practice. They translate words that *“have a shared meaning only within the specific “communities of knowing” where those meanings are socially constructed”* (Boland and Tenkasi 1995) for other communities. Architects, positioned as suggested by the Enterprise Architecture in Context diagram (Figure 2, below), are Knowledge Brokers who span COPs.

The interview data demonstrates that knowledge transfer is elemental to architecture *practice*, with meaning and medium being socially constructed by architects using their methodology. Furthermore, for the methodology to be effective, its artefacts must be Boundary Objects.

1.3.13 Boundary Objects

A Boundary Object, introduced by Star and Griesemer (1989), is an artefact the structure of which is:

“common enough to more than one world to make them recognizable, a means of translation. The creation and management of boundary objects is key in developing and maintaining coherence across intersecting social worlds” (ibid: 393)

Boundary Objects can take any form around which interactions can be organized. This thesis argues that one of the functions of architectural methodology is the development of boundary objects and that *“Architectural documents regularly function as boundary objects. Templates can be regarded [as] standardized forms and an architectural framework provides coincident boundaries”* (van Steenberg 2011: 152). While van Steenberg’s observation is about knowledge integration through the strategic,

tactical and operational levels of architecture, the work of Abraham, Niemietz, De Kinderen and Aier (2013) suggests that her point is more generally applicable to architecture practice. And that architectural descriptions in the form of models and views that “provide stakeholders with insight in [to] the potential impact on their concerns” (Op’tland et al. 2009: 61) are such boundary objects.

1.3.14 Structure, Routines and Capability

The theoretical concepts discussed above can be combined to suggest a map of architecture *practice*. In Figure 1 below, the major sociological structures of architecture, the community of practice, the practice and the *durée* of realization (execution of architecture), are overlaid on a theoretical schematic of methodological architecture implementation establishing an integrated socio-technological map to support our considerations.

The map demonstrates how sociological structures influence all aspects of the *practice* of architecture. And how through its programme, agents and methodologies, architecture has the *microfoundations* of an organizational capability (Winter 2000) and so should be regarded as such.

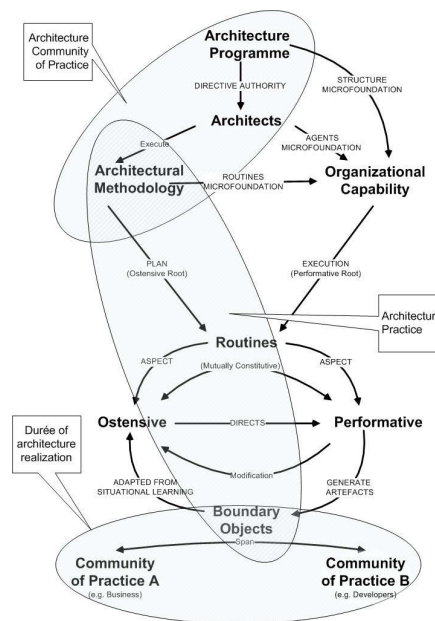


Figure 1: A Socio-technological Map of Architecture

The arrows with labels in small text capital letters indicate the source of the aggregated components of their target entities or attributes; labelled with large bold letters. For example, the Structure, Agents and Routines microfoundations have their origins in the Architecture Programme’s Architects and Architectural Methodology. These are aggregated to create an Organizational Capability. Arrows with

mixed case labels “Execute” for example, indicate the realization or modification of states, while text in brackets are notes. The ellipses indicate the sociological structures of architecture *practice*.

The architecture programme provides the *microfoundations* (Felin et al. 2012) of the organizational capability; the programme is the structure that enmeshes the “*different interactions*”; the architects are the agents, the “*individuals*”; and the architectural methodology the “*processes*” (ibid: 1357).

The actions of the architects as Knowledge Brokers (Pawlowski and Robey 2004) are directed by the programme and fashioned by the execution of the methodology that supplies and prescribes the *routines*. The methodology is a set of organizational *routines*, the execution of which is the exercise of the capability. The *routines’ ostensive* aspects are the methodology’s theoretical definition of the *routine*, its patterns, templates, instructions and the understandings around the *routine*.

The *performative* is the execution of the *routine*, which can literally be the creation of an artefact or a particular behaviour. Iterative executions fuel a mutually constitutive cycle in which the adaptation of the *performative* aspect of the *routine*, governed by the *ostensive*, results in the refinement (modification) of the *ostensive* aspect by the *situational learning* stimulated by the artefact’s introduction. To be effective the artefacts produced by the *routines* must be *boundary objects* that span *communities of practice*. Collectively the *performative* is the *durée of realization* that delivers the target state architecture.

1.3.15 Critical Success Factors

The final and perhaps least epistemologically related concept in this research is the Critical Success Factor. Proposed by D Ronald Daniel (1961) and developed by John F. Rockart (1979):

“Critical success factors are, for any business, the limited number of areas in which results, if they are satisfactory, will ensure successful competitive performance for the organization. They are the few key areas where “things must go right” for the business to flourish. If results in these areas are not adequate, the organization’s efforts for the period will be less than desired. As a result, the critical success factors are areas of activity that should receive constant and careful attention from management.” (ibid: 85)

This business concept has been applied to many domains. Wagter et al. (2005: 45) extend the concept to architectural maturity suggesting two critical success factors “*architectural awareness*” and “*integration within the organization*”.

Commercial success comes from the creation of value, something that detractors note, architecture often struggles to demonstrate. “*It is increasingly difficult, due to the economic climate, to justify any investment that does not have a good Return on Investment*” (Schekkerman 2005: 31).

But, value is multi-dimensional. While Owners seek direct value creation, ROI, cost reduction and such financial metrics (Rico 2006; Ross and Petley 2006; Blumenthal 2007), Planners and Designers include indirect and intangible value like the creation of competitive advantage (Boar 1996; Ross et al. 2006), increased agility (Riempp and Gieffers-Ankel 2007) and improved integration (Minoli 2008). Given architecture’s multiple perspectives, CSFs differ with perspective. This is salient to understanding the literature and the development of a theory of architecture *practice*.

With a focus on execution van den Berg and van Steenbergen (2006) decompose the axis of Wagter et al.’s (2005) Quadrant model with Key Areas. These are “*areas that must be represented in performing the architectural functions*” (2006: 83) evoking Rockart’s (ibid) “*key areas where ‘things must go right’*”, the same point if not the same words. This research employs van den Berg and van Steenbergen’s (2006) Key Areas as a synonym for architecture success factors, but, concludes that while epistemologically useful, they are not necessarily comprehensive and may be only indicative.

1.4 Contribution of this Thesis

There are sound economic and academic reasons for studying Enterprise Architecture. From an economic standpoint the scale of IT investment and its attendant risk justifies the effort.

Academically the literature is mostly concerned with the mechanics of implementation. There are few attempts to systematize a universally applicable body of knowledge and little in the way of empirical data about architecture practice or architects. While offering much practical advice, the literature’s disorder reduces its utility. It is without doubt that architecture can make a difference, so gaining insightful understanding is important. However, isolated heuristic actions, regardless of how successful, do not constitute an understanding.

This thesis contributes several new bodies of knowledge to the study of enterprise architecture:

First, it furnishes an analysis that explains many of EA's salient features, how they came to be and how they have influenced the development of the architecture.

Secondly, it positions architecture in the broader enterprise context demonstrating its interactions and offering models that predict its evolution and identify its dialect mechanisms.

Thirdly, it presents substantial compendia of primary and secondary data.

Finally, it presents a theory of enterprise architecture practice PDAP (Purpose Driven Architecture Practice) as an alternative socio-centric paradigm for theorizing about and implementing architecture.

1.5 Benefits

This research provides an integrated body of knowledge, rigorously derived from a substantial compilation of data, which explains, predicts and designs architecture. Unhampered by the preconceptions of the existent literature, this new body of knowledge provides a lexicon and theoretical alternative perspective for the consideration of architecture. These aside, the data accumulated by the research constitutes a significant exploitable resource for both scholars and practitioners. As a holism the research begins the task of demystifying "soft" skills and disambiguating the essential operational details that Nakakawa et al. (2011) seek. The result is the kind of basic research that EA needs in order to mature (Noran 2003).

The research's unifying theory elucidates both the thematic and detailed literary advice. And by clearly identifying the antecedents and path to success, it provides a pragmatic foundation for the development of mastery. Industry benefits by the provision of an antidote for the preoccupation "*with "box-ticking" implementations of "best practice" frameworks, processes and toolsets*" (O'Neill et al. 2007) and the prospect of new approaches to EA management.

The potential for socially attuned architects to align organizations is considerable and the value of increasing the percentage of firms that effectively exploit architecture from 5% to even 10%, while impossible to quantify, is considerable.

1.6 Outcomes

The research explicates and inter-relates its insights into a new body of knowledge that includes:

- A set of critical success factors derived from the literature and survey data
- Consolidated tables of practical recommendations
- A number of models that demonstrate the nature and structure of architecture
- A discussion of practice for practitioners and scholars
- A sociologically-centric theory of enterprise architecture practice
- An approach for enabling an architecture programme using Purpose Driven Architecture Practice (PDAP).

1.7 Thesis Organization

This section details the structure of the thesis. Chapter one introduces the issue of architecture programme failures and key concepts of the analysis.

Chapter two discusses and contrasts research design epistemologies, techniques, outputs and limitations before concluding that this research requires a transdisciplinary approach. The use of secondary sources and the analytical challenges of disparate data sources are also discussed.

Chapter three reviews the literature arguing that Zachman's framework established a positivist tradition and instigated construction as an analogy resulting in a closed body of knowledge. A set of observations are extracted from the literature. From this data the Evolution of Architectural model, a list of Critical Success Factors (CSFs) and contextually unifying Business-IT Dialogue model are derived. The analysis concludes that architecture practice is only discursively addressed by a literature offering only thematic consensus.

Chapter four presents the results of a survey of architects' opinions and experiences. These are contrasted and synthesized with the literary data. The chapter concludes that the critical success factors cannot be authoritatively deduced by positivist means.

Chapter five provides the contexts for a series of interviews with practicing architects.

Chapter six presents the research findings and associated propositions, but does not offer any conclusions.

Chapter seven draws a set of conclusions from the findings organizing them with their practical application in mind. It goes on to speculate on how that practical application might be effected.

Chapter eight discusses the research findings in a broader, less implementation focused, context and suggests that the same sociological mechanisms proposed for the implementation of the findings in chapter seven may actually be undermining architecture in some organizations. The chapter closes by highlighting the limitations of the research and suggesting further research opportunities.

2 RESEARCH DESIGN AND DATA COLLECTION

"The important thing in science is not so much to obtain new facts as to discover new ways of thinking about them."
(William Bragg physicist 1890 –1971)

2.1 Overview

Hevner, March, Park and Ram (2004) see organizations as complex structures of people, technology and systems in which strategy, information systems and organizational infrastructure must align. They also suggest that Information Systems (IS) research *"involves two complementary but distinct paradigms"* - Design Science, concerned with the creation of artefacts to meet business needs, and Behavioural Science which explains social phenomena. This complexity leads to such *"feelings of inadequacy"* that some conclude that IS lacks a theoretical core (Kanellis and Papadopoulos 2009: 2) necessitating the explanation of the research axiology and philosophy.

Architecture is positioned as an alignment tool, using Henderson and Venkatraman's (1993) Strategic Alignment model as amended by Hevner et al. (2004) and Ross et al.'s definition of EA *"the organizing logic for business processes and IT infrastructure"* (2006: 9). Such a tool is an *"appropriate way for an organization to: deal with inflexibility in its business operations; manage organizational changes; master organizational complexity and effectively align all its aspects"* (Nakakawa et al. 2011: 84).

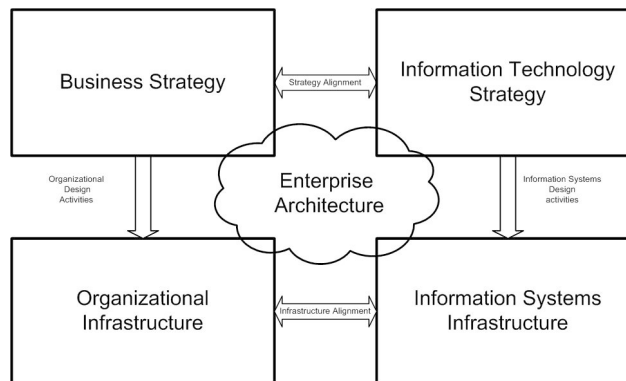


Figure 2: Enterprise Architecture in Context
Adapted from Henderson & Venkatraman (1993) and amended by Hevner et al. (2004)

Figure 2 positions architecture as a business management tool for the alignment (Reich and Benbasat 2000) of physical and organizational resources. This problem space poses a variety of questions. Some can be satisfied empirically, others only interpretatively.

This research uses multiple levels of analysis to make sense (Weick 1988) of architecture *practice*,

methodology's (Bernard 2005; TOGAF 2007; Grigoriu 2009 and many others) role in *practice* and influence on its execution.

At the macro-level the research considers functions like enterprise system design, project direction and governance as organizational phenomena that influence and are influenced by the actors involved. Conversely, at the micro level it examines routines (Feldman and Pentland 2003) formal and informal and their adaptation by and effect on the organization and individuals. As a result the research touches on many socio-technical aspects of architecture and it does so with the intent of uncovering what makes an architecture programme successful.

This organizational complexity, combined with Hevner's characterization of IS research in general and the objectives of this research in particular, suggest the need for paradigmatically diverse methods. The maintenance of a cohesive axiology in such circumstances is a delicate undertaking that requires careful management. For this research there are two questions:

What are the critical success factors of enterprise architecture?

How these factors are influenced by, or influence, the practice of architecture?

Epistemologically these two questions are related, but quite different. The first is an exploratory, an analytical "what" question. Theoretically it does not extend beyond identification and description. From a utility perspective the second is the greater of the two. But is predicated on the resolution of the first, making it a dependent variable. Without the first there can be no second and yet the two require different theoretical approaches.

Surveying IS theory Gregor (2007: 620) suggests a taxonomy of five theory types, Analysis, Explanation, Prediction, Explanation and prediction, and Design and action. Understanding these theoretical perspectives affords an easier understanding of the development of this body of knowledge and of the selection of the research methods.

Table 2: Gregor's Taxonomy of IS Theories

Theory Type	Attributes
I. Analysis	Says what is. The theory does not extend beyond analysis and description. No causal relationships among phenomena are specified and no predictions made.
II. Explanation	Says what is, how and why, when and where. The theory provides explanations but does not aim to predict with any precision. There are no testable propositions.
III. Prediction	Says what is and what will be.

	The theory provides predictions and has testable propositions but does not have well-developed justificatory explanations.
IV. Explanation and prediction	Says what is, why, where, when and what will be. Provides predictions and has both testable propositions and causal explanations.
V. Design and action	Says how to do something. The theory gives prescriptions (e.g. methods, techniques, principles of form and function) for constructing artifacts.

Motivated by practical utility and compelled, by the complexity noted above, the research employs perhaps all these theoretical perspectives as it iteratively develops its body of knowledge. (Figure 4 below) The germinal analysis picks its way through the data in a quest to describe and account for salient features of architecture, its Design Science bias, for example. The discursive nature of some of the resulting explanations spawns generalizations and predictions that ultimately give form to a “Design and action” theory of Enterprise Architecture practice called Purpose Driven Architecture Practice (PDAP).

While this theoretical fluidity might be a concern, axiological cohesion is maintained in each step by a data driven analysis, of the antecedent, that sources its data closer to primary sources. The result is a body of knowledge that, as advocated by Gregor (2007: 611) *“encompasses all theory types.”*

2.2 Paradigms

There are two fundamental research paradigms Quantitative and Qualitative. The merits, dichotomies and tensions of these have been discussed by many scholars (Miles and Huberman 1994; Silverman 1997; Crotty 1998; Creswell 2003; Leedy and Ormrod 2005). Quantitative research has a well established axiology that emphasizes precision, reliability and repeatability. Its positivist view concentrates on empirical data deliberately divorcing phenomena and context. While it is almost universally accepted Quantitative research has limitations, namely:

“positivism ... Fuelled by a desire to represent a closure on reality, it frequently involves an unreflexive use of methods (e.g., experiments, hypothesis testing, quantification) assumed to be successful in the natural sciences and readily transferable to the domain of the social sciences” (Knights 1992: 514).

Qualitative research is less well accepted. Its constructionist core proposes that reality and meaning are human constructs contrary to the positivist view of truth as an absolute awaiting discovery. The Qualitative approach induces the general from the particular, contrary to the Quantitative paradigm of

specific deductions from the general. Complex real world problems, like EA, have given rise to transdisciplinary approaches that employ both paradigms. Fine (2007) defines transdisciplinary as:

“a process of integrating different approaches to resolving complex, real world problems in a humanly satisfactory way.” (ibid: 18)

Albuquerque, Simon, Wahoff and Rolf (2009) note that IS research, *“constantly faced with the challenge of addressing the complexity of sociotechnical systems”*, has often resorted to using:

“concepts and methods from a number of different disciplines and research traditions, putting them together to address issues that arise in the interplay between ICTs and social and organizational practices” (ibid: 91).

And they argue that:

“diversity implies moving from a concept of IS as a discipline with fixed boundaries and theoretical core to that of IS as a transdisciplinary field of studies” (Albuquerque et al. 2009: 92).

The transdisciplinary paradigm allows:

“problems to be researched [to] originate from nonscientific application contexts ... they are formulated in these contexts independently of scientific theories and disciplinary definitions” (ibid: 91).

2.3 Design

This research employs theories from a number of disciplines including IS Studies, Organization and Management Science and Sociology, a diversity that challenges axiological cohesion. Methods cannot be haphazardly adopted or manipulated without consideration of their epistemology. To ensure consistency the Information Systems Research Framework (Hevner et al. 2004) is used for referential governance.

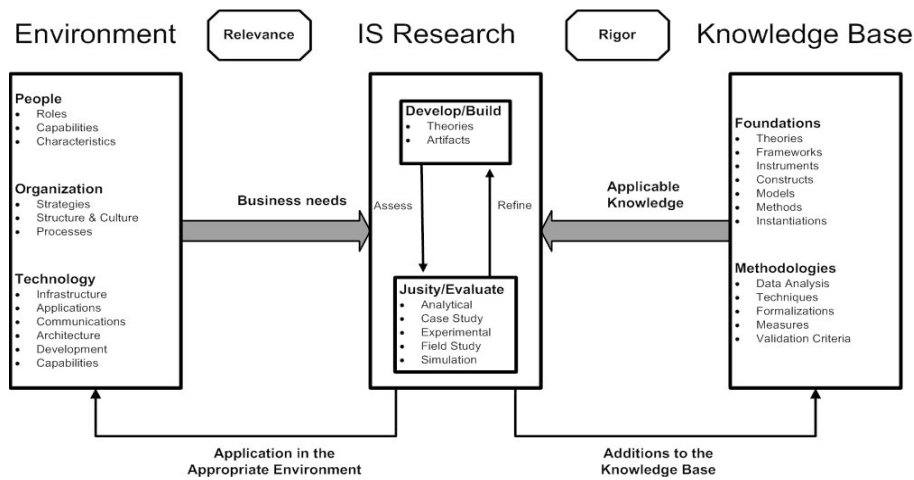


Figure 3: Information Systems Research Framework (Hevner et al. 2004)

“Theories posed in behavioral science are principled explanations of phenomena. We recognize that such theories are approximations and are subject to numerous assumptions and conditions. However they are evaluated against the norms of truth or explanatory power and are valued only as the claims they make are borne out in reality.” (Hevner et al. 2004)

2.4 Process

Guided by Hevner et al.’s (2004) framework, the research evolved as insights emerged and validations and triangulations were pursued. This section describes that development and the intermediate findings, models and conclusions. The sense-making (Weick 1988) required an explanation-building approach, as advocated by Yin (2009), in which “[empirical] evidence is examined, theoretical positions are revised, and the evidence is examined once again from a new perspective” (ibid: 143).

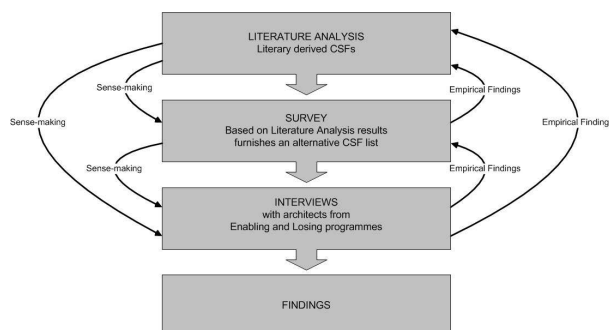


Figure 4: Research Process

The process is summarized above (Figure 4). The research develops theoretical propositions reflective of all of Gregor's (2007) IS theory types. As findings emerge they are used to test propositions and validate data in an exploratory process that culminates in a sociologically-centric theory of EA practice. While many of the "intermediate" theories are perhaps insufficiently complete to be tested as stringently as Gregor (ibid) suggests they are germane to the sense-making process. Furthermore, these are less important than the final product, a class V Design and action theory of EA practice that "*says how to do something*" and "*gives prescriptions for constructing artifacts*" (ibid).

An initial meta-review was conducted. According to Bostrom, Gupta and Thomas (2009: 20), meta-review is "*distinct from meta-data analysis, [it] provides an overview of a specific topic, area, or domain. Meta-reviews aim at producing a clear understanding of the current status for the domain*". The meta-review produced a database to which a variety of quantitative and qualitative techniques were applied.

While the accumulated expertise of over 300 authors is itself a valuable resource, the meta-review lacks the anticipated fidelity. The analysis concludes that the impositions of the Builders' paradigm have reduced the literature to a closed system of generational recursion, and suggested that CSFs derived from the literature might be similarly repressed. So, corroborating data was necessarily sought from primary sources, practicing architects.

In phase two, more than 200 architects from 20 countries working across 16 different industry sectors, including government, in organizations with anything from a handful to 300,000 employees responded to an online survey. Broadly speaking, the survey data does not reflect the literature. While both data sets suggest a mixture of technical and sociological factors their intersection is only sociological.

The limitations of quantitative techniques, even with primary sources, suggested the need for deeper investigation. To minimize bias, unstructured interviews were conducted. Also, given the complexity of the problem space, it was considered that insights might be gained by a "*two tail*" (Yin 2009: 59) comparison of successful and unsuccessful programmes.

The programmes of a number of Australian organizations were assessed using van den Berg and van Steenberg's Architectural Review (2006: 61) questions to position them on the Wagter et al. (2005) Quadrant model. Architects from programmes in all quadrants were then recruited.

The Architectural Review (ibid) is a concise method that typically produces a definitive result. Had an

assessment proved inaccurate the only consequence would have been the need to procure another interviewee. However, all the assessments were subsequently confirmed by the interviewees.

The interview data is overwhelmingly sociological. This is particularly pertinent given that commercial methodology publications like Spewak and Hill (1992), Cook (1996), Carbone (2004), Wagter, van den Berg, Luijpers and van Steenbergen (2005), Theuerkorn (2005), Graves (2008), Minoli (2008), Schekkerman (2008), Evans (2010) and Woodworth (2013) – arguably the most influential literature – is demonstrably dominated by methodological perspectives.

With the data inclining to the primacy of sociological factors a new means of theory construction becomes necessary. The result is a sociological focus arrived at by the paths shown in Research Map (Figure 5).

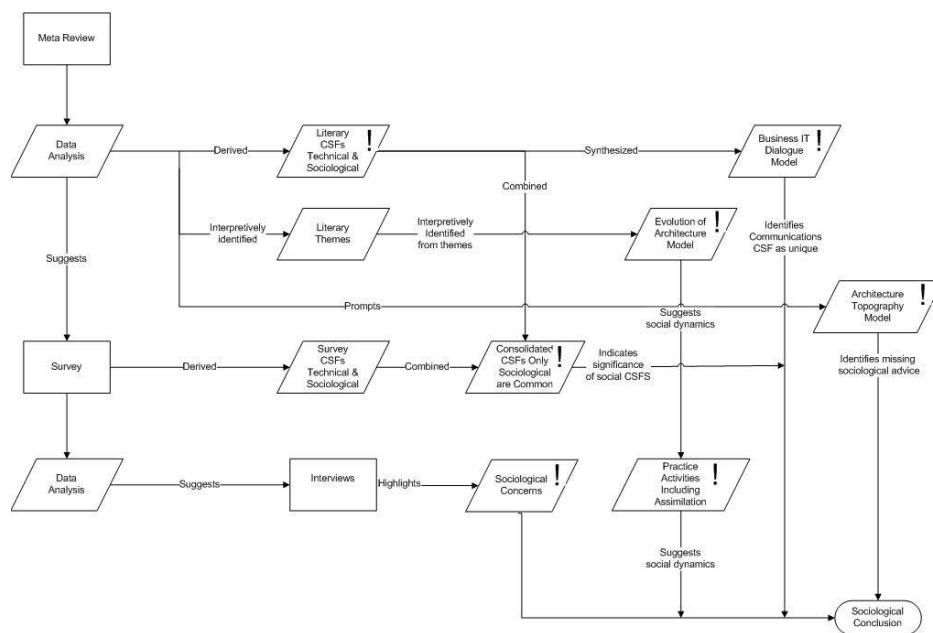


Figure 5: Research Map

Rectangles indicate processes, rhomboids outputs and arrows logical flow. For example, starting at the top left hand corner, the Meta Review provided a “Derived” set of “Literary CSFs”, an empirical finding, which were “Synthesized” by the sense-making into the “Business-IT Dialogue model”. The sense-making of the Literary CSFs revealed a set of literary themes suggesting an evolutionary dialectic. This together, with the earlier identification of communication as a unique factor, implies a sociological nexus.

The outputs (rhomboids) with epistemological consequences that flag the significance of the sociological, and ultimately compel a “practice turn” are marked with an exclamation mark. While it is possible that singularly none of them constitute a complete proof their collective weight is compelling.

2.5 Methods

A transdisciplinary approach simultaneously provides a broad view and a detailed understanding of a specific situation (Williamson 2002: 35). Guided by the Hevner et al. (2004) imperative of “*evaluation against the norms of truth*” the research uses the following techniques.

2.5.1 Literature Review

The literature review is perhaps the least structured research technique. The application of an interpretive tool to a closed system is arguably vulnerable to innate prejudices. Therefore one must be cognizant that the quality of a review is dependent on the power of its analysis and that literatures can develop discourses that compel congruent conclusions.

2.5.2 Use of Secondary Sources

Stewart and Kamins (1992) used secondary sources in a comparative study of global IS management practices. Racheva and Deneva (2008) in their study of agile software development and Marcolin and Ross (2005) to research IS sourcing. Mitev (2000) also used secondary sources for a social constructivist investigation of IS, while Peng and Li (2005) conducted an empirical study of Chinese dotcoms. This small sample demonstrates the utility of secondary sources across a diverse range of IS research.

Given the emergent nature of architecture and the poverty of alternatives, secondary sources are significant. Langenberg and Wegmann (2004) report that the “*main contributors to EA are consulting companies and academics. But academics do not contribute very much to the basic research in EA.*” They also note that “*very few other disciplines are used to enhance enterprise architecture*”.

Commercial methodology publications given their authorship and that they are the most readily available body of knowledge for architects, are particularly appropriate secondary sources.

2.5.3 Data Classification Tool

The research required the classification of unstructured literary observations. To minimize subjectivity, a classification tool was developed. Initially the idea was to base the tool on Capability Maturity Models (CMMs). Typically CMMs rate various capabilities as, for example Initial, Repeatable, Defined, Managed

and Optimized. However, their weakness is the presumed continued utility; something that the Evolution of Architecture model (Chapter 3.3.6) and the uniqueness of architectures (Chapter 3.3.4) suggest is not necessarily true.

While many lists of success factors have been compiled (Perkins 2003; Schekkerman 2008; Shreeve 2010 and others) van den Berg and van Steenbergen's (2006) "Key Areas" were chosen because they represent a sophisticated dual axis assessment that extends an existing model (Wagter et al. 2005) that defines "18 areas that must be represented in performing the architectural functions" (ibid: 83). Van den Berg and van Steenbergen do not claim their Key Areas are comprehensive, only that they must be present. And while they offer no empirical support for their assertion, they list an impressive advisory panel.

There are two sets of Key Areas, representing the axes of the Quadrant model (Wagter et al 2005), "Thinking" being the level architectural thinking in the organization and "Integration" representing degree of organizational integration achieved by architecture (van den Berg and van Steenbergen 2006). Although unqualified by van den Berg and van Steenbergen, the intersection of the axes, perhaps represents a theoretical neutral point of origin for architecture before it is subjected to the realities of the axes.

Without being stringently prescriptive, the Key Areas provide sufficient guidance to ensure a high degree of consistency, while accommodating a range of interpretations. The Quality Management definition, for example, is only 20 words yet can accommodate a wide range of observations:

"Obviously, the successful employment of the architecture depends upon its quality. The goal of quality management is to ensure quality." (ibid: 85)

The tool was recorded in a set of instructions with the original preamble and definitions, and tested by a group of architects independently identifying and classifying observations from the same test texts.

The tool was also tested longitudinally when 41 previously classified observations, were after a period of more than a year, reclassified. Of these, 38 were assigned the same classification. Two were considered candidates for more than one classification, with the options including their original classification. Only one observation was classified differently. These results attest that the tool delivers a high degree of

consistency.

For convenience each Key Area was labelled with a “T” for Thinking or an “I” for Integration and a number. While the original definitions remain largely intact some clarifications were necessary. Typically these were sourced from the original text, as demonstrated in the T1 example below.

The first Thinking Key Area (T1), Development of Architecture, proved problematic. It is presented by van den Berg and van Steenberg (2006) as tightly bound to the methodological:

“The development of architecture can be undertaken in various ways, varying from isolated, autonomous projects to an interactive process of continuous facilitation. In the first case, the emphasis is placed on architecture considered as a product in the second, on architecture as a process.” (ibid: 83)

Architecture is described initially as a set of architectural artefacts and later as a process with distinct sociological components like arranging sponsors, a political process; project planning, a management process; and coaching for the architects, an educational process. It seems that van den Berg and van Steenberg have difficulty separating methodology from *practice*:

“The first step in developing architecture is drafting the architecture Project Plan. It will ensure that sufficient attention is paid to all the dimensions described above before the architects turn to content.” (ibid: 44)

Perhaps their discomfort results from a failure to acknowledge the relationship between the *performative* and *ostensive* aspects of *routines*. They start by offering Strategy for the Development of Architecture as a methodological CSF only to discover that the contemplation of its *performative* aspect demands a review of the *ostensive*.

And so T1 is modified to: Strategy for the Development of Architecture to be inclusive of these elements. Thinking Key Areas T5 and T6 were merged, as differentiating them often proved impossible. As a result there are eight Thinking and nine Integration Key Areas.

2.5.3.1 Thinking Success Factors

The Thinking Key Areas assess the scope and sophistication of architectural thinking in the organization.

- T1: Strategy for the Development of Architecture
- T2: Alignment with Business
- T3: Coordination of Development
- T4: Quality Management
- T5 & T6: Maintenance of the Architectural Process and Artefacts (merged, T6 is always zero.)
- T7: Use of Architectural Method
- T8: Architectural Tools
- T9: Budgeting and Planning

2.5.3.2 Integration Success Factors

These Key Areas assess the degree of integration of architecture into the organization.

- I1: The Purpose of Architecture
- I2: Alignment with the Development Process
- I3: Alignment with Operations
- I4: Relationship to As-Is State
- I5: Roles and Responsibilities
- I6: Monitoring and Compliance
- I7: Commitment and Motivation
- I8: Architectural Roles and Training
- I9: Consultation and Communication

The Key Areas arguably most easily characterized as communication share a notable feature. I5, Roles and Responsibilities through to I9, Consultation and Communications all arguably have dual related component titles - for example Commitment and Motivation or Monitoring and Compliance. In these cases the former component is the necessary precursor of the later. Commitment, for example is the seed of motivation and monitoring of compliance. These titles reflect the complexity of Key Areas with significant sociological components. Perhaps the difficulty with the Strategy for the Development of Architecture (T1), noted above, also stems from a precursory sociological component.

A paper, journal article or book is considered a single source, regardless of the number of authors; except in cases of compendiums that credit authors with particular sections, in which case each section is considered independent.

Table 3: Examples of Observation Classifications

Label	Key Area	Examples	Reference
T1	Strategy for the Development of Architecture	<i>"have a clear understanding of what one is trying to achieve"</i>	Rico (2006: viii)

T2	Alignment with Business	<i>"The beginning of architecture is business strategy, and its end is business change. The Matrix is driven by analytical insight into BT's business strategy."</i>	Strang (2005: 56)
T3	Coordination of Developments	<i>"We do rip and replace," he says. That way he says, platform heterogeneity can't get a toehold in the organization."</i>	Gruman (2006: 6)
T4	Quality Management	<i>"monitored primarily through the adoption of the standard quality gate framework"</i>	Strang (2005: 67)
T5 & T6	Maintenance of the Architectural Process and Artefacts	<i>"There are some diagrams that are always referred to within the organization and give structure to many discussions. It is important that once the organization has taken to these (in fact assumed ownership) that they are not lightly changed"</i>	Hungerford (2007: 341)
T7	Use of Architectural Method	<i>"The Enterprise architecture is the overall framework or blueprint for how the enterprise uses information technology to achieve its business objectives"</i>	van den Hoven (2003: 90)
T8	Architectural Tools	<i>"make effective use of tools and automation, and may in turn be influenced by the available features of the tools"</i>	Strang (2005: 66)
T9	Budgeting and Planning	<i>"Create a system for measuring and reporting measures for the return on investment ..."</i>	Rico (2006: x)
I1	The Purpose of Architecture	<i>"it's also important to get involved in strategic planning with business units,</i>	Raths (2007: 48)
I2	Alignment with Development Process	<i>"follow a standard life-cycle model and delivery process, create the major deliverables listed within each lifecycle stage, and to justify any exceptions"</i>	Strang (2005: 67)
I3	Alignment with Operations	<i>"Eliminate duplicating technology, reducing costs."</i>	Schekkerman (2008: 142)
I4	Relationship to the AS-IS State	<i>"identification, specification, and elaboration of cause-effect relations necessary to demonstrate the return on investment (ROI) for any change initiative"</i>	Strnadle (2006: 73)
I5	Roles and Responsibilities	<i>"There is a standard set of roles defined to support projects in establishing delivery teams to fulfill the main activities expected"</i>	Strang (2005: 66)
I6	Monitoring and Compliance	<i>" Exceptions are evaluated in case they justify improvements to governance or IT domains."</i>	Strang (2005: 67)
I7	Commitment and Motivation	<i>"Senior business managers share responsibility with IT managers for delivering business value from IT"</i>	Strang (2005: 67)
I8	Architectural Roles and Training	<i>"Have a training program, which includes presentation, influencing, and negotiation skills"</i>	Hungerford (2007)
I9	Consultation and Communication	<i>"Managers are educated to understand and play their role in the governance process and decisions are widely communicated to demonstrate that governance is working"</i>	Strang (2005: 67)

2.5.4 Data Classification

The Data Classification Tool orders a seemingly chaotic literature, concentrating like observations and exposing subsets.

The data is qualified in three ways. Firstly, the volume and eclectic nature of the database makes it independent of any source, so the omission, inclusion or incorrect classification of any particular text or observation is inconsequential to the consolidated result. Secondly, in the validation of the acceptance of multiple perspectives by the Evolution of Architecture model (Chapter 3); and finally by having the classification tool tested by experienced architects.

These measures, combined with the researcher's extensive experience to "*confirm and / or identify new critical success factors*", the single unstructured measure used by Hawking and Sellitto (2010) in their qualitative search for business intelligence critical success factors, assure the research's objectivity.

2.5.5 Survey

Surveys are appropriate for exploring known issues but have a limited capacity to uncover new knowledge. Typically they provide incremental additions to existing bodies of knowledge. The strength of surveys, their engagement with primary sources, is also their weakness. Here there are two concerns - the philosophical assumptions that asking the right questions leads to the right answers, and the idea that answers remain constant. Unfortunately neither is necessarily true. It has been suggested that respondents can have no opinion until quizzed and also that opinions can shift over time.

In addition to the issues of sample size and populations a survey must also be internally consistent. The survey must make sense within its own bounds before it can be considered applicable to the world.

2.5.5.1 Survey Design

The survey's intent is to test the veracity of the literary CSFs and their applicability to architecture *practice*. This requires an understanding of what architects believe the CSFs to be and a separation of that "*ostensive*" belief from its "*performative*" application.

With these objectives the five-section survey (Architect Demographics, Success Factors, Architectural Practice, Organizational Demographics and Management Structure) probes 190 points drawn from the literature in pursuit of two questions:

Do architects believe the same CSFs are important as the literature suggests?

Do they reflect those factors in their architecture practice?

The Critical Success Factors section rated the importance and the execution of factors identified in the literature. Assessing execution, thus separating the *ostensive* aspect of methodological *routines* from the *performative* (Feldman and Pentland 2003), exposed the inconsistencies of theory and practice. This turned out to be a significant design decision.

A total of 44 groups of Likert type scale questions were asked. (Appendix C – SURVEY DATA)

2.5.5.2 Sampling

The survey was promoted through architectural forums and attracted over 200 respondents from 20 countries. It should be noted that the respondents are architects and while this qualifies them as experts they naturally consider EA to be important. This survey is an architectural perspective on EA that would not necessarily be shared by other communities of practice.

Nearly all surveys encounter non-responses. These can be due to factors like language difficulties and question structure. If the characteristics of the non-respondents differ from the respondents then there is also the danger of bias. For example, high income earners may be more inclined to refuse income questions, resulting in a sample bias. The broad definition of architecture used did not exclude any group and so the risk of bias is low.

The only discernible response pattern is a slight consistent longitudinal decline leading to lower levels of confidence in later questions, which is probably due to the survey fatigue. There are some questions in which bias may occur as a result of the survey's promotion, for example, question AD8, Do you hold any architectural certification? These are addressed in the analysis. While not all questions were answered by all respondents, individual non-responses have little impact on a large sample of discrete questions. Based on a Normal distribution, there is sufficient data for a minimum 85% confidence for all questions and over 90% confidence for most questions with a margin of error of less than 10%.

2.5.6 Interviews

Interviews fall into two major types. Structured, in which the interviewer asks specific questions and may even limit the answers to a preselected list. And unstructured interviews, which typically begin with an open ended question and can be as unstructured as a chat.

Interviews require a skilful interviewer, both in terms of being able to ask the right questions, but more importantly in being able to set the interviewee at ease and elicit answers (Yin 2009; Legard, Keegan and Ward 2010). Moments of tension must be defused. Pauses, nervous laughter and incomplete answers must be interpreted and perhaps pursued. But in return the interview offers the possibility of new knowledge.

2.5.6.1 Interviewee Selection

The Quadrant model (Wagter et al. 2005), explained later, categorizes architecture programmes: as *Losing*, those with no effect; *Barriers*, those with limited effect; *Isolated*, "Ivory Towers"; *Enabling* those

that have their organizations thinking architecturally and are integrated with the business. Interviewees were recruited from programmes in all quadrants, allowing a two tail (Yin 2009) analysis to contrast the programmes. The programmes were categorized by the researcher using van den Berg and van Steenbergen's Architectural Review (2006: 61). The categorizations were later confirmed by the interviewees.

2.5.6.2 Interview Structure

The interviewees were asked what the critical success factors for enterprise architecture were. Enterprise Architecture and success were deliberately left undefined free to be shaped, with remarkable consistency, by the interviewees.

All interviewees intuitively adopted a broad definition. While some made a point of defining EA as a high-level planning activity and spoke specifically about that, none restricted themselves to that scope. Universally EA was used as an umbrella term for a broad range of IT management and planning activities that included comments about related professions like business and project management, software development and business analysis. This observation is instructive as it reveals the theoretical futility of methodological definition by parading its practical irrelevance. The interviewees, all architects charged with performing architecture, are unconcerned by the lack of definition.

This situation might be considered problematic for empirical data garnered from such a community. However, this is not the case, as the interviewees confirm that, while not critical, the literary and survey data reflect concerns generally considered within the scope of architecture. And so we must accept a curious situation in which the interviewees discuss the detailed concerns of a discipline whose scope they cannot define.

2.6 Axiom

It is necessary to comment on the research's implementation. Not wanting to be structurally constraining and seeking to grasp the *"opportunity ... to address fundamental problems faced in the productive application of information technology"* (Hevner et al. 2004) the research adopts the sociologist Hughes's position:

"If one quite clearly sees something happen once, then it is almost certain to have happened again and again. The burden of proof is on those who claim a thing once seen is an exception. If they look hard they

will find it everywhere, although with some interesting differences in each case” (Hughes 1984: xix)

Methodologically a lead is taken from the Yale classics scholar Professor Donald Kagan, who describes his technique as “the higher naiveté”:

“and so there is this critical school that says I won't believe anything unless it is proven to me. At the other extreme there's me, the most gullible historian imaginable. My principle is this I believe anything written in ancient Latin or Greek, unless I can't. Now, things that prevent me from believing what I read are, they are internally contradictory or what they say is impossible or different ones contradict each other and they can't both be right. So, in those cases I abandon the ancient evidence. Otherwise, you've got to convince me that they're not true.”
(Kagan: 2007, 8 mins 9 seconds)

2.7 Design Decisions

Initially the research presumed that the CSF could be numerically derived from a suitable body of data. And that the challenges would be the unstructured nature of the secondary sources and enterprise architecture's lack of a common epistemology.

The literature analysis provided a set of CSFs which became the foundation for a survey intended to triangulate and validate them. However, the survey provided a different although overlapping set of CSFs, and two additional significant findings. The first of these was that collectively architects do not know what factors are critical and secondly that very few architecture programmes believe they execute any of the suggested factors particularly well.

These results lead to a re-evaluation of the literary analysis. The attributes of the sources were the first consideration. While both the authors of the literature and the survey respondents are architects. It was reasoned that the published authors had been successful, which the survey data suggests may not be a common experience. And so the search began for possible group differentiators.

In pursuit of these the original literary observations were mapped against the Wognum and Ip-Shing (2007) organizational aspects to create the Architecture Topography model (see section 3.9). The model

demonstrates first, the importance of Social Dynamics to the process of *Assimilation* (see section 3.10.3) and secondly, perhaps most significantly, the absence of information about achieving *Assimilation*. These findings lead the research to engaging primary resources. The concerns of the architects turn out to be so overwhelmingly sociological that the research was compelled to evaluate even seemingly objective data through a sociological lens.

2.8 Data Collection

Data collection commenced with a literature analysis designed to minimize subjectivity. This became the foundation for a survey that compared the literature with real world experience. Data collection concluded with a targeted series of unstructured interviews.

2.8.1 Literary Sources

Few sources directly address this problem space and the often discursive nature of the data makes a systematic approach essential. A collection of public domain texts in English were assembled from the Academic Search Premier (EBSCO), the ACM Digital Library, Computer Source and ProQuest 5000 databases and commercially published architecture books. The latter's heuristic origins and practical focus makes them a valuable source of practice insight. However, their typical lack of concern with epistemological constructs, like success factors or practice, makes comparison problematic and can diminish their value. But the longevity of works like Spewak and Hill (1992) attests to the quality that can be achieved.

2.8.2 Literature

An acknowledged epistemological fragmentation (Saha 2007) of the literature conspires against comparison. To overcome this, a tool was developed for the systematic classification of disparate unstructured data. Based on the work of van den Berg and van Steenberg (2006) it enabled the derivation of a set of critical success factors by numerical analysis.

Positivist techniques (as used in this literary meta-review analysis) are inclined to de-contextualization and the resultant analysis could neither establish the ontological uniqueness of the CSFs nor explain their relationships. To address this and generalize the findings the data was cast against a "generic" organizational context drawn from the work of Wognum and Ip-Shing (2007) that includes organizational aspects like structure, management and social dynamics.

2.8.3 Survey

The literature analysis provided the foundation of a survey intended as a comparative and supporting data set. The survey was posted on the internet and promoted through interest groups and forums.

The survey data has generally high (90% +), due to the volume of responses, but varying, degrees of statistical reliability. However, more critically, similar structural issues to the literary data emerge, again highlighting contextual dependence. This is tackled by the application of a pattern matching (Yin 2009: 136 - 144) comparison of the “Best” and “Worst”, based on self-assessed execution scores, performing programmes.

2.8.4 Interviews

Perhaps rooted in the de-contextualization of positivist techniques, the analysis suggested the need for closer investigation of primary sources. Interviewees were selected from programmes in all Quadrants (Wagter et al. 2005) with a bias to the *Enabling* and *Losing* quadrants, as determined by using van den Berg and van Steenbergen’s Architectural Review model (2006: 61).

The interviews were transcribed (Appendix E), summarized (Chapter 5) and analysed using the Classification Tool (Appendix A – CLASSIFICATION TOOL) and tagged (Ritchie and Lewis 2010: 224). Initially intended to remedy a sociological data deficit the interviews provide an ontological alternative to the Builders’ paradigm.

3 LITERATURE REVIEW AND ANALYSIS

“I shall proceed from the simple to the complex. But in war more than in any other subject we must begin by looking at the nature of the whole; for here more than elsewhere the part and the whole must always be thought of together.” (Karl von Clausewitz 1780 - 1831)

3.1 Historical Context

There are no museums to visit, ruins to excavate or ancient artefacts to examine. There is no bar examination, no universally acknowledged body of knowledge, and typically outputs cannot be objectively tested.

“Although standardization efforts (e.g. Open Group’s TOGAF) and regulations (e.g. Clinger-Cohen Act of the U.S.A.) contribute to a growing common body of knowledge about EA models, EA applications and EA management, there is still a considerable amount of debate in academia as well as in practice. A wide range of potential EA application scenarios, EA project types, EA management goals, EA scope, and EA modeling approaches leads to a plethora of different proposals and case experiences.” (Winter and Sinz 2007: 357)

It can be said that architecture exists more in its literature and practice than most disciplines, a situation that elevates the literature’s significance, particularly that authored by practitioners.

As a distinct body of work architectural literature, can perhaps be traced to Zachman’s seminal 1987 paper. It is not to say that there was no architecture before then, simply that it was not recognizable. Zachman himself acknowledges Dewey Walker, a former manager of IBM’s Business Systems Planning as the “Grandfather of IT Architecture” (Bernard, 2008: 24).

There are publications that predate Zachman; Nolan (1983) for example. Proper and Lankhorst (2014) suggest that the most significant pre Zachman contributions are the ARIS framework, that lead to IDS-Scheer tool and the PRISM (Partnership for Research in Information Systems Management) report produced by Michael Hammer that was later to influence the IEEE standards. However, neither of these came to dominate the discourse in the way that Zachman has.

The Zachman Framework for Enterprise Architecture™

The Enterprise Ontology™

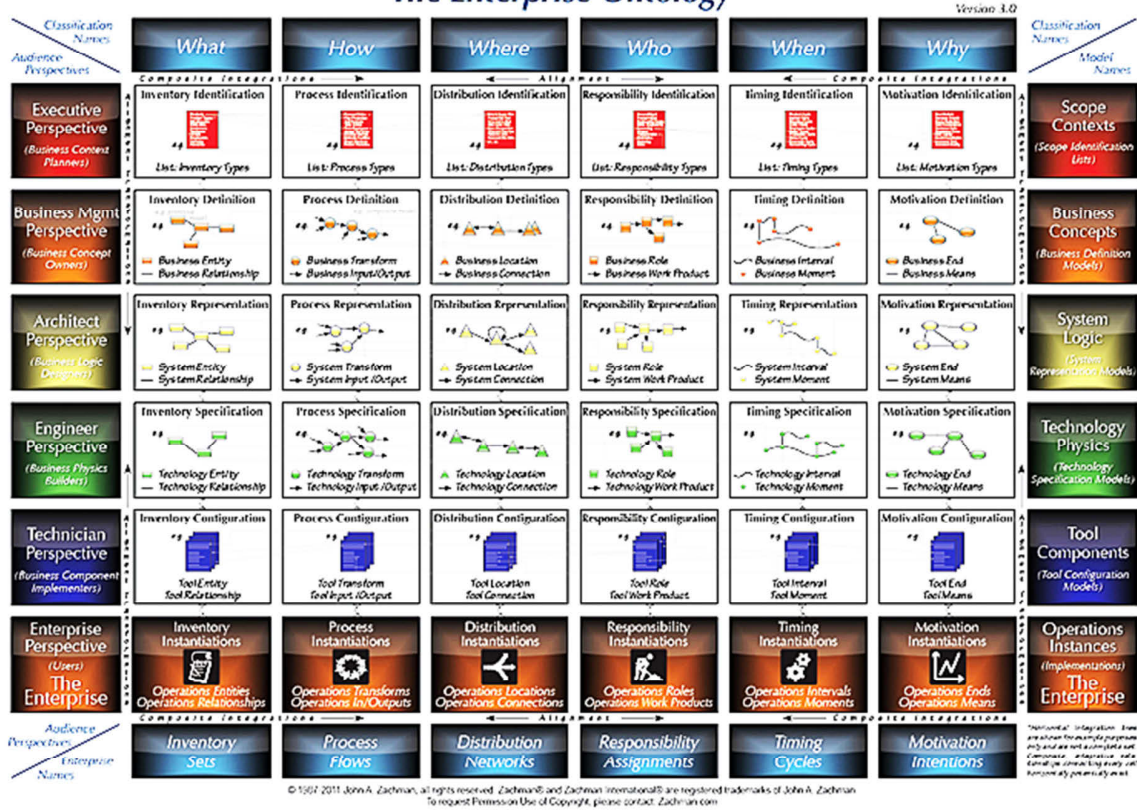


Figure 6: Zachman Framework as Enterprise Ontology circa 2011 (Zachman 2011)

To all intents and purposes the genesis of architecture is a classification system for physical assets known as the Zachman framework (Figure 6). It provides the first formal model for architectural consideration and unwittingly established an epistemologically positivist tradition referred to here as the Builders' paradigm.

Zachman's six columnar aspects, WHAT, HOW, WHERE, WHO, WHEN and WHY, materialize the enterprise as Design Science artefacts. Even the metaphysical WHY is represented by its physical consequences, lists of specifications and objectives. It is notable that in the original paper (Zachman 1987) WHO and WHY, the most constructivist aspects, along with the temporal WHEN, are relegated as supplementary to "Appendix A: Possible characterization of additional types of descriptions" (ibid).

Using the hypothetical example of a house design, "a system", the paper focuses on the physical with scant reference to the "possible" aspects. The occupants, the purpose for building the house, exist only as metrics, a set of standard persons who will sleep under the roof or visit. The framework implicitly

decomposes away context, the relationships and collective activities, the social fabric of a home.

The aspects are prescribed for no reason other than that they are the only interrogatives in the English language and their arrangement is the consequence of the classification process. If the framework had been conceived as an alignment tool their order would likely have been different and might even have started with WHY.

The Zachman's vertical axis are human perspectives PLANNER, OWNER, DESIGNER, BUILDER, SUBCONTRACTOR which, despite representing often interchangeable roles, are portrayed as being as independently cohesive as the aspects.

From birth architecture has been dominated by a normalized schema that denies the sociological. Zachman's enterprise interacts through the creation and consumption of artefacts.

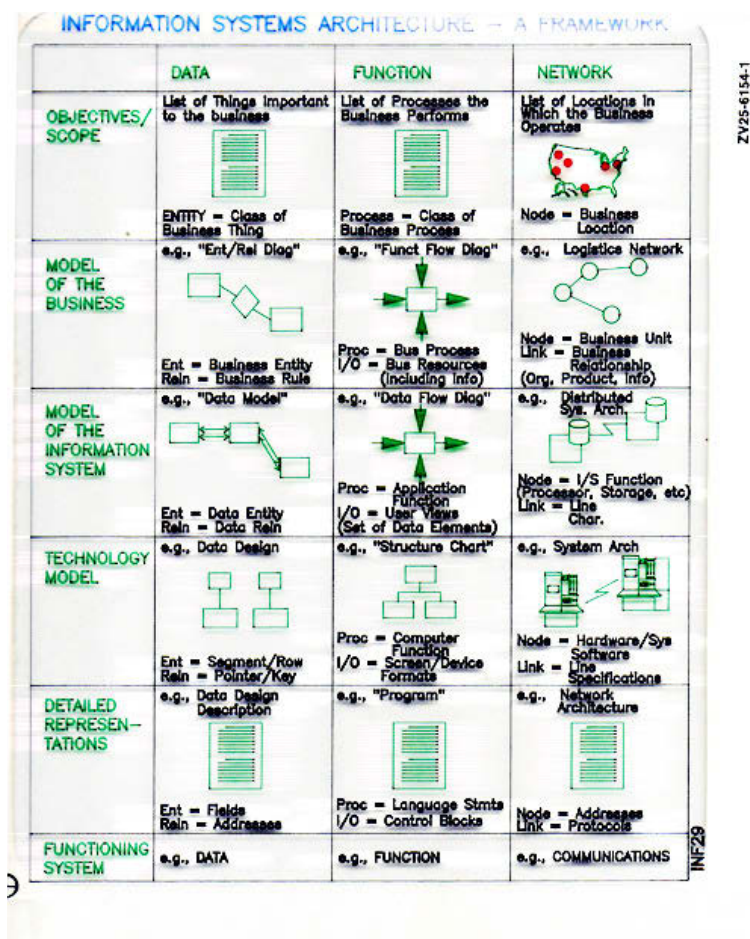


Figure 7: Framework circa 1984 with Functioning System Perspective (Zachman 2011)

The one “social” perspective, the Functioning Enterprise, appears as a reduced last row labelled Functioning System in early versions and later renamed Functioning Enterprise. From an architecture *practice* point of view the Functional Enterprise is the key perspective, but it is not until Framework2 (Figure 8) that the row achieves equality, transforming into Operations and Participants.

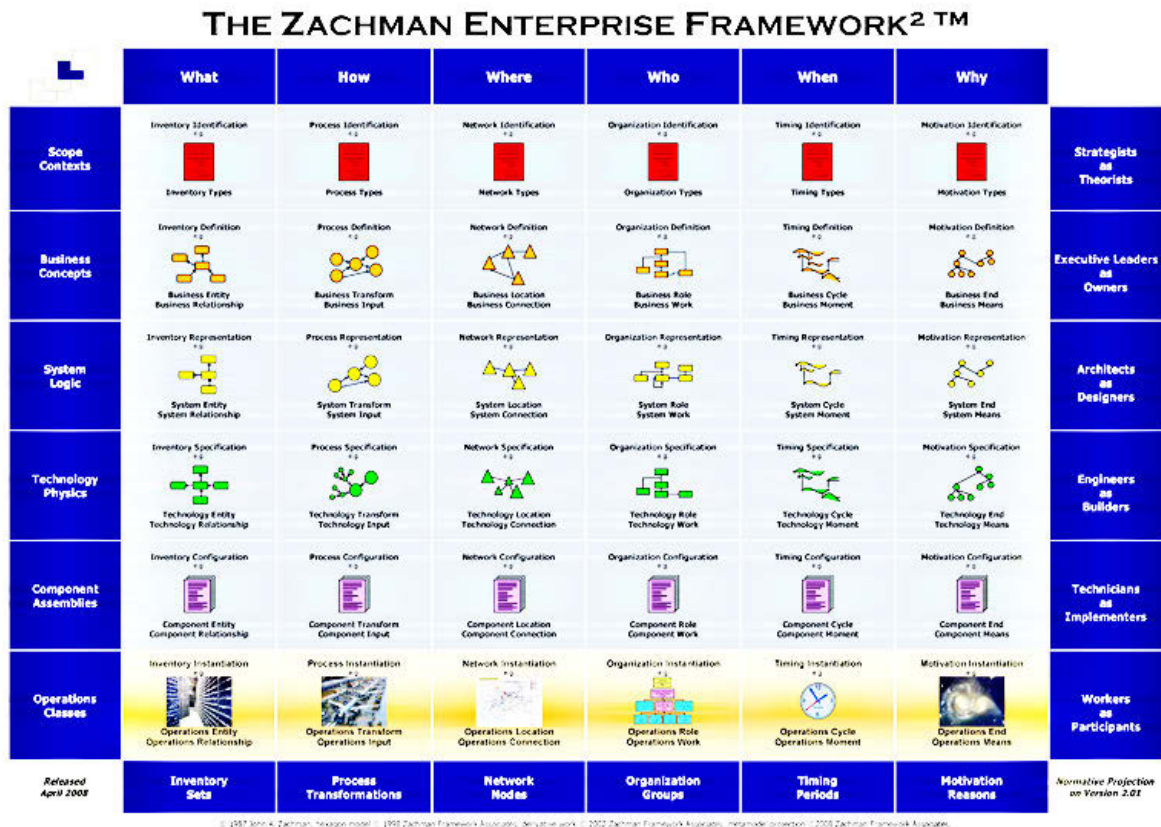


Figure 8: Zachman Framework2 2004 (Zachman 2011)

Arguably, the sociological “aspect” of architecture is imbedded in the relationships between the perspectives, a thought that serves us by highlighting architecture’s struggle with the sociological from its inception.

The utility of an industrial approach is obvious for those building a house and, given architecture’s technical roots, unsurprising. But by accepting the Builders’ paradigm architecture has to its detriment, denied opportunities to appropriate from other disciplines.

The extent of this Design Science domination is demonstrated by any casual examination of the

literature. Authors perpetuate the paradigm either by deferring to Zachman or similar frameworks (Table 4) and by invoking building analogies.

Table 4: Promoting the Builders' Paradigm

Source	Framework	Builders' Paradigm Statements
Nolan and Mulryan (1987)		<i>"There is a parallel between Enterprise Architecture design and city planning."</i> (p: 2)
Brandt and Boynton (1991)		One of the earliest papers on architecture it uses terms like <i>"high road"</i> , <i>"low road"</i> and <i>"efficiency and economy of scale."</i> (p: 436)
Cook (1996)	Zachman (p: 20)	Ancient Standards as Building Blocks (p: 27)
McGovern et al.(2004)	Untitled framework (p: 1)	McGovern offers a confused mixed metaphor in an unconscious attempt to escape the Builders' paradigm. <i>"The building of a corporation's nervous system is directly comparable to building a house."</i> (p: xxiii)
Carbone (2004)	Zachman (p: 11)	<i>"I have recently been reminded how apt the comparison between IT architecture and building a house is."</i> (p: 1)
Lankhorst et al. (2005)	Zachman (p: 24)	<i>"Suppose you contract an architect to build your house."</i> (p: 1)
Theuerkorn (2005)	LEA Framework (p: 36)	<i>"A good analogy is the construction of a family home."</i> (p: 35)
Grigoriu (2007)	Zachman (p: 40) GODS (p: 77)	Grigoriu uses a discursive automotive Builders' paradigm <i>"the chassis of an automobile."</i> (p: 77)
Reese (2008)	Untitled framework (p: 51)	<i>"So what is an enterprise architecture framework? An analogy taken from the construction industry helps to answer that question"</i> (p: 50)
Minoli (2008)	Various including Zachman (p: 12)	Minoli offers a slightly abstracted Builders' paradigm. <i>"a blue print of its information systems"</i> (p: 10)
Sessions (2008)	Zachman (p: 15)	<i>"The word "architecture" implies blue prints. Blue prints are known for their completeness, specifying everything from how the roof connects to the walls, to how pipes are laid, to where the electrical sockets will be located and so on."</i> (p: 9)
Graves (2008)	5Ps Framework	Grave describes his gym which is located in a repurposed building. (p: 2).
Op'tland et al. (2009)	Various including Zachman (p: 71)	<i>"The recorded history of classical architecting began more than 4000 years ago in Egypt with the erection of the pyramids"</i> (p: 25)
Smith et al. (2012)	TOGAF (p: 77)	<i>"Each broad capability represents a "city block" "</i> (p: 77)

Similarly, the frequency with which books are endorsed by, and papers reference, Zachman indicates a captive literature (Cook 1996; Boar 1999; Vail 2002; Bernard 2005; Ylimaki and Halttunen 2005; Finkelstein 2006; Strnadle 2006; Rico 2006; Saha 2007). Zachman does have his critics. Tang, Han and Chen (2004) sum these up concluding:

"However, ZF does not prescribe design tradeoffs, design rationale or documentation of architectural decisions. The framework does not explicitly prescribe support for non-functional requirements or architectural evolution. There is no distinction between architectural modeling activities and detailed design activities in this framework, Unlike TOGAF or DoDAF, ZF only provides brief descriptions of architectural outcomes and no description of architectural process."

(ibid: 7)

Noran (2003) in his GERA (Generic Enterprise Reference Architecture) based assessment suggests populating the framework using techniques from plain English and notations like the Unified Modeling Language and Entity Relationship Diagrams to programming languages, and observes:

“Proprietary methodologies (such as those based on the Zachman framework) may provide commercial advantages, but their closed nature hinders advancing the cause of enterprise modelling and does not stimulate public interest for the reference architecture or architectural deliverables they support. A solution may be a mixture of publicly available white papers laying the formal foundations (e.g. metamodels, ontologies) for such methodologies, and proprietary detailed modelling methodologies for commercial use.” (ibid: 183)

Zachman’s framework has promoted a closed, and according to Noran an incomplete, system of thought that *“hinders advancing the cause of enterprise modelling and does not stimulate public interest”* (ibid). Tang et al. (2004) and Noran (ibid) suggest that the framework’s curt product descriptions and lack of methods also limit its usefulness to architects, 90% of whom, this research shows (Chapter 4), identify sociological factors as very or critically important.

Finally, if adoption signifies utility then the Zachman framework may have had its day. Of 175 survey respondents (Chapter 4) only five hold Zachman certification, suggesting that the framework has not proved to be the *“periodic table of enterprise architecture”* (Saha 2007: 18) and perhaps that chemistry is also not an appropriate analogy for architecture.

However, the framework has served as a cornerstone upon which many scholars and architects have built their theories. For the novice it defines an area of study. For scholars it provides a standard for evaluation. The resultant discourse is engineering-centric and yet the chief concerns of architects, (Chapters 4 and 5), are sociological. Alignment might be specified by artefacts, but implementation it seems is more subtle. Wong, Ngan, Chan and Chong (2011) highlight the significance of the sociological to the implementation of architecture, *“the desired state”* unifying the concepts of trust and organizational effectiveness and promoting the significance of the agent in the deployment of capabilities.

“Our results suggest that in facilitating the development of IT to support the strategic implementation of business strategies, the securing of employee trust and employee knowledge can enhance communication effectiveness within organizational context. With it being supported and enhanced by trust and knowledge, employee communication can be used to foster and drive the implementation of business–IT alignment to a desired state.” (Wong et al. 2011: 497)

There have been alternate views of IS systems, but the “soft systems” championed by Checkland in Soft Systems Methodology (1981), Mumford (1983) and Eason (1988) largely predate architecture as it exists today. Mumford’s Effective Technical and Human Implementation of Computer-Based Systems (ETHICS) methodology, for example, defines a socio-technical approach:

“one which recognizes the interactions of technology and people and produces work systems which are both technically efficient and have social characteristics which lead to high job satisfaction.” (Avison and Fitzgerald 2003: 449)

The scope of ETHICS arguably makes it as much a nascent architectural as a software development methodology. Either way, the architectural literature focuses on engineering the WHAT and HOW, the aspects most easily objectified, with despite their obvious difference, WHO and WHY being treated in the same way. The literature seems obsessed with the methodological creation of artefacts.

To say that the literature totally ignores the social dimension is incorrect; this is particularly true of the academic literature, and a sociological dimension is detectable in commercial methodology publications. But, if the significance of a topic is to be judged by its extent, then as we will see, it must be considered minimal.

The sociological is noted in the earliest publications. But Nolan and Mulryan (1987) for example dismiss it, in what becomes a familiar pattern, as *“Stage Two: Getting Stakeholder Buy In”* as if itemization settled the issue. Eason, speaking about systems, noted: *“Until we learn to design socio-technical systems rather than technical systems this pattern [frequent failure] is likely to recur”* (1988: 222) and Brandt and Boynton in one of the earliest architecture papers note that *“The high road is fraught with political pitfalls”* (1991: 442), but restrict themselves to a paragraph; while Spewak and Hill (1992) in

their seminal work point out that *“EAP should not be attempted in an unfavorable climate”* (ibid: 23). They summarize their insight in this concise sentence:

“EAP is promoted and performed in a manner consistent with the corporate culture, making it easier for both business and IS user, management, and the staff to support EAP and cooperate with the team” (ibid: 34).

This statement can be parsed in a moment, but it is worthy of consideration. Although beginning with Enterprise Architecture Planning, the sentence is about the practice of architecture. It appeals for support and cooperation, social constructs. The statement opens by insisting that EAP is promoted and performed, acknowledging more than the simple application of a body of knowledge. The promotion of architecture *“in a manner consistent with the corporate culture”* identifies the dimensions absorbed by Zachman’s Functioning Enterprise. Finally, the architects are separated from the IS department with the term team. They are neither IS nor business; they are a different community of practice.

Spewak and Hill limit their scope to the IS Department portraying business as a homogeneous structure, that engages multiple heterogeneous IS communities of practice, thus exposing the sociological dimension of architecture. Despite this moment of insight they return to the Builders’ paradigm concentrating on the mechanics, leaving the positivist paradigm unchallenged and ignoring the interviewees’ (Chapter 5) main area of concern.

There are many examples of this. McGovern, Ambler, Stevens, Linn, Sharan and Jo (2004) state in their preface *“a successful architect has to overcome any aversion to politics”* and then relegate their advice to a two page appendix of an otherwise technical 306 pages. Similarly of the 97 Things Every Software Architect Should Know (Monson-Haefel 2009) perhaps eight are non-technical. Other authors make only discursive references. Graves (2008) offers five pages, deferring to change management. Theuerkorn (2005: 155) identifying “challenges” with “cultural” origins completes his analysis and solutions in ten or so pages of his 319 page book.

These tactical forays are typical, often abstracted as cultural issues (ibid), soft skills, the qualities of the architect (Op’tland et al. 2009; Evans 2010), or even job descriptions (Schekkerman 2008) they are usually unstructured and often relegated to appendix. They lack an epistemology, have little consideration of context, and seldom offer practical guidance.

"[The Architect] markets the benefits of an organization-wide EA to other organization executives and stakeholders via collaborative forums; obtains participatory commitment from senior executives; and introduces enforcement measures." (ibid: 213).

Boar (1999), in a work now largely made obsolete by notations like ArchiMate, takes a more methodical approach offering an eight step commitment strategy (ibid: 241). But, falls at the crucial hurdle, with the advice given for Commitment Action Design, being a theoretically isolated, *"The actions you take are a function of your sensitivity and intimate understanding of your company, culture, and the specific situation"* (ibid: 247). It is an informative aside to consider that ArchiMate, while clearly an advance on Boar's blueprinting techniques, still only manages to treat the non-technical aspects of architecture as causally related objects: Drivers, Targets, Assessments and Goals.

Of the more sophisticated efforts, van den Berg and van Steenbergen's (2006: 185-192) *"Thinking About Changes in Five Different Colors"* appendix, is only seven pages long. While O'Rourke, Fishman and Selkow (2003: 169-254) furnish perhaps the most extensive offering with their mapping of the psychology of implementation to the Zachman framework. And although they develop from a theoretical foundation of Myers-Briggs and SWOT analyses (widely attributed to Albert Humphrey, American management consultant 1926 -2005), their work remains technique focused and detached.

More academically Korhonen and Molnar (2014) position EA in an "organizing" socio-technical domain of a capability model that relegates technical architecture to a resource, pointing out that *"tools methods, frameworks and best practices that work well in IT architecture ... are not optimal when applied in the higher domain."* (ibid: 181). But that *"Socio-Technical Architecture plays an important role in the link between strategy and execution"* (ibid: 178).

Op'tland et al. (2009), building on the work of Wagter et al. (2005) and operating closer to Korhonen and Molnar's (2014) resource level, offer perhaps the most complete attempt to integrate the sociological with *practice*. But their effort is perhaps more individual psychology and again we see the tendency of the Builders' paradigm to reduce complex phenomena to data matrices.

Other authors shuffle uneasily around the ambiguity, shifting focus to business planning (Graves 2008) or contemporary technologies (Cook 1996; Minoli 2008), but seldom questioning the discourse. Even publications that fall outside the mainstream, like Johnson and Ekstedt (2008), perpetuate the discourse

by seeking legitimation through the use of engineering like notation.

The idea that success might not be methodologically determined seems not to appeal to those who invest in methodologies and so has few champions. There are exceptions who attempt a holistic approach amongst these Wognum and Ip-Shing (Saha: 2007), who offer a six aspect enterprise model, Knowledge and Skills; Processes; Structure; Management; Strategy and Goals; and Social Dynamics. They draw on an established theoretical foundation the BEST (Better Enterprise SysTem) implementation project of the Fifth Framework Programme of the European Union (Saha 2007: 236) but, this is perhaps more change management than architecture.

Wognum and Ip-Shing employ organization theory concepts similar to those of Hall (1977) and Todeva (1997), who fuse organizational, managerial and environmental characteristics with “psychological situation” in a set of sociological “situational” models. However, as the interviews demonstrate (Chapter 5), these ideas have yet to penetrate the practice of architecture.

Overall the literature presents a plethora of advice on WHAT artefacts to create and HOW to create them. These are questions of methodology not practice. The ascendancy of the Builders’ paradigm has furnished a methodologically rich literature that concentrates on implementations with little consideration of sociological realities.

3.2 Literary Structure

The literature can be divided into distinct bodies of work, summarized in Table 5. The first consists of design-science artefacts, the products of organizations like the International Federation for Information Processing and International Federation of Automatic Control (IFIP-IFAC) with their Generic Enterprise Reference Architecture (GERA) and the Open Group's architectural framework (TOGAF).

The second body comprises of journal papers and articles of varying quality. Articles in non-peer review journals often struggle epistemologically while the more disciplined reviewed journals tend to employ a Design Science approach. The last, and arguably most professionally influential, works are the commercial methodology publications written by practitioners.

Table 5: Structure of the Literature

Source	Purpose	Feature	Example
Organizational Publication	Establishing standards	Reference architecture	GERAM V1.6.3 TOGAF V9.1

Journal Papers	Presenting a tool Exploring phenomena Systemization Commercial	Design science Behavioural science Compendia of expertise Unsubstantiated	Anaya & Ortiz (2005) Seppanen, Heikkila & Liimatainen (2009) Saha(2007) Shreeve (No Date)
Commercial Methodology	Planning Methodology EA advice	Heuristic experience	Spewak & Hill (1992) Evans (2010)

Objectives and qualities differ, Organizations publish standards and instructions. Journal papers, constrained by size, focus on a topic or a few related case studies. For example, Anaya and Ortiz (2005) concentrate on interoperability issues while Razak, Dahalin, Damiri, Kamaruddin and Sahadah (2007) assess Enterprise Information Architecture in Malaysia.

Few authors tackle critical success factors directly with web authors seeming to be those most prepared to do so. Perkins (2003) for example, offers four CSFs, Sponsorship and Involvement, Business Requirements, Enterprise Architecture Models and Development Environment in seven pages. The same can be said of EA Direction's 2007 anonymous paper's ten factors in four pages or Zhu's EA's Five Key Success Factors (no date) while Shreeve (no date) offers his opinion in just three pages. Many web pieces are of questionable quality, an assertion borne out by Gekoski's observation that "*The internet is the greatest platform in the history of man for talking crap*" (2013), a particularly pertinent point for an emergent discipline.

Table 6: Critical Success Factors

Author	Critical Success Factors
Perkins (2003)	Sponsorship and Involvement Business Requirements Enterprise Architecture Models Development Environment
Shreeve (No date)	Compelling Case for Change Clear Vision of the Future Business Ownership and Buy-in Targeted Analysis Incremental Value Delivery Strong Governance Effective Stakeholder Management
Ylimaki (2006)	Scoping and Purpose Communication & Common Language Business Driven Approach Commitment Development Methodology and Tool Support EA Models and Artefacts EA Governance Project and Program Management Assessment and Evaluation IT Investment and Acquisition Strategies Skilled Team, Training and Education

	Organizational Culture
Zhu (No date)	Strategic Value Cultural Value Economical Value Design Value Shared Value

Of the formal literature Ylimaki's (2006) "*Potential Critical Success Factors For Enterprise Architecture*" is just nine pages, while more authoritative, it also focuses on the WHAT. And Schekkerman's (2008) substantial 380 plus page "*Enterprise Architecture Good Practices Guide*" dedicates only half a dozen pages, split across two sections, to sociological issues.

Other authors attempt to systemize the body of knowledge by establishing typologies. Amongst these are Doucet, Gotze, Saha and Bernard (2008) with their three modes of EA, and Lapalme's (2011) three schools of EA. Korhonen and Poutanen (2013) developing the theme draw together Hjort-Madsen (2007), Poutanen (2012), the sociologist Parsons and the systems scientist Churchman to conclude that there are three architectures - Ecosystemic, Socio-Technical and Technical.

These works also suffer from both theoretical and practical shortcomings. The most overt of these is the failure to establish the ontology. Without this they are left with the ambiguous definitions and inconsistent epistemologies that hinder development. Perhaps less obviously, these works generally fail to separate architecture from practice. Implicitly seeing methodology and execution as the same they often settle for presenting desired outcomes, missing out, as Nakakawa et al. (2011: 89) note, on the "*operational details*".

From a practice perspective the most significant literature is the commercial methodology publications. Recording heuristic experiences, these are recipes for architecture in which implementation and practice are indistinguishable. Typically they lack the rigor of academia and the resources of an organization. But, they have the advantage of not being unconstrained by epistemology or medium.

Epistemologically these works almost invariably fall in line with the established discourse. Even where they avoid the Builders' paradigm they typically apply the same positivist reduction to function and process (Grigoriu, 2009). However, their indiscipline sometimes allows useful excursions, like "*The Art of Compromise*" (O'Rourke et al. 2003: 178), that a more rigorous structure might deny.

Attempts to overcome the physical limitations of the academic medium, has spawned a sub-genre of academic compendia organized by audience (Bernus et al. 2003) or topic (Saha 2007). While their rigor

exceeds the commercial methodology publications, they struggle for continuity, exhaustiveness and a single voice.

This research recognizes the limitations of these bodies of work, but also acknowledges their strengths. Written for and by practitioners the commercial methodology publications, as demonstrated by Table 7, offer, often discursively, the greatest insights into the practice of architecture.

Table 7: Examples of Different Scopes Found in Commercial Methodology Publications

Source	Feature
Spewak & Hill (1992)	Planning Enterprise Architecture programmes
Cook (1996)	A Solution Architecture Methodology based on distributed databases
O'Rourke et al. (2003)	Explaining the application of the Zachman framework
Schekkerman (2004)	Overview of frameworks
Bernard (2005)	An Enterprise Architecture Methodology
Lankhorst et al. (2005)	Modelling, communication and analysis
Schekkerman (2005)	The economic advantages of using architecture
Grigoriu (2007 & 2009)	A business process centric Solution Architecture Methodology
Minoli (2008)	Architecture compendium
Evans (2010)	Developing the architect

A lack of ontological constraint and the epistemological uncertainty of IS research, noted by Kanellis and Papadopoulos (Carter-Steel and Al-Hakam 2009: 8) who question if there even is a “right” epistemology, combine to make commercial methodology publications a valuable transdisciplinary source. Journal papers are the next most useful source. Technical standards on the other hand are not generally informative about the practice of architecture.

Given the volume of the commercial literature one might conclude that strict adherence to a methodology would assure success and that methodology in some guise is the CSF. However, the continuing stream of publications also suggests otherwise (Minoli 2008; Graves 2008; Reese 2008; Grigoriu 2009; Op'tland et al. 2009; Evans 2010; Woodworth 2013).

These publications limited by their heuristic structure, offer the contextually narrow insight of one or a small number of authors which, as we will see in Chapter 4, is not reflective of the nature of architecture. Furthermore, their epistemological fluidity makes systematic comparison and syntheses problematic. But this literature cannot be dismissed. The authors are experts whose ontological difficulties leave them struggling to enunciate. They are all correct, but their correctness is difficult to generalize.

3.3 Literary Themes

Scholars and practitioners have published many works on architecture (Spewak and Hill 1992; Cook 1996; O'Rourke et al. 2003; Bernus et al. 2003; Carbone 2004; Bernard 2005; Grigoriu 2007; Saha 2007; Minoli 2008; Op'tland et al. 2009; Evans 2010; Woodworth 2013). The reader is immediately struck by the complexity of the literature.

Despite this topography a meta-review, as used by Bostrom, Gupta and Thomas (2009), provides a thematic semblance of order. However, the apparent epistemological independence of the themes stretches the cohesion of any associative model applied, implying that any successful model is a potential ontological template.

Through its literature it is possible to discern a broad historical evolution of the architecture discourse. It presents as an irregular longitudinal transformation with no particular boundaries and considerable overlaps. Beginning with programme establishment (Spewak and Hill 1992) its focus shifts to solution design (Cook 1996; Carbone 2004) and then to business process orientated works (Grigoriu 2009) followed by a business / organizational view (Graves 2008). Proper and Lankhorst (2014) plot a similar axiology using multiple perspectives that include evolution from: IS Architecture to Enterprise Architecture; Business-to-IT-stack to Enterprise Coherence; Big-Design-Up-Front to Fit-for-Purpose and a Constructing to a Constraining Perspective amongst others.

This literary progression is a broader expression of the evolution suggested by van den Berg and van Steenbergen *"architecture can be undertaken in various ways, varying from isolated, autonomous projects to an interactive process of continuous facilitation"* (2006: 81) and, as the literature is written by practitioners, is perhaps indicative of the organizational penetration and architectural maturity across industry about the time of publication.

Table 8: Publications Demonstrating the Emergent Nature of EA

Viewpoint	Feature / Scope	Example
Programme Establishment	Establishing an architecture programme	Nolan & Mulryan (1987)
	Programme project management approach	Spewak & Hill (1992)
Solution Architecture	Technology specific (distributed data bases)	Cook (1996)
	Non-technology specific methodology	Carbone (2004)
	Modelling concepts	Jonkers, Lankhorst & van Buuren (2004)
Business Process Centric	Business Process driven integration	Grigoriu (2007)

	Supply chain based architecture	Medini & Bourey (2012)
Enterprise wide IT	Architecture as distinct from technology with emphasis on techniques and tools	Graves (2008)
	Role of EA in IT alignment in US hospitals	Bradley, Pratt, Byrd, Outlay & Wynn (2012)
Enterprise wide Business	EA as a business strategy	Ross et al. (2006)
	Role of EA in the organization	Ashan, Shah & Kingston (2009)

True to the Builders' paradigm the literature is sometimes shaped by its contemporary technologies (Cook 1996; Carbone 2004; Grigoriu 2007; Minoli 2008) as each technological wave demands some rewriting of the genre.

For a discourse overloaded with "future states" and "reference architectures" the literature offers few technological predictions and, perhaps in various forms, only a single business mantra, Kurzweil's law. *"In the next hundred years we may experience the same amount of change as the past 20,000 years"* (Grigoriu 2007: 21). These features suggest an externally driven discipline and a poverty of internal dialogue that perhaps explains Noran's (2003) lack of development.

Despite Kurzweil's tidal wave of change it is notable that technically obsolete books sometimes maintain their practice relevance. For example, much of Cook's (1996) and Carbone's (2004) wisdom stands although their technological context has largely passed. Consider *"A vertical approach to systems development creates the same disconnects as a vertical approach to organizations"* (Cook 1996: 43) or Carbone's *"Identify and list significant "stress-points" or risks to the enterprise"* (2004: 24) are still valid methodological points. Spewak and Hill (1992) although technologically agnostic, may be the most enduring example of longitudinal relevance. These snippets of continuing relevance suggest that the foundations of successful architecture are certainly not technological, but may be methodological.

3.3.1 Definition

Systematic approaches require definitions. Standards like ISO 14258 (1998) Industrial AIS – Concepts and Rules for Enterprise Models, CEN ENV 40003 (1991) CIMOSA Architecture Framework and CEN ENV 12204 (1996) Constructs for Enterprise Modelling have formal definitions. ISO 15704 (2000) for example defines architecture as a description of the basic arrangement of system components.

By comparison commercial publications are neither particularly concerned nor pedantic about definition. Plainly, many definitions neither explicitly list or even imply all of the elements of architecture and so must be judged deficient. Given the multiple perspectives of architecture such failures should not be

surprising. Perhaps the relevant question is: does architecture actually need a formal definition?

Ross et al. (2006: 9) define Enterprise Architecture as *“the organizing logic for business processes”* a tight definition betraying their academic bent. Other authors offer a range of definitions, from Boar’s (1999: 28) strategic *“mechanism to create hyper-competitive advantage”* to the portfolio approach of Blumenthal (2007) *“a systematic approach for tying technology investments to performance, business and information requirements”*. Lankhorst et al. (2005) perhaps trapped in a methodological WHAT perspective, see architecture as artefacts:

“a coherent whole of principles, methods and models that are used in the design and realization of an enterprise’s organizational structure, business processes, information systems and infrastructure” (2005: 5)

This is a definition that resonates with the methodologically inclined. But there are other views.

“[EA] enables them [enterprises] to see themselves in terms of a holistic and integrated view of their strategic direction, business practices, information flows, and technology resources ... [so that] an enterprise can better manage the transition from current to future operating methods” (Bernard 2005: 31 - 32)

Some authors decompose Enterprise Architecture, an intrinsically positivist technique for dealing with complexity, divorcing it from its technical roots and elevating it to the strategic context for the evolution of IT systems in response to a changing business environment (Riemp and Gieffers-Ankle: 2007). Others opt out by borrowing definitions, Schekkerman (2004) for example, while O’Rourke et al. (2003) define EA thus:

“Enterprise Architecture creates the ability to understand and determine the continual needs of integration, alignment, change and responsiveness of the business to technology and the market place”
(ibid: 7)

For them architecture is an art, an “understanding” that must be continually practised. Their ability, not restricted to the individual, is an informal acknowledgement of Ross et al.’s (2006: ix) organizational capability. The same words could also describe architecture’s purpose. Definition and purpose are

intertwined, leaving the O'Neill et al. (Saha 2007: 193) noun or verb conundrum.

Greefhorst and Proper (2011) draw together many of these perspectives before succinctly capping the concept with a seemingly minimalist *"it concerns those properties of an architecture that are necessary and sufficient to meet its essential requirements."* (ibid: 24) that perhaps serves just as well as any other definition.

Demonstrably, while the failure to define architecture might inhibit its study it does not prevent its practice. In a way business and architects share a conspiracy of denial, with one employing the other to execute something neither has defined. This arrangement, as shown by the *Losing* interviews (Chapter 5), has dire consequences for the legitimacy of architecture and the distribution of power.

3.3.2 Scope

Like definition, if not because of it, scope is also a contested space with many names being used to describe what is commonly called Enterprise Architecture (McGovern et al. 2004). They include: Enterprise IT Architecture (Boar 1999; Perks and Beveridge 2003), Enterprise Systems Architecture (Saha 2007), Enterprise Application Architecture (Fowler 2003), Information Architecture (Brandt and Boynton 1991), Enterprise Information Architecture (Cook 1996), I/T Architecture (Reese 2008) and IT Architecture (Carbone 2004). Proper, Verrijn-Stuart and Hoppenbrouwers (2005) suggest that some titles stem from approaches to the development of larger information systems.

Others titles are methodologically descriptive. Lightweight (Theuerkorn 2005), Real (Graves 2008), Dynamic (Wagter et al. 2005) can be found as can Customer Orientated IT Enterprise Architecture (Mamaghani, Madani and Sharifi 2012), SCOR-based Enterprise Architecture (Medini and Bourey 2012), Framework for Agile Enterprise Architecture (Shirazi, Rouhani and Shirazi 2009), Organizational IT Architecture (Tiwana and Konsynski 2010) and Collaborative Enterprise Architecture (Bente, Bombosch and Langade 2012). And then there are Process (Strnadle 2006) and Causal (Vail 2002) driven architecture.

The organizational publications are not helping either with TOGAF, once a technical framework, expanding its scope to include business architecture, while fastidiously refusing to use the enterprise word in its self-descriptive title. This cacophony, combined with domain-spanning works, like Ladley's methodologically-centric Enterprise Information Management (2010) and Finkelstein's data-centric Enterprise Architecture for Integration (2006), add to the fog.

These titles typically have two features. First, they pronounce the positivist paradigm by their use of Design Science language. Second, as demonstrated particularly by Ladley (2010) and Finkelstein (2006) their scope is elastic. Proper et al. (2005), for example, offers a descriptive definition of scope based on the rationale for using architecture:

“It is a vehicle for communication and negotiation among stakeholders. A Software architecture, often depicted graphically, can be communicated with different stakeholders involved in the development, production, fielding, operation, and maintenance of a system... It captures essential design decisions, both functional aspects as well as quality aspects. In an architecture, the global structure of the system has been decided upon, while responsibilities (such as functionality) have been assigned to the (overall) components of the system.” (ibid: 25)

What delineates EA’s scope? How is it qualified? Is it only concerned with enterprise issues like Ross, et al. (2006) and Graves (2008)? Is it application? Do multiple implementations of a solution constitute enterprise architecture? Perhaps what the names really signify is that particular architecture’s purpose. Does EA only exist to align a set of “technical” architectures? Can a case be made for discrete sub-architectures in a supposedly holistic discipline? Furthermore, Theuerkorn (2005), Grigoriu (2009) and Ladley (2010) in particular, promote methodologies that arguably render such distinctions at most only minimally significant.

Technical architectures may be an intellectual distortion, an erroneous consequence of positivist attempts to decompose phenomena. The last word on scope is an observation made by Ross et al. who, after beginning at the infrastructure level, realized that they had unconsciously migrated.

“In 1995 we started our study of enterprise architecture - we just didn’t know it. At the time we thought we were studying information technology infrastructure transformations. In 1998 we thought we were studying enterprise system implementations. In 2000 it was ebusiness. But some time in 2000, we recognized that each of the studies examined basically the same thing: enterprise architecture.” (2006: vii)

This literature originates in its authors’ heuristically instigated perspectives. Theoretically scope must be

considered beyond such limited perspectives. We must, as Ross et al. (ibid) were compelled to, accept scope as inclusive of all perspectives or risk the consequences of arbitrary delineation.

3.3.3 Fragmentation

Commenting on this diversity Saha (2007) asserts that a “competition of ideas” has fragmented architecture as “every architectural framework “hopes” to set trends rather than follow it, in order to maintain its comparative advantage” (ibid: 16). But, Saha’s conclusion seems to rest on the presumption of a discrete absolute; something that the struggle with definition and scope suggests is not the case. Arguably this fragmented theoretical foundation is not the inevitable consequence of a heuristic literature, but the discursive revelation of architecture as an instance specific phenomenon.

3.3.4 Case Studies

The difficulties of scope and definition leave some authors with a situation in which architecture only exists as the application of methodology obliging them to provide a context through a case study.

Table 9: Examples of Case Studies from Commercial Methodology Literature

Source	Case Study Name	Focus
Carbone (2004)	Four technology centric mini case studies	Migrating mainframe systems to client server platforms and implementing target architectures
McGovern et al. (2004)	Canaxia Corporation	Multi episodic. Starts with the cost of IT then moves on to SOA and finally to enterprise wide IT scope
Bernard (2005)	Danforth Manufacturing	Linking business strategy to technology
Wagter et al. (2005)	TeleBel	Strategic dialogue with the business
Op’tland et al. (2009)	Perla del Nord Pizzeria	Business process reengineering
Ulrich & Newcomb (2010)	Ten one chapter case studies.	Various, including language migration, refactoring, COTS introduction, legacy modernization and reverse engineering
Bente, Bombosch & Langade (2012)	Bank4Us	A fictitious story of “enterprise architecture against the back drop of a leading global bank”

These attempts to describe architecture *practice*, constrained by the Builders’ paradigm either provide simplistic representations of sociological phenomena or omit them completely. Possibly the most theoretically useful insight is the Strategic Dialogue’s (Wagter et al. 2005) imposition of a structure on communication. Although typically failing to offer any theoretical foundation, the multi-episodic case studies, like McGovern et al. (2004), are epistemologically useful in their covert confirmation of evolution, the demonstration of the difficulties of the methodological / sociological interface and, not least, their support for the idea that each instance of architecture is unique.

3.3.5 Competing Epistemologies

If epistemology can be inferred, it is arguable that broadly speaking there are two “styles” of commercial

architecture literature. On one hand there are mostly European authors like, Lankhorst et al. (2005) and Op'tland et al. (2009) with a Design Science approach demonstrated by precise language. For example Op'tland defines models thus:

“In general models are a purposeful abstraction of reality. More specifically, a model is defined as “any subject using a system A that is neither directly nor indirectly interacting with a system B, to obtain information about system B, is using A as a model for B.” In colloquial use in the context of enterprise engineering, the term model is equated to some graphical diagram. This colloquialism can be explained as most models used in software development, business process (re) engineering, etc. are graphical models. Models, however, do not necessarily have to be graphical” (ibid: 37)

On the other hand, written in a less formal perhaps more accessible style, are authors who tend to be North American - for example, O'Rourke et al. (2003) and McGovern et al. (2004). For comparison O'Rourke et al. (ibid) define models as:

“a specific type of artifact that is usually produced using a formal descriptive notation. A model can contain just text, or text accompanied by a diagram.” (2003: 479)

The latter is pure pragmatism; there is no theory, no context, only form more descriptive than definitive. While such imprecision frustrates academic fidelity and contributes to the discipline's fragmentation, it does not invalidate the observation's veracity. Such manifestations of Saha's (2007: 16) fragmenting “*competition of ideas*” demonstrate the complexity of architecture's ontological challenges.

3.3.6 Evolution

Perhaps more often implied than reported is the evolutionary nature of architecture. The literature demonstrates that architectures, and so their programmes evolve. Ross et al. (2006), Boar (1999), Schekkerman (2004) and others offer models describing similar patterns: simplification, standardization, optimization and ultimately the creation of a foundation for competitive advantage.

This widely subscribed to pattern deserves scrutiny. It presumes a continuing homogenization of

systems that smacks of vertical integration. This is a 19th century product-centric mass production concept that inherently reduces opportunities for differentiation and thus competitive advantage and so seems at odds with the customer-centric, disintermediated internet world. Furthermore, it seems paradoxical that architecture should seek to impose some predetermined pattern when it has yet to define itself. IS may have escaped the glass rooms of the mainframe, but architecture seems rooted in the methodologies of those systems. That evolution occurs seems without doubt, as is the intended end state of competitive advantage. However, it is wise to remember that evolution is a process with no predetermined end point. And yet EA seems to have established one. The proposition that all organizations might follow the same Meta pattern is possibly a product of the Builders' paradigm and deserves testing.

Setting aside these doubts, what can be said is that epistemologically the literature organizes evolution using the concept of states with physical, temporal and perspective attributes. For example Planners have, defined by temporal relativity, current and desired states. Builders describe physical organization "*application silos*" (Minoli 2008: 409) or decentralized and distributed systems (Cook 1996: 13).

Unfortunately this habit can be misconstrued as technology driving business when the actual intent is to indicate maturity. The same habit also supposes a hypothetical final state in which business and IT align as a foundation for competitive advantage (Ross et al. 2006) or a "*mechanism to create hyper-competitive advantage*" (Boar 1999: 28). Architectural evolution is acknowledged by many authors with Ross et al. (2006) reporting:

"Companies move through these stages by first building and then leveraging a foundation for execution. Each stage involves organizational learning about how to apply IT and business process discipline as strategic capabilities." (ibid: 71)

Noting:

"Although companies can hire managers with experience in stage 3 - and possibly even stage 4 - companies cannot hire leadership that allows the company as a whole to skip a stage. Learning takes time." (ibid: 86)

From a practice perspective the literature portrays evolution as a gradual shift in emphasis from

technical efficiency to business effectiveness - generally portrayed as essentially technical; the simplification, standardization, optimization and so forth of systems, basically the alignment of business process and systems.

Henderson and Venkatraman (1993) consider strategic alignment to be a continuous process and Chen, Sun, Helms and Jih (2008) observe “strategic planning for IT requires evolutionary approaches tailored to organizational needs at different stages of business growth”. Given architecture’s strategic planning and IT context as portrayed in the EA Context diagram (Figure 2) the inheritance of evolutionary traits might be expected.

The reorganization of the physical compels the adaptation of practice. Van den Berg and van Steenbergen (2006: 81) note this “architecture can be undertaken in various ways, varying from isolated, autonomous projects to an interactive process of continuous facilitation”. Lindstrom, Johnson, Johansson, Ekstedt and Simonsson (2006: 82) also see a progression from chaos to a holistic approach encompassing both technical aspects and “the organizational context in which the IT systems operate”.

If Lindstrom et al.’s (2006) and Theuerkorn’s (2005) chaos is prefixed to the Ross et al. (2006) architectural states then the following Evolution of Architecture model (Figure 9) is synthesized. The model depicts a programme’s evolutionary states, from ad hoc project-based attempts at technical efficiency to a foundation of competitive advantage that improves business effectiveness through a continuous process of facilitation.

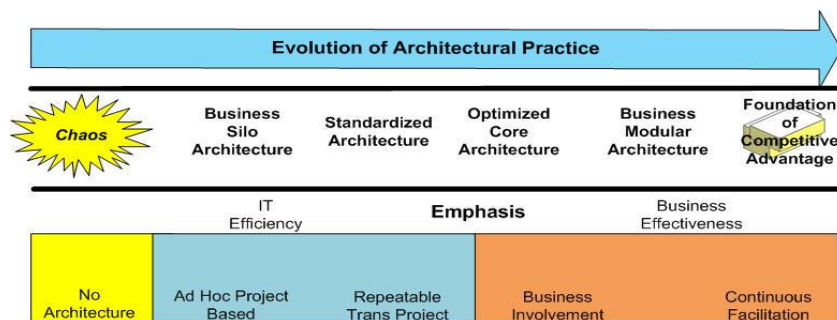


Figure 9: Evolution of Architecture Model Adapted from Ross et al. (2006) and others

The top tier of the model displays the architectural states observed by Ross et al. (2006), Lindstrom et al. (2006) and Boar (1999) and others. The second records the shift in emphasis from technical efficiency to a business effectiveness noted by Wagter et al. (2005) and van den Berg and van Steenbergen (2006). The last tier speculatively annotates the evolution of practice.

The early technical states require technical skills like software design. The later states require more social skills like communication. The new sociological skills are not, as are many technical skills additive, but paradigmatically different. The acquisition of the new skills changes the architecture *practice*.

The programmes' initial pursuit of efficiency evolves into a quest for competitive advantage with all programmes destined for the same, hypothetical, end state.

The problems of discordant epistemologies, contested definitions and fragmentation are explained by accepting that architectures evolve uniquely. Even within a programme successive states can present incongruously as the nature of the transformations and the observers' perspectives change, making conflicting observations likely. For example, Matthee, Tobin and van der Merwe (2007), operating in a sophisticated programme, promote a "*comprehensive set of principles*". For those struggling with chaos, principles might appear an esoteric artefact that Minoli (2006) warns will never be used. Observations true in one state are not necessarily so for another.

The Evolution of Architecture model does more than fuse perspectives to satisfy the literature's dislocation. It provides a potential root on which we can develop an understanding of architecture, particularly if its dialects are understood.

3.4 Quantitative Literature Analysis

A quantitative analysis extracted over 500 observations concerning architecture from more than 100 sources. An article, a paper, a book or a chapter of a compendium were considered unique sources. The result was an eclectic data base with over 300 authors.

The best measure of the significance of an observation is not the frequency of its report, but the number of discrete sources of report. This prevents the distortion of repetition. One source declaring an observation three times, being less valuable as a measure, than three sources reporting the same observation once.

The data was analysed and based on a Normal distribution the sample size of 106 gives a Confidence Level of approximately 95% with a Margin of Error of about 9.6%. The sample size n and the margin of error E are calculated by:

$$x = Z(c/100) \sqrt{2r(100-r)},$$

where $n = N x / ((N-1)E^2 + x)$
and $E = \text{Sqrt}[(N - n)x/n(N-1)]$ (Stephens 2004)

Therefore the sample is sufficient to provide valid insights.

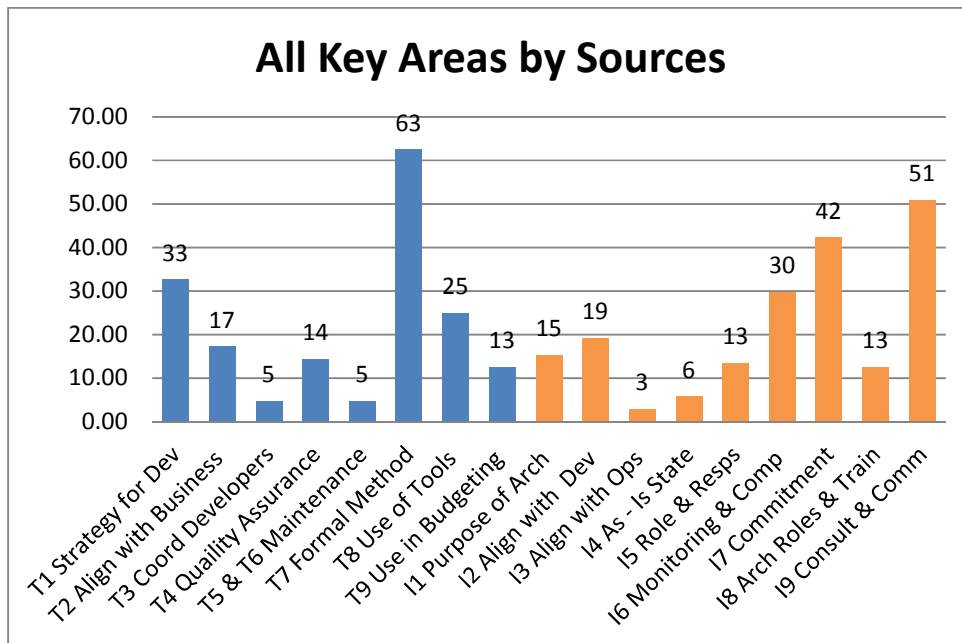


Figure 10: Tally of Sources Reporting Key Areas

The analysis revealed (Figure 10) that six Key Areas (KA), accounting for 72% of all observations, were cited by more than 25 sources – three are Thinking Key Areas: Strategy for the Development of Architecture, Use of Formal Architectural Methodology, and Architecture Tools; the others are the Integration KAs Monitoring and Compliance, Commitment and Motivation, and Consultation and Communication.

Table 10: Literary Derived CSFs

Label	Title	% Sources*
T1	Strategy for the Development of Architecture	33
T7	Use of Formal Methodology	63
T8	Architecture Tools	25
I6	Monitoring and Compliance	30
I7	Commitment to the Use of Architecture	42
I9	Consultation and Communication	51

* Sources typically cite more than one CSF.

Interestingly, given its prominence and repetition in some sources, Alignment with Business (T2) scored at a low level (17%). This might be attributable to a generalized belief that a governance structure or a formal architectural methodology assures alignment. The high Architectural Method (T7) score could be the consequence of the epistemological orientation of the literature, as might Architecture Tools (T8). An argument can also be made that the literature’s discourse promotes Thinking KAs in general and Architectural Method (T7) in particular.

The “Integration” trio of Monitoring and Compliance (I6), Commitment and Motivation (I7) and Consultation and Communication (I9) seem intuitively related, revealing the complexity of the vague concept communication. Consultation, Compliance and Commitment are all linked. Communication, the means to the ends, is the interface of the individual agent to the *durée* (Giddens 1984). It is conceivable that a failure to communicate would result in reduced authority and an inability to monitor and enforce compliance, a scenario found in the interview data:

“It doesn't take very long, to reach that ... beyond which it's just too hard and XXXX has something like 30 projects underway of which we know about, (long pause) five the others are either stalled or we've seen about them or heard about them but haven't been involved in the discussions or any of their ... deliverables or any of their architectural discussions so we go, well we know that project exists but I have no idea as to what it's doing (cough) it could be completely wrong, but unless you know who is involved you can't just sort of walk up and get people in headlock and make them tell you” (IAN, VN860005, 35:10)

The subsequent loss of legitimacy and the erosion of confidence lead to a reduction in commitment. Here is a verified scenario where social factors guaranteed the atrophy and subsequent failure of a programme. In IAN's case the programme was shut down about six months after the interview.

Furthermore, van den Berg and van Steenberg (2006) demonstrate, by the inclusion of political processes like arranging sponsorships in their definition, that the Strategy for the Development of Architecture (T1) CSF is distinguishable from the other Thinking CSFs by its social content. This means that at least four of the six literary CSFs are at least partially sociological suggesting that success is hardly just methodological.

This is not to say that there are not non-sociological factors at work. The literature reports a wide variety, all of which have been true on some occasion. There is the Ambler's (2003) over-bearing governance, a failure to demonstrate value (Balabko and Wegmann 2006), the lack of direction or the internal weaknesses noted by Blumenthal (2007) and O'Neill et al. (2007). But, many such failures might be explained as minor technical difficulties magnified by a sociological undermining of architecture's legitimacy.

It is significant, given the literature's meagre representation, that when divorced from the observers' perspectives, the data has such a decisively sociological bent. This suggests a literature ill-equipped to express anything other than its dominant discourse.

3.5 The Critical Success Factors

The CSFs in an abbreviated nomenclature with an analytical commentary follow. Typically the observations form three or four thematic subsets that are individually too small to be statistically significant.

3.5.1 Strategy for Development

Having a Strategy for the Development of Architecture (T1) signifies the acceptance that the programme's development must be managed, techniques adapted and skills acquired. This is "*as important as the enterprise architecture products*" (Op'tland et al. 2009: 95). This is so in more ways than are obviously apparent. The strategy must align individual project architectures, the architecture programme's evolutionary needs and must be appropriate for the organization. The strategy should also be explicitly stated, holistic in scope and execution-focused.

3.5.2 Formal Methodology

The Use of a Formal Methodology (T7) was the most frequently reported CSF; confirming that methodology is widely accepted as the foundation of architecture. The data tells us that artefacts should be developed in a methodical manner with defined tasks supported by appropriate techniques. The detail must be formalized to create a repeatable process (*routine*), be specific enough to be useful while generic enough for reuse while providing a foundation for development (*mastery*).

3.5.3 Architecture Tools

Architecture Tools might be viewed as an extension of methodology and be driven in a similar way by the Builders' paradigm. This seems particularly likely if one considers the survey data (Chapter 4), which highlights architects' predominately technical backgrounds and propensity to Align with Developers (I2).

3.5.4 Monitoring and Compliance

Monitoring and Compliance (I6) is vital, for without it there is no architecture and little prospect of its development. The data provides two points. Firstly, governance systems must allow exceptions, there will be circumstances in which it is advisable to suspend the usual rules and that such occurrences are opportunities to improve the process. "*Exceptions are evaluated in case they justify improvements to*

governance or IT domains” (Strang 2005). This last point connects architecture *practice* with Pentland and Feldman’s (2008) *performative* adaption of *routines’ ostensive* aspect; this will be revisited in Chapter 6.

3.5.5 Commitment and Motivation

Commitment and Motivation (I7) is defined by van den Berg and van Steenbergen as: “*Commitment and motivation by the architecture stakeholders is critical in bringing the architecture up to speed and making it successful.*” They also note “*Business and IT management are primarily responsible for creating a favorable atmosphere*” (2006: 85). The last point is almost buried by a seeming reluctance to be critical.

The data presents leadership, the credibility of the programme and the organizational culture, expressed through its acceptance of governance, as the manifestations of commitment signifying architecture’s sociological dependence. While these observations might present as technical / organizational, for example governance, the themes authority and legitimacy are sociological.

3.5.6 Consultation and Communication

The most commonly observed and arguably least easily defined CSF is Consultation and Communication (I9). While intuitively important, communication is an ambiguous term. There are however, three themes; communicate to “everyone” by “all means” to “sell” architecture. This last point is both the selling of the “current” architecture and more importantly, from a *practice* and sociological point of view, selling the idea of using architecture. Here is empirical evidence for social reproduction. From a Structuration theory perspective this could be considered the deliberate use of the *reflexivity of practice* in the *durée* to influence the social *structure*.

Selling architecture to the whole organization, not just the executive, is a subversive path to legitimacy. There are numerous references to selling, particularly in the interviews with architects from *Losing* programmes. Possibly they perceive it as their only option. This view of communication marks it as an enabler of the other CSFs.

3.5.7 Empirical Summary

The value of the data is that it is the systematically assembled wisdom of a formidable expert population that can be decomposed to reveal common attributes. Overall the advice is methodologically and artefact-centric. While the sociological is acknowledged there is little practical content.

3.6 An Alternative View

There are other ways of viewing the data. For example, four CSFs could be considered techno-organizational: Use of a Formal Architectural Method (T7), Strategy for the Development of Architecture (T1), Use of Architectural Tools (T8) and Monitoring and Compliance (I6). These are concerned with improving the efficiency of the architectural programme. The two other CSFs are socio-organizational: Consultation and Communication (I9) and Commitment and Motivation (I7), concern effectiveness and discursively link communication and behaviour.

Monitoring and Compliance (I6) can be seen as the intersection of two otherwise discrete sets. It represents the imposition on a sociological structure, of a technical discourse (methodology) that is *signified* by Design Science artefacts and authorized by management. This is significant, because it exposes the fallacy of the presumption that authoritative power is simply enshrined in artefacts or routines, when clearly this is not necessarily the case. *“Formal governance model is only used when communications breaks down.”* (PHIL, Notes) Methodologies create artefacts; however the realities of *practice* often require a change in behaviour.

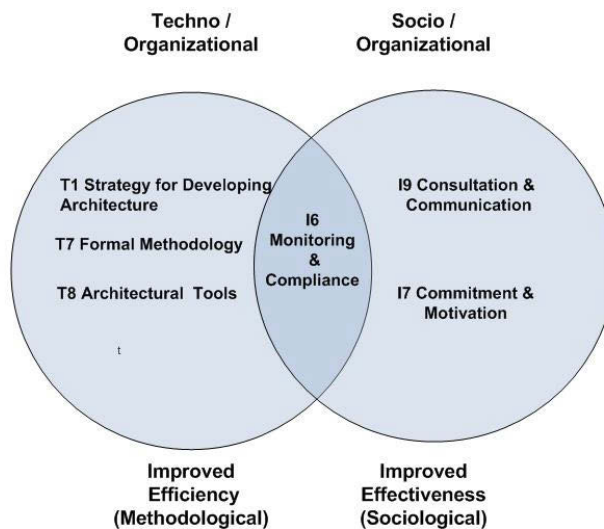


Figure 11: Intersection of Literary CSFs

The intersection demonstrates the inappropriateness of the Builders’ paradigm’s separation of the technical from the social. Ultimately Design Science artefacts are implemented by people and the point at which a meme passes from artefact into practice is fraught with difficulties. This perhaps accounts for the literary fetish for artefact design. These are methodological attempts to infuse *authority*, often by the use of excessive detail or jargon, into artefacts to smooth their acceptance by other communities of

practice. For architects methodology is the *“structures of domination whereby power that “flows smoothly” in a process of social reproduction (and is, as it were, unseen) operates”* (Giddens 1984: 257). However, if *practice* is not *legitimized* then its artefacts have no *authority*.

3.7 Interpreting the CSFs

Kanellis and Papadopoulos (Carter-Steel and Al-Hakam 2009: 9) explore the failings of positivist approaches, noting the absence of IS foundational theory and suggesting the use of multiple reference disciplines - *“the key reference disciplines for IS: computer science, management science, organizational science and economics”*. They conclude that the researcher should *“choose the appropriate paradigm which reflects the researcher’s own conclusions as to the existence of an objective reality”* (ibid: 26).

While tallies make the data amenable to basic analysis and decomposition reveals some details, this adds little to our understanding of practice. Furthermore, there is an inherent epistemological tension in the objectivist accounting of subjective observations.

On inspection it is by no means certain that the CSFs are epistemologically unique, exhaustive or even discrete. Even considering all CSFs equal or related may be a mistake. Consultation and Communication (I9) for example, seems a means rather than an ends, and may actually be a common aspect of all CSFs. However, an overall thematic consistency suggests that these ambiguities are the result of the observers’ perspectives, as all reports are true for their observer.

The quantitative analysis cannot establish a functional relationship model of the CSFs. However interpretive augmentation, as promoted by Kanellis and Papadopoulos (ibid), offers new insights with the pervasive and elusive nature of *“Communication”* suggesting a starting point. A perspective drawn from the commentaries of Wagter et al. (2005), Wilkinson (2006) and supported by the research of Reich and Benbasat (2000) postulates IT governance as a dialogue between business and IT which supports *“the intellectual and the social dimensions”* (ibid: 82) of strategy creation.

“The Strategic Dialogue determines which business objectives will be pursued – and ensures that the right things are done at the right time. This dialogue defines a business objective in a business case and then elaborates the objective as a concrete project proposal. This process is a collaboration of business and IT management who together determine which business objectives should be pursued.” (Wagter et al. 2005: 60)

Brown and Isaacs (1996: 2) define dialogue as a *“process of collective thinking and generative learning”*. In the same way that all organizations have architecture, they also have a Business-IT Dialogue. The absence of recognition does not negate this, but has consequences as *“an organization’s results are determined through webs of human commitments, born in webs of human conversations”* (ibid: 2).

The Business-IT Dialogue is the means by which information passes between business and IT and is the major structure of the durée. Casual unstructured communication is ineffective, *“there is a critical need to develop systems and processes that help foster new and useful kinds of conversations”* (ibid: 2) the dialogue should be deliberately constructed by a Strategy for the Development of Architecture (T1) as a *“useful kind of conversation”*. This is seen later in the experiences of the interviewee ALAN *“And the frameworks of EA give us models, it gives us a lexicon to talk”* (VN80020, 2:55). Brown and Isaacs warn us that failing to consciously structure a dialogue leaves it vulnerable to dysfunctional transactions as DEAN experienced with a rogue project manager (VN80013, 10:31). Structuring the dialogue is the primary purpose of governance regimes, although those involved may not explicitly understand this.

Brown and Isaacs (1996: 2) assert that conversation is the *“means through which requests are initiated and commitments made”*. Thus Communication (I9) the most abstract CSF, binds business Commitment (I7) to Strategy (T1). One qualifies the other and formats it for execution by the Methodology (T7). In the Business-IT Dialogue model below (Figure 12) the stakeholders are represented by Zachman’s perspectives. However, these groups are neither discrete nor permanent with individuals moving between or holding multiple perspectives.

As the data indicates that no single factor assures success; success must be a function of their interaction. The Business-IT Dialogue model (Figure 12) is synthesized from these CSFs to suggest how this might occur. The literary observations, individually perceptively narrow, contextually ambiguous and without validation, when accrued to the model, expose the mechanics of the Strategic Alignment model (Henderson and Venkatraman 1993) justifying the positioning of architecture (Figure 2).

The Business-IT Dialogue model (Figure 12) demonstrates a business need emerging and its transformation by a well-formed Business-IT Dialogue into an aligned *“concrete project proposal”* (Wagter et al. 2005: 60). The dialogue negotiates and transmits the Owners’ abstract vision into the rigorous perspectives of the Planners and Designers who instruct the Builders. In turn the Builders comply with the Designers’ solution, the Planners’ intent and the Owners’ vision.

This abstraction of architectonic communication illustrates its complexity. The absence of any factor renders the dialogue dysfunctional. The artefacts may be design science, but the process is sociological. This is the detail of Giddens’s *durée*. It may not be all of it, but it is certainly some of it.

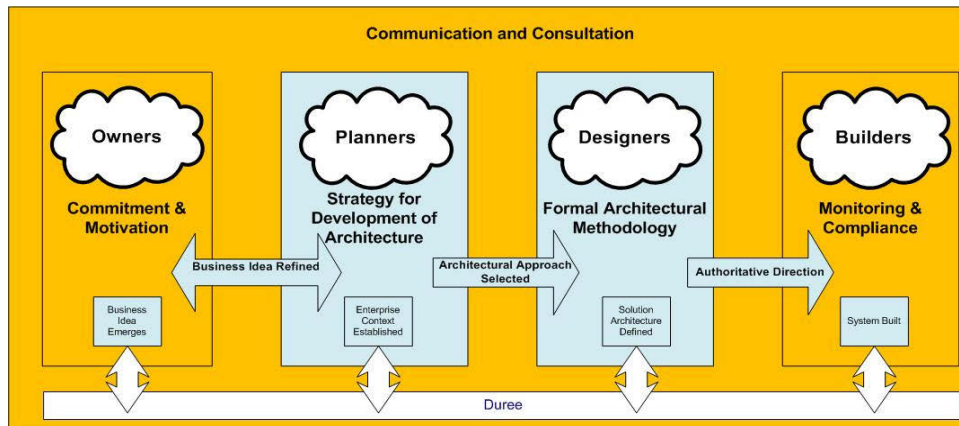


Figure 12: Business-IT Dialogue Model of CSFs

The clouds represent perspectives according to Zachman. The rectangles are the literary CSFs, orange for Integration, blue for Thinking. These should be thought of as an *ostensive* aspect common to the individual observed *routines* that were accumulated to create the CSF. The de-contextualization of the compilation process generalizes away the specificity of the *performative* leaving only the intent and distilling a generic theoretical “*ostensive*” methodology, the artefacts of which are injected into transactions of the *durée*. It is in these transactions (*performative*) that the fate of architecture is decided.

The Business-IT Dialogue *legitimizes* the *realization* of the abstract intent into the physical system by the *authority* of the Owners’ Commitment. The Planners communicate with the Owners (business) *signifying* the competence of architecture to direct the *realization*. In doing so their Strategy for the Development of Architecture initiates the adaptation of the Formal Methodology, by the *performative* modification of the *routines’ ostensive* aspect, to facilitate the architecture’s *realization*.

The Designers’ Formal Methodology is a key component of the dialogue. Driven by the strategy its *performative* generation of directive artefacts, that encapsulate the Owners’ *authority* and span the boundaries of the communities of practice, stimulate the *durée* – the “*continuous flow of conduct*” (Giddens 1984: 3), signal changes and drive its evolution as it corrects, synchronizes and prepares for each transition.

We can see examples of this dialogue in the interviews with the architect from *Enabling* programmes. For example “*I want an architect telling me if I should even be looking at this business strategy.*” (PETE, VN860017, 0:05) is the first transition, business idea refinement. Then there is selection of the architectural approach “*at some point we start making recommendations in design that (unclear) that sit above the project level*” (Ibid, 4:10). While “*It’s natural for architects to communicate requirements down to projects.*” (ibid) is clearly authoritative direction.

Viewing the Enterprise Architecture Context diagram (Figure 2) through this lens we can see that, while the vertical, mono-directional arrows indicate *authority*, alignment, the bidirectional horizontal arrows, are at all levels dependent on communication.

The Business-IT Dialogue model, based on analytical data, provides insight on two levels. At a data level it explains the reported frequency of the factors. Architects would observe the CSFs in their daily activities. It also reveals that communication is best understood as participation in Giddens’s *durée*.

The model’s theoretical insight is most significant as it connects, through its exposure of the primacy and ubiquity of communication, the literary data to the well-established IS concept of alignment (Campbell 2007).

Luftman (2003a) lists six “*Alignment Categories*”. First amongst these is Communication Maturity, along with two other sociological categories, Governance and Partnership Maturity. The core of Luftman’s proposition is sociological. Offering a similar observation to that made about the CSFs, he concludes that “*no single activity will enable a firm to attain and sustain alignment*” (ibid: 15). This leaves no option other than that success is a consequence of interaction, a reinforcement of Campbell’s (2007) conclusion that Strategic Alignment is a dynamic process and a further discursive validation of the evolutionary imperative of architecture.

Architecture *practice* is concerned with attainment and dynamic sustainment of alignment. This is attested by the contrasts of the literature and practitioners’ data. Authors removed from the immediacy of practice are less sociologically sensitive than architects engaged daily in the *durée* of realization. It seems that alignment, or perhaps more correctly misalignment, is a symptom of a dysfunctional dialogue.

Alignment cannot be purchased or imposed; it must be continually crafted in the *durée* by the

community of practice through the social construction and reproduction of the Business-IT Dialogue. By the dynamics described the dialogue is transformed from simple communication into a vehicle for collaboration and negotiation. It becomes the means of power transmutation, an assertion reflective of the Ross et al. (2006) view that organizations learn as their dialogue develops. Understanding the social reproduction of the Business-IT Dialogue requires an understanding of the structure and dynamics of architecture *practice*.

3.8 The Structure of Architecture Practice

A literary analysis requires an accommodating scaffold that can reconcile its themes and discontinuities. EA's lack of an agreed ontology (Winter and Sinz 2007) and its methodological centrality limit the options to a methodological genesis. While initially methodology might be seen as a constraint O'Neill et al. (Saha 2007) remind us that architecture struggles with the duality of being both, a methodology and its *practice*. When we consider architecture from a *practice* perspective we dismantle this traditional notion to make our considerations in a different light:

“different levels of analysis and, importantly the relationship between them. It not only goes beneath organization-level processes to investigate what goes on inside organizations; it also goes above these processes to interrogate how the practices and tools originate from a wider business environment outside the firm (Molloy and Whittington 2005). Strategy practices such as strategic planning, strategy workshops or consultancy practices need to be understood as institutionalized phenomena that influence what organizational actors do and in turn how strategies develop in organizations” (Johnson et al. 2007: 12)

Whittington (2007), also discussing the practice of strategy, makes a distinction between practice as *“shared routines of behaviour, including traditions, norms and procedures for thinking, acting and using ‘things’ ”* and practice as *“people’s actual activity ‘in practice’ ”* (ibid: 616), which he calls *“praxis”*.

Scrutinizing practice in a similar way to Pentland and Feldman’s (2008) approach to *routines*, Whittington’s (2007) decomposition effectively equates, by its innate exigencies, *praxis* (actual activity) to a *routine’s performative* aspect. He goes on to suggest that the properties of *activity* are not simply *what* is done mechanically, but *how* it is done, *“something requiring close anthropological attention”*

(ibid). And acknowledges the osmotic relationship between the intra (micro-detail) and extra organizational (larger social) influences asserting that “*particular activities cannot be detached from society, for the rules and resources it furnishes are essential to their action.*” (ibid: 615)

Figure 13 below highlights the difficulty of sense-making in complex problem spaces like architecture where the relationships can be rigid, in the sense of being a formal methodology (*ostensive*), or constitutive (*performative*) in the *praxis* sense of *practice*.

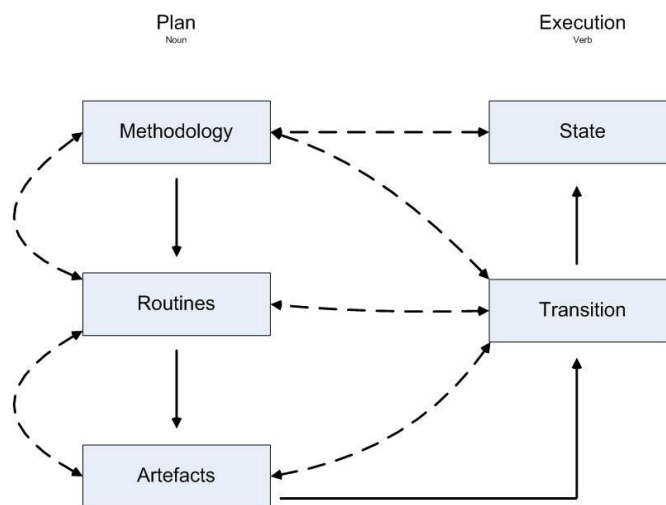


Figure 13: Practice Focus

In figure 13 the full line arrows represent the methodological relationships of architecture. A Methodology proscribes Routines that generate Artefacts, which direct Transitions that deliver the desired State.

The dash-line arrows emanating mostly from the Transition activity represent the *praxis* of architecture. This is the *situated learning* of the Business-IT Dialogue, fed back through the *durée* and the consequences of the *performative* modification of the *ostensive* aspect of the *routines*.

Situated learning is accumulated from the *performative*, shaping the *ostensive* (abstract specification) aspect of the *routines*. This influences the next iteration of the *performative* demonstrating both the duality of architecture and the potential of *social reproduction* to influence methodology. The dash-line arrows are the paths of the *practice* influence. To gain an understanding of these phenomena we return to the literature.

3.8.1 Architectonic Activity

The literature (Hayes 2005; Koch 2005; Parsons 2005; Lindstrom et al. 2006; van den Berg and van Steenberg 2006; Ross et al. 2006; Blumenthal 2007 and others) expose, often discursively, architectonic *praxis* as three interconnected activities which we will name realization, assimilation and cultivation.

These Architectonic Activities are the meta-components of *praxis*; they are the summation of the collective intent of a set of *routines*. Theoretically *activities* can be defined as a set of methodological *routines*, both formal (methodologically originating) and improvised (heuristically adapted by the architects), for a particular instance of architecture, that are delineated by their collective intent, be that consciously understood by their practitioners or not.

Individually *routines* have a purpose, to create an artefact for example. Collectively, as architectonic activities, *routines* are employed with a particular intent. The most obvious of example of intent for architecture, is the *realization* of an IT system. Other intentions, like cultivating the architecture programme and assimilating architecture practice into the organization are just as important, but less obvious. This difference can be summarized as purpose is an attribute of the functional (*routine*). While intent is a sociological phenomenon (architectonic activity).

Despite its nature it is a mistake to presume that a composite like an architectonic activity necessarily displays the characteristics or utility of its individual constituent components when considered as that collective. For example consider water, in a large enough body it may have ripples, waves, currents and even tides. But none of these are to be found in a single drop. And yet the largest ocean is composed of drops. Clearly the overt properties of an individual isolated drop of water are quite different from those of an ocean. As such composites architectonic activities differ from *routines*, although composed of them, on two theoretical counts. As we will see, they do not necessarily have an *ostensive* aspect and may not even have a *performative* aspect. *Activities* also do not have a specific purpose like a *routine*; they have the intent for which their *routines* are employed.

Activities also do not produce “*significant outputs of a particular type*” (Winter 2000: 983) and so are not themselves organizational capabilities. However EA, as an organizational capability is enacted through the *activities* and can only be effectively enacted through the judicious integrative (i.e. complementarily synergistic) practice of the three *activities realization, cultivation and assimilation*.

The lack of particularity is perhaps the hallmark of architectonic activities. Just as a toolbox implies the intent to repair, so *activities* have their intent (*realization, cultivation, assimilation*). And, just as the adjustment of a particular bolt requires the appropriate spanner, a particular task requires the appropriate *routine*. *Activities*, because of their dialect (sociologically motivated intent), are perhaps better thought of sociologically, as *structures* through which architects *practice*. As such they have implicit circumstantial rules and resources that are not necessarily easily recognized. It is methodologically sufficient to understand an architectonic *activity* as a set of specifically purposed *routines*, employed with a collective intent that is a component of *praxis*.

This combination of collective ambiguity and individual specificity has its roots in the instance specificity of architecture. Just as a particular spanner fits the wheel nuts of one mark of car, but not another, so too *routines* must be appropriate not only for their purpose, but also for their organization. One cannot use Imperial gauge spanners to repair a German vehicle.

Considering the epistemological nature of *activities*, beyond their methodological intent, it could be argued that they are a link between *routines* and a more strategic dialect something similar to Whittington's observations on the relationship between intra and extra organizational influences (2007: 615). This however should not be confused with the *routines* constitutive *ostensive* aspect. Furthermore, *activities* are perhaps better considered as more an organizing rather than a defining *structure*.

However, arriving at *activities* via the thematic accumulation of their content (*routines* via literary observations), as this research has done, is perhaps not the best place to begin their examination. It must be considered that the apparent disconnection of *routines* from the strategic may be a consequence of Pentland and Feldman's decomposition. And that, such epistemological questions perhaps belong more to the realms of organization or social theory than EA; where they might be related to the nature of Giddens's *durée* or Foucault's discourse. However, such questions are beyond our scope.

Regardless of the answers, the value of the *activities* concept is that it abstracts away the complexity of EA's "*fragmented*" (Saha 2007) epistemology; in which the *routines* exist, while preserving their intent. In this *activities* represent a bridge that allows us to think generally about *routines* in a more specific social context. This gives us a view of the dynamics of practice by filtering out the clutter of perspective specificity and dependencies that complicate the analysis. However, even with this filter in place the

data can still be challenging.

The instance specific nature of architecture and the duality of *routines* (*ostensive* and *performative* aspects), make it impossible to identify a universally consistent relationship between a particular *routine* and a particular architectonic *activity*. This phenomenon is discussed further in Chapter 6. However, at a high level, where the noun and verb nature of architecture is appreciable and where the context of the architecture is a tidy theoretical given, such classification is typically quite simple.

In such a generic context, *realization* is considered as the delivery of the architecture. *Assimilation* is architecture’s integration (as a *practice*) into sociological *structures* of the organization. *Cultivation* is the accrued reflexive adaptation of practice (as artefacts, behaviours or thinking), through situated learning, to the organizational context. By decomposing *practice* into these three activities we begin to come to grips with the detail. Table 11 contains activity definitions and examples.

Table 11: Activity Definitions

Activity	Derived Definitions
<p>Realization <i>“The purpose of the Enterprise Architecture is to provide the foundation to describe the need for new IT systems and strategies for modernizing existing ones”</i> (Landre, Wesenberg & Ronneberg 2006: 810)</p> <p><i>“The Enterprise architecture is the overall framework or blueprint for how the enterprise uses information technology to achieve its business objectives.”</i> (van den Hoven 2003: 90)</p> <p><i>“goal of any enterprise architecture (EA) is to define the current “as-is” organization, describe the desired future “to-be” organization and a set of objectives and goals to make the transition from one state to the other.”</i> (Lyon 2006: 41)</p>	<p>Architecture’s primary purpose the implementation and transformation of systems.</p> <p>It is the overt manifestation of practice that includes architectural thinking.</p>
<p>Assimilation <i>Form a cross-functional working team with representative stakeholders from across the organization”</i> (Ross & Petley 2006: 56)</p> <p><i>“IT and business, must depend on and trust each other”</i> (Gruman 2006: 7)</p> <p><i>“Take executive level ownership of enterprise architecture initiatives, and establish the understanding that managing the enterprise architecture is an activity that equates to managing the business strategy and plans.”</i> (North, North & Benade 2004: 177)</p> <p><i>“It didn’t get into the information flows of the business enough and was seen as an ivory tower project”</i> (Koch 2005: 1)</p>	<p>The embedding of architecture into the organization’s DNA.</p> <p>The acceptance of architecture practice by other communities of practice.</p> <p>It is the organizational integration and more importantly the sociological legitimation of architecture.</p>
<p>Cultivation <i>“Define architectural modeling standards and best practices to</i></p>	<p>The conscious development and</p>

<p><i>guide the development of architectural models.”</i>(Ross & Petley 2006: 56)</p> <p><i>“Create a group of Framework models with logical placeholders for more detailed development at a later date.”</i> (Ross & Petley 2006: 56)</p> <p><i>“The trick is to shift through the discipline’s various approaches until you find one that best fits your organization.”</i> (Bolles 2004: 69)</p>	<p>application of practice skills to realization and assimilation.</p> <p>The alignment of the routines’ patterns of action and the methodology’s intent</p>
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While there are many, like the examples above, often unacknowledged references to one or two architectonic activities a few models, Theuerkorn’s (2005) Three Domains model and the Decision making levels of Pulkkinen and Hirvonen’s (2005) EA management Grid model in particular, discursively unite all three. Table 12 provides some examples accompanied by their CSF classification in brackets, for example (T7) is Thinking 7, the Use of a Formal Methodology.

Table 12: Unified Architectonic Sources

Source	Realization	Assimilation	Cultivation
<p>Op’tland et al. (2009 : 11)</p> <p><i>“We now summarize the core aspects of the process of enterprise architecting.”</i></p>	<p><i>“Understand purpose and context”</i> (T7)</p> <p><i>“Support decision making”</i> (T7)</p> <p><i>“Determine deliverables”</i> (T7)</p>	<p><i>“Create shared conceptualizations”</i> (I9)</p> <p><i>“Monitor context and stakeholders”</i> (I6)</p> <p><i>“Establish Leadership”</i> (I7)</p> <p><i>“Update and communicate”</i> (I9)</p> <p><i>“Embed enterprise architecture in governance”</i> (I7)</p>	<p><i>“Design creation process”</i> (T1)</p> <p><i>“Assess drivers for change”</i> (T1)</p> <p><i>“Monitor maturity”</i> (T1)</p> <p><i>“Manage quality”</i> (T1)</p> <p><i>“Select frameworks, tools, and tricks”</i> (T1)</p>
<p>van den Berg and van Steenbergen (2006)</p> <p>Quadrant Model</p>	<p><i>“Architecture is the control instrument to make sure that the content of such developments is coordinated.”</i> (ibid: 84) (T7)</p>	<p><i>“A great deal of consultation with various stakeholders is required in developing architecture.”</i> (ibid: 86) (I7)</p>	<p><i>“the architectural process needs to be maintained. This is the only way to safeguard the effectiveness and efficiency of architecture.”</i> (ibid: 85) (T1)</p>
<p>Ross et al. (2006)</p> <p>Business Perspective</p>	<p><i>“Choosing an operating model forces a decision on a general vision. Identifying the key customer types, core process, shared data, and technologies to be standardized and integrated demands commitment to a particular course of action.”</i> (ibid: 65) (T7)</p>	<p><i>“the enterprise architecture should start with senior management debating operating models.”</i> (I7) (ibid: 65)</p>	<p><i>“Each stage involves organizational learning”</i> (ibid: 71) (T1)</p>

Parsons (2005) No model offered	<i>"As part of the development team, architects primarily act as customers, providing requirements that relate to the enterprise architecture"</i> (ibid: 16) (T7)	<i>"Establishing relationships between the architects and developers is another important benefit of this approach"</i> (ibid: 17) (I7)	<i>"The role and skill requirements for architecture teams often differ from those of development teams"</i> (ibid: 17) (T1)
Theuerkorn (2005 : 62) <i>"The significance of this framework is that each realm requires a different level of involvement from the architect"</i>	<i>"Finally in the Execution Architecture the architect group acts as a mentor"</i> (T7)	<i>"In the Strategic Architecture the architecture mainly serves as a translator from the business leadership"</i> (I7)	<i>"The architect group is the owner and creator of the activities in the Conceptual Architecture"</i> (T1) <i>"architect group acts as a mentor"</i> (T1)

Corroboration of the *activities* can be found in the interview data. While *realization* activity is self-evident, as pointed out before, *cultivation* and *assimilation* are often not as easily discerned. The following are examples of *cultivation* activity:

"Embracing the EA approach for us and picking up on the Zachman framework" (ALAN, VN860020, 3:44)

"And the frameworks of EA give us models it gives us a lexicon" (ALAN, VN860020, 2:55)

"we refreshed the IT strategy and know what we are going to do over the next seven years in terms of alignment with the strategic imperatives." (FRED, VN860022, 2:08)

In the first ALAN has clearly made a decision that the architecture would be founded on the Zachman framework. He is designing and developing, cultivating his architecture practice. The second statement is another technical choice and the last indicates that FRED is considering the future; he is anticipating and preparing for the architecture's coming challenges.

Similarly, *assimilation* examples can be found in the interview transcripts.

"What works for me in a sense is that in my organization we are a knowledge industry therefore business and IT have a very strong alignment; were joined at the hips." (ALAN, VN860020, 2:55)

“For this plan that we embraced in this organization was a review of all our business functions then drilling down from those business functions and looking at what systems supported those” (ALAN, VN860020, 6:51)

“I had a management view of things I started to see things from a different perspective. It was like an IT management audit sort of roll and then did BA work and one day it just all kind of gelled like I could look at it from a business view point, a technical view a project manger’s view from having done all these roles.” (JIM, VN860016, 45:51)

The first statement describes the current depth of *assimilation*, the second the expected scope and the last about how JIM’s role is *assimilative*. The data holds many such examples. And so it can be seen that many *routines* invoked during the implementation of an architecture have effects other than the architecture’s simple physical *realization*. This architectonic *structure* is illustrated in the EA Practice ontology below

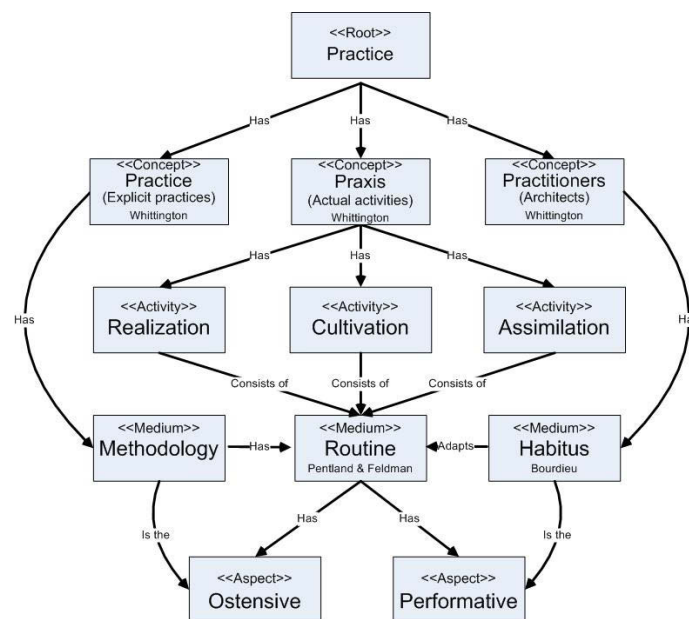


Figure 14: Ontology of EA Practice

At the Root is a generalized concept of practice with all its ambiguity. This is decomposed by reconceptualising Whittington’s (2007) strategy as practice in an IS context with the emphasis on what Whittington labels praxis. Praxis is “people’s actual activity ‘in practice’” (ibid: 616). This research decomposes praxis into the three activities, *realization*, *cultivation* and *assimilation*. These activities are

sets of *routines*, which have as their intent either the furthering of the *realization* of the architecture, the *cultivation* of the architecture programme, its internal development, or the sociological *assimilation* of architecture into the social *structures* of the organization.

The *activities* are delivered through the medium of *routines* as defined by Pentland and Feldman (2008). These *routines* have two aspects, the *ostensive* the “*embodied and cognitive understandings that guide actions taken in the enactment of routines*” (ibid: 242) this is the formal methodology as understood by the actors and the *performative* the “*inherently improvisational*” (Feldman and Pentland 2003: 102).

This architectonic *structure* can, to some small degree, be tested against the data by mapping the literary CSFs to the *activities*. The ease with which this is accomplished suggests a compelling viability. While the CSFs’ observations coming from the same literature as the architectonic *activities* might seem circular logic, there is no innate reason why the six most reported CSFs should cover all three *activities*. This is more than co-incidental; it reflects the data’s internal structure and arguably validates the Business-IT Dialogue model.

Mapping observations to the *activities* helps make sense of the CSFs in a practice context. It shows how the individual *routines*, the observations of which were accumulated to create the CSFs, which are not necessarily applicable in all circumstances, when stripped down to their intent and aggregated in the Business-IT Dialogue, collectively explain success. The intent of a collection of *routines* (an architectonic activity) accounts for that which no single *routine* can.

For example, Strategy for the Development of Architecture is the *cultivation* plan for the architecture, while the use of methodologies and tools are part of its *realization*. Monitoring, Compliance, Commitment, Motivation Consultation and Communication are all social aspects and so map to *assimilation* the *activity* that represents social integration.

Table 13: CSFs Mapped to Architectonic Activity

Label	Critical Success Factor	Architectonic Activity
T1	Strategy for the Development of Architecture	Cultivation
T7	The Use of Formal Methodologies	Realization
T8	The Use of Architectural Tools	Realization
I6	Monitoring and Compliance	Assimilation
I7	Commitment and Motivation	Assimilation
I9	Consultation and Communication	Assimilation

3.8.2 Architectonic Dynamics

The architectonic *activities* are iteratively and mutually constitutive. Architectural transformations (*realization*) reveal new challenges driving the development of new *routines* (*cultivation*) that update the methodology (the *ostensive* aspect of its *routines*). The *routines* of the methodology, created by the *cultivation* activity facilitate *assimilation* by *signifying* architecture's competence (*legitimacy*) and delivering the systems (*realization*).

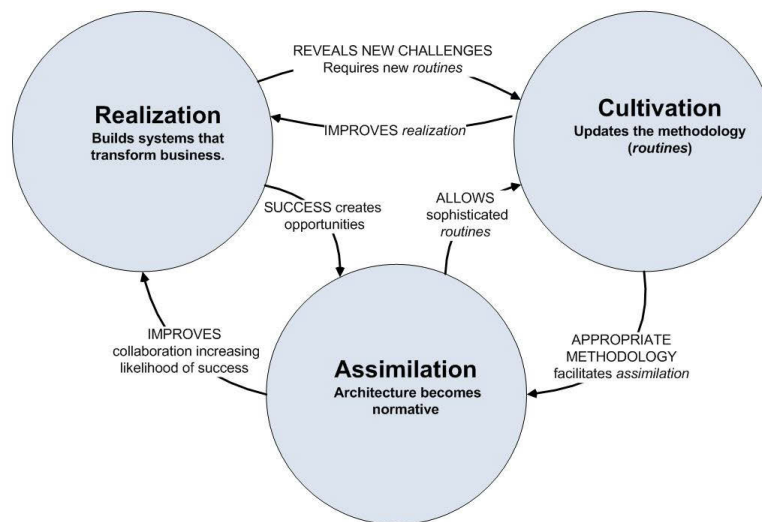


Figure 15: Mutual Constitution of Architectonic Activities

The initiation of their iterative mutual constitution is the result of the interplay of the *ostensive* and *performative* aspects of the sets of constitutive *routines* and their propagation by *social reproduction*.

The *realizations* also expand the programme's *scope* by engaging new areas of business, thus beginning a new phase of *assimilation*. In turn the increased *assimilation*, formally through organizational *authority* and socially through *legitimacy*, creates more opportunities for *realization*. *Realization* both facilitates *assimilation*, by increasing confidence, and requires further *assimilation* to increase the architecture's *scope*.

Theoretically *cultivation* can be considered as *realization*-driven *situational learning*. The architects develop their capabilities systematically making their *practice* reliable, repeatable, efficient and so more sophisticated. This process is the development of an organizational capability (Winter 2000) and competitive advantage that Ross et al. (2006) suggest is only achieved by a few organizations. The resulting success *legitimizes* architecture enabling the spanning of communities of practice, *assimilation*, embedding architecture as normative and extending its *scope*.

Whittington (2007) notes a similar process in the practice of strategy, “*that practitioners - people – are central in reproducing, transferring and occasionally innovating strategy practices.*” (ibid: 625) That “*have become accepted as legitimate*” and “*thoroughly internalized*” (ibid: 621). And “*that effective praxis [activities] relies heavily on practitioners’ capacity to access and deploy prevailing strategy practices.*”(ibid: 626)

3.8.3 Architectonic Activities and Organizational Routines

While, as described above, materially different architectonic *activities* align with Feldman and Pentland’s definition of organizational routines in that they are the consequence of enabling or constraining the “*structures that are typical of modern organizations*” (2003: 6). However, they are not necessarily “by default” logical or efficient as “*repetitive patterns of action will tend to emerge as organizational members choose to take the easier actions and avoid the harder ones*” (ibid).

The *realization* activity, the execution of the methodological *routines* has a clear parallel with the *performative* aspect of routines. The *ostensive* aspect is represented by the *cultivation* activity’s creation of the theoretical basis of architectural practice, the rules and understandings of the *routines*.

In theory the *routines* of a methodology are optimized for the implementation of architecture. But the social *structures* that support the execution of the *routines* must accept them as normative before they are effective. *Assimilation* is the means by which *routines* are accepted as legitimate by the architecture *community of practice* and so become normative.

Assimilation develops through the *situated learning* of the *performative realization* of the architecture. It is Feldman and Pentland’s (2003) *performative* modification, “*the way in which participants construct routines from a repertoire of possibilities*” of the *routines* into a sociologically normative methodology (*habitus*). And the key to the transmutation of *power* because *routines* are agreements about how to execute work that innately “*fosters the perceived legitimacy of organizations as institutions because their behaviour conforms to established norms*” (ibid: 102). This cycle of *mutual constitution* is complete, in the formal sense of mindful development, when the modification is absorbed by the *ostensive* aspects of the *routines*; thus updating the methodology.

This is van den Berg and van Steenbergen’s (2006) “*Maintenance of the Architectural Process*” (T5). One purpose of these “*cycle[s] of evaluation, development, improvement and implementation*” (ibid: 85), is to control unplanned and possibly undesirable “*performative modification*” by ensuring that

“organizational members” do not “take the easier actions” (Feldman and Pentland 2003: 98).

While the *routines* may be *signified* by *authoritative* artefacts their actual technical adequacy is irrelevant if the stakeholders are unwilling to participate. As Pentland and Feldman (2008: 235) point out, people often “*design artifacts when they want patterns of action*”. *Assimilation* is the acceptance of the alignment of the *routines’* patterns of action and the methodology’s intent, even when that is not the “*easier actions*”. With that achieved, the *reflexivity* of the participants *legitimizes* the *routine*, making its use normative and habitual thus replicating a well-formed Business-IT Dialogue. In turn this reinforces the commitment to the use of architecture by embedding it in the organizational culture.

3.8.4 Architectonic Activities and Structuration

From a structuration perspective architecture *practice* can be considered a modality of the Architecture Programme structure. This compliance is demonstrated by mapping the architectonic activities to Giddens’s “*dimensions of the duality of structure*” (Giddens 1984: 29) diagram with *cultivation* providing the interpretive scheme for communication, *realization* facilitating the application of *power* and *assimilation* establishing the *legitimized* norms.

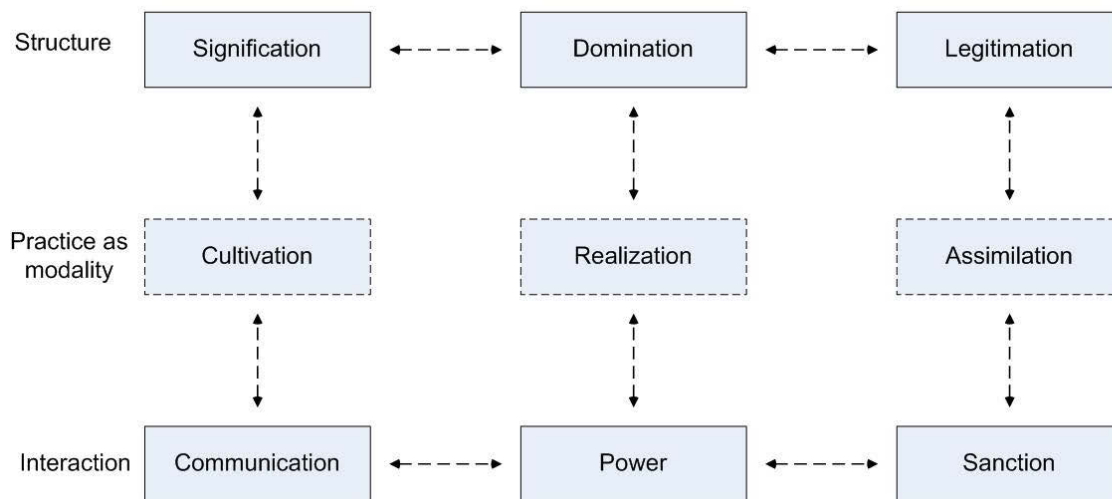


Figure 16: Architecture Practice and the Duality of Structure

“the modalities of structuration serve to clarify the main dimensions of the duality of structure in interaction” (ibid 28). *Practice* (modality) exposes the properties of the programme (*structure*); its rules and resources. *Practice* is the limits that the programme imposes to assure the social norm expectations are met. Those expectations, however, are not in stasis. Like the organizational routines, they are, as

noted earlier, continually being altered by knowledgeable actors who use their *practice* to adapt the rules and norms of the programme.

3.8.5 Corroborating the Architectonic Activities

The Quadrant model (Wagter 2005) can be used to corroborate these constitutive relationships. Methodologically independent it measures a programme’s impact by thought and action. It demonstrates how thinking about architecture, an analytical process, and integrating, a process with a strong sociological dependence, results in evolution.

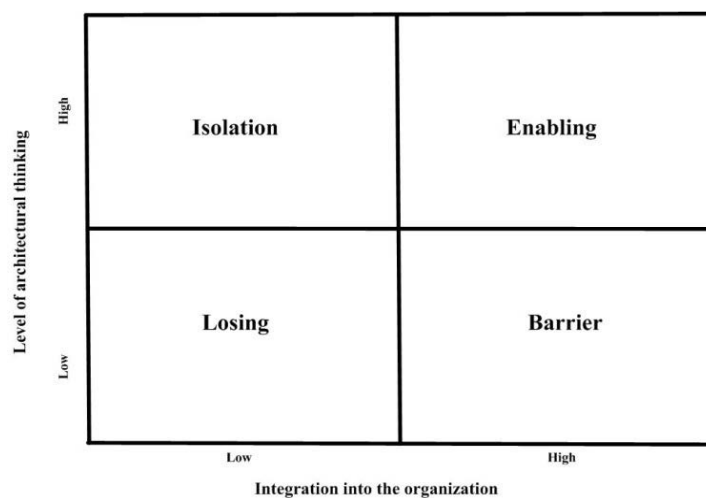


Figure 17: Quadrant Model (Wagter et al. 2005)

The “Level of architectural thinking” axis denotes level of architectural thinking that goes on in the organization, while the horizontal axis “Integration into the organization” measures the degree of integration. *Losing* programmes have little effect, scoring low on both axes. Programmes that only score high on thinking are *Isolated* ivory towers. *Barrier* programmes lack the sophistication to become a “*process of continuous facilitation*”. *Enabling* programmes are both sophisticated and integrated exhibiting CSFs related to all architectonic *activities*. *Isolated* and *Losing* programmes are deficient in the *assimilation* CSFs in particular, while *Barrier* programmes probably lack *cultivation* CSFs.

3.8.6 Architectonic Activities and Organizational Capability

As defined *realization* is the self-evident application of architecture, the vertical axis of the Quadrant model. Integration the lateral axis is gained through governance and organizational models as noted by many authors (Wagter et al. 2005; Ross et al. 2006 and others). Effectiveness, however, is dependent on the depth of *assimilation*. It is as Korhonen and Molnar (2014) suggest that “*The multi-faceted, socio-*

technical and dynamic nature of EA as capability requires more interpretive and constructive approaches that transcend the notion of simple objective reality." (ibid: 181) Where *assimilation* is shallow resistance occurs. Interviewee IAN relates how an *unassimilated* architecture programme was marginalized by wilful misinterpretation.

"Anything that is like a maintenance activity or just more of the same or just uses the same old stuff spare us the details we'll trust you ... So what they did was, agh, when a function came along that would obviously be an off-the-shelf product as a solution they would go and write their own system to deliver it, because then they wouldn't have to involve us ... so people ... would find ways around any freedom that we gave them ... to avoid their responsibilities ... And so you say to them well we can't do everything here are some criterion by which you can filter the fire hose, suddenly amazingly, there's nothing. You think, hold on has everything stopped? ... they find ways to divide their project up into 28 little stages each of which cost less than \$70,000 therefore they could do it completely without oversight because it didn't trigger any um, flaming hoops." (IAN, VN860005, 39:42)

While organizational structures can be mandated they are not necessarily social *structures* and do not guarantee *assimilation*. Arguably one of the interviewees programmes (DEAN Chapter 5) achieved a paradoxical situation of social *assimilation* without a supporting organizational structure, resulting in the seemingly unlikely combination of effective *practice* with impotent governance.

Programmes are not compelled to *cultivate* and anecdotally it seems that many do not. Furthermore, evidence for *cultivation* is typically discursive because unlike *realization* and *assimilation* which initiate interactions between the programme and the organization, *cultivation* is largely internal to the programme making its detection more difficult.

However, Ross et al.'s (2006) insistence that organizations must learn by stages is supportive of *cultivation*, as are the widely encountered evolutionary theme and the significance of the Strategy for the Development of Architecture CSF (T1) demonstrated in the following numerical analysis. While *cultivation* as a means of developing the architecture capability may not be as obvious as the other architectonic *activities* it is both the antecedent and reflexive product of *realization* and *assimilation*.

Situational Learning (Lave and Wenger 1991) provides us the theoretical link between *realization* and *cultivation*. If learning is an environmentally (and contextually) particular social process, as Lave and Wenger suggest, then it is by familiarization, both *performative* and *ostensive*, with the community of practice's *routines* that *practice* develops.

Transitions between architecture states provide the impetus for *evolution of architecture* and *routines* (Feldman and Pentland 2003) the means. The mechanics of *practice* are to be found in, and *mastery* arises from skill in these *routines*, suggesting that a Strategy for the Development of Architecture, as identified by van den Berg and van Steenberg (2006), must both develop architecture and guard it against emasculation by indifferent or hostile cultures.

An organizational capability is more than the deployment of skills via routines. It embodies a social dynamic that engages the organization's collective skills in the development, maintenance and performance of the capability. It is a collection of related artefacts and routines developed and performed by a community of practice.

"It is an Organizational Capability that exists not only in documentation but also in the knowledge and experience of the technical strategists, IT managers, planners, architects, and implementers. It extends the strategic process of the organization through specific governance structures. The collective skills of the entire IT organization aid in its development, its maintenance, and its translation into physical systems." (Perks and Beveridge 2005: 5)

Organizational routines are constitutive elements of organizational capabilities (Winter 2000) and the sinew of the *durée* (Giddens 1984), the medium of delivery. This duality is a property of their adaptation at the interface of methodology the *ostensive*, and *praxis* the *performative* aspect of the *routines*.

3.8.7 Routines, Methodology and Activities

Despite the implication of their name, routines are, according to Pentland and Feldman (2008), dual aspect generative systems. The abstract regularities and expectations that guide them, the understandings of the participants and their theoretical potential constitute their "*ostensive*" aspect. The second "*performative*" aspect is concerned with their execution. This both binds routine to the concept of capability and makes it the vehicle of its adaptation. Agents with varying motivations adapt

routines, not necessarily for the organization's betterment, thus modifying capabilities. This occurs as "*inherently improvisational*" routines are "*adjusted to changing contexts*" (Feldman and Pentland 2003: 102).

The heuristics of the *durée* adapt the methodology until it becomes socially normative. A condition we will label "appropriate". An artefact, technique or methodology is deemed appropriate when it becomes part of the community of practice's *habitus*, allowing its seamless function in the *durée* - "*it's horses for courses*" (FRED, VN860022, 7:03). However, while the "form follows function" principle shapes the methodology, Feldman and Pentland (2003: 98) warn that "*patterns of action will tend to emerge as organizational members choose to take the easier actions*" risking the methodology's death by a thousand short cuts.

Inhabiting the *durée* at this micro-level, routines, as described by Feldman and Pentland (2003), are the socially reproduced adaptation between the rigidity of formal methodology and an assimilated normative. By equating the *ostensive* aspect of organizational routines with architectural thinking, as this is concerned with planning and preparation, and the *performative* the action, with integration and incorporating Feldman and Pentland's infusion of sociological elements we can imagine the *performative* application of methodology morphing into *mastery*.

The *ostensive* and *performative* aspects are mutually constitutive similes for thinking and integration and by extension *realization* and *assimilation*. Unified they illuminate the architects' role and explain the operation of Perks and Beveridge's capability development. Skills are cultivated, the "*knowledge and experience*", and then assimilated across the organization to realize capabilities into deployable "*physical systems*".

Viewed this way architecture can be seen as a set of organizational routines suggesting that the architectonic activities manifest phenomena that might be observable in other disciplines. And that, iterative mutually constitutive cycles of routines are one of the engines of Architectural Evolution.

Programmes need to enable their organization or risk atrophying into the *Losing* quadrant. Van den Berg and van Steenberg (2006) tell us that by modifying suboptimal "Key Areas" of their *practice*, programmes can reposition themselves. Architecture *practice* is enacted through *routines*. So, programmes reposition themselves by adapting, by *cultivating*, their *routines*.

The *cultivation* of *routines*, mindful or otherwise also explains how an observer's circumstances contribute to the previously noted fragmentation. *Isolated* programmes, for example must pursue a different path to *Enabling* than *Barrier* programmes, and so *cultivate* different *routines* and so attribute success to different factors.

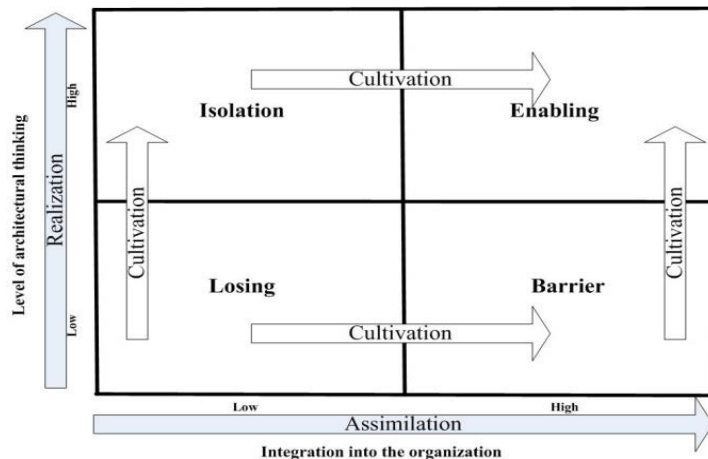


Figure 18: Repositioning by Cultivation

Practice emerges from the *performative* aspect of the *routines* defined and proscribed by the methodology (*ostensive* aspect). Some *routines*, depending on the *activity*, enact “Thinking Key Areas”, Use of Formal Methodology (T7) for example; other *routines* enact “Integration”, like Commitment to the Use of Architecture (I7). Because architecture is instance specific and because *routines* can shift between *activities*, *routines* cannot be definitively assigned to a particular *activity* as noted previously. However, all *routines* influence architecture either enhancing or degrading its *assimilation*. It is through the *social reproduction* of *routines* that architecture *assimilates*, becomes normative and is *legitimized*.

The *ostensive* aspect includes the understandings, the rules that govern its *performative* aspect to ensure the *routine* adds value by spanning *communities of practice* through the production of *boundary object* artefacts.

If a *routine's ostensive* aspect is dominated by the Builders' paradigm then its potential is limited to the Thinking axis. However, the sociological Integration axis is the key to a programme becoming a “*way of life and are almost invisibly embedded in the organization*” (Saran 2007: 18). To this end, the *ostensive* aspect (methodological specification) of the *routine* must align with the sociological *structures* through which the architects are *authorized (directive power)* to execute (*performative*).

3.8.8 The Root of Certain Failure

The architectonic *activities* are mutually constitutive *performative* cycles of *routines*. *Realization* is the overt *activity*. *Cultivation*, obscured by the complexity of the *durée*, is oft unrecognized. But it is the failure to effect *assimilation* that is the root of failure. This is not a failure of the methodology or its application per se, but a failure to make architecture sociologically normative. To be effective architecture must be accepted as *legitimate*. As Gruman points out “*Enterprise Architecture is about “shifting” the organization*” (2006).

“People can get stuck and it’s up to the change manager or the EA wearing that hat to move them out of that stuck state. The stuck state here is that they can’t accept the new world the only way to get them out of that is sometimes to be brutal. Reaction can go into sabotage and we’ve all seen that, passive acceptance they can get stuck again and people like you and I we go through the passive acceptance in about a millisecond, but some people really find it difficult.” (BILL, VN8600041, 21:00)

“The second factor and this is a beaut one I reckon if the CIO or the CEO don’t understand what an architecture approach is forget it!” (BILL, VN8600041, 4:00)

3.9 An Organizational View

The derived CSFs are clusters of observations created to facilitate analysis. From the practitioner’s perspective the value of an observation is both in its detail and in understanding its relationships. De-contextualized their value is reduced because *practice* does not occur in a vacuum.

The Architecture Topography model addresses this de-contextualization with a paradigmatic mix of literary data interpreted against the backdrop of a generic context. The literary observations are distributed across a matrix of *practice* presented by the architectonic activities divided by Wognum and Ip-Shing’s (Saha 2007) organizational aspects to produce the Architecture Topography model (Figure 19 below).

Wognum and Ip-Shing’s Maturity of IT-Business Alignment Assessment Tool (ibid) measures an organization against three dimensions Business, Enterprise System and Project Management using six

aspects Strategy and Goals, Management Process, Structure, Knowledge and Skills and Social Dynamics. A condensed version of the aspect definitions is presented below.

Table 14: Wognum and Ip-Shing’s Aspect Definitions

Aspect	Definition
Strategy and Goals	Strategy and Goals are the medium and long-term goals to be achieved and the plans for realising those goals.
Management	The Management aspect deals with the priorities, assigning resources and planning and monitoring the process.
Structure	Structure involves the normative relationships between elements of the organizational system.
Process	Process involves the steps that are needed to perform the focus process of each dimension.
Knowledge and Skills	This aspect refers to the knowledge and skills that are needed to perform the focus processes in each dimension.
Social Dynamics	This aspect concerns the actual behaviour of people individually or in groups

Wognum and Ip-Shing consider that “*the dimensions and aspects together form an enterprise architecture for enterprise system implementation*” (ibid: 229). Our interest is in the completeness of these organizational aspects as a foundation for a model that maps the literary observations to the organization.

The Architecture Topography model (Figure 19 below) maps specific expert advice to a conceptual organizational model showing to which aspect the advice applies. The model indicates the extent of the body of knowledge highlighting its weakness and allowing an analysis of its internal structure. From this the significance of assimilation emerges and the dearth of knowledge about the cultivation of social dynamics becomes clear.

This has consequences for the *ostensive* aspect of methodological routines, and so architecture practice. Because here we can see that for all that is known about the importance of the end state (*assimilation*) of the social dynamics organizational aspect there is little practical (*realization*) advice on how to achieve it, and virtually no theoretical support. One can conclude that success in the social dynamics organizational aspect is typically heuristic.

With the results normalized and the language standardized, the model classifies observations as recording components of architecture *practice* by distributing them across activity / aspect cells. As the individual, internally normalized, CSF data sets are mapped additional normalizations become apparent. For example, similes can be consolidated, “*operationalizing a core set of metrics including ROI and TCO*”

is a concatenation of two observations. “the impact of enterprise architecture can be measured using six metrics ...” (Rico 2006: v) and “You will ultimately need an accurate Total Cost of Ownership” (van Soye 2003: 56).

Aspect / Activity	Strategy & Goals	Management	Structure	Process	Knowledge & Skills	Social Dynamics	Totals
Realization	15	18	4	26	5	4	72
Cultivation	4	10	0	18	1	0	33
Assimilation	12	16	7	11	9	36	91
Totals	31	44	11	55	15	40	196

Figure 19: Architecture Topography Model

By this process Strategy for the Development of Architecture (T1), which provided 54 original observations is reduced to 46 observations. Methodology (T7), which provided 90 observations, is reduced to 51. Monitoring and Compliance (I6) are reduced from 46 to 38, while 77 Commitment and Motivation (I7) observations became 66 and 73 Consultation and Communication (I9) observations became 54. Overall the process results in the reduction of 255 observations to 196. The realization activity contains 37% of the observations, cultivation 17% and assimilation 46%. That cross-set normalization is even possible raises questions. It seems that the complexity of relationships between CSFs makes it possible for observations of the same “truth” to appear unique from different perspectives. This is perhaps the same phenomenon that makes definitively assigning routines to architectonic activities impossible. It also demonstrates that unstructured data can confound even rigorous classification schemes.

The model also increased the number of observations by demanding some observations be assigned to multiple cells. In a small number of cases the standardized language exposed subtle differentiators that again increased the number of observations. More importantly, this suggests that individual observations have multiple aspects that can present differently when de-contextualized. For example “appropriate frameworks” is explicitly stated in some observations but implied by others. Alternatively, the inconsistency may lie with the choice of classification criteria. There may just be more or different organizational aspects to those listed by Wognum and Ip-Shing (Saha 2007). However, such speculation is beyond our scope.

Furthermore, activities and aspects are not as clear cut as might be imagined. Process and tools for example can be difficult to separate. Overall, the process of creating the model may have unpacked as

much insight as the end product itself by demonstrating the possibility that all observations contain all organizational aspects in varying degrees, a proposition that explains the difficulties of analysing architecture.

Aspect / Activity	Strategy & Goals	Management	Structure	Process	Knowledge & Skills	Social Dynamics
Realization	M,S,MON	M,S,MON	M,S	M,S,MON	M,COM,S	M,S
Cultivation	M	M,S,COM,MON	M	M,CMT	M	M
Assimilation	M,CMT	M,COM,CMT	M,COM,CMT	M,COM,CMT	M,COM,CMT	M,COM,CMT

Figure 20: CSFs Distribution across the Architecture Topography Model

Figure 20 above indicates the CSF set of the observations assigned to each cell. (M=Methodology, COM=Communication, CMT=Commitment, S=Strategy, MON=Monitoring). The observations can be found in Realization Activities (Chapter 3.10.1), Cultivation Activities (Chapter 3.10.2) and Assimilation Activities (Chapter 3.10.3). Appendix B Referenced Observational Sources contains the keys to the literary references.

Methodology observations map to every cell, a distribution that accounts for the frequency of their report. Regardless of perspective observers encounter methodology.

Communication observations are mapped to seven of the 18 cells and five of the six assimilation cells. Communication and Methodology are the only CSFs with observations in all three activities. This distribution reinforces the notion of methodology as a communication medium. It also supports the view, widely expressed by interviewees, of the importance of communication skills to architects as the agents of methodology.

Commitment observations in close correlation with Communication appear in all assimilation cells, but not in realization cells. It could be that implementation of the physical is a technical issue with no social dimension beyond the exercise of authoritative power. Perhaps this is a reflection of boundaries between communities of practice. On one side are the technicians who realize the architecture and on the assimilation side the business is surfaced through Commitment, which suggests that Commitment includes business and IT as well as the architects.

Strategy observations are confined to the *realization* and *cultivation* activities appearing in all realization cells and the cultivation Management cell, linking the realization of architecture to the cultivation of the architecture *practice* (Figure 20 above shaded cells), with the data falling heavily in the realization

Process cell, suggesting the importance of a Strategy for the Development of Architecture as an influence on *cultivation*, a point reinforced by the correlation of Strategy and Methodology. The message seems clear, the *realization* projects and architecture *practice cultivation* need to be managed in an integrated fashion, a pattern that perhaps validates the assertion that organizations only learn one step at a time (Ross et al. 2006).

It also suggests that the *ostensive* aspects of the organizational *routines* that constitute the methodology which will, as Pentland and Feldman (2008) tell us, be modified by the *performative* need to be governed, as the constant cycle of *performative* modification presents opportunities for “*organizational members [to] choose to take the easier actions and avoid the harder ones*” (ibid) degrading *routines* until they become ineffectual and undermine architecture’s legitimacy.

Monitoring and Compliance appears in the least number of cells. Three realization cells: Process, Management, and Strategy and Goals. The only other cell that it appears in is cultivation Management. Monitoring never appears without Strategy and both Monitoring and Strategy only appear in a single cultivation cell, Management. This strengthens the argument for a relationship between realization and cultivation inferred above by the Strategy -Methodology pattern. On the other hand Monitoring’s lack of an independent mapping may indicate that it is not a unique CSF, but an attribute of Strategy, as a case can be made that monitoring is part of any comprehensive strategy process.

Realization includes observations from four CSFs, with Methodology contributing 16%, Strategy 45%, Monitoring 39%. The cultivation activity has observations from all CSFs, with Methodology contributing 79% of the observations.

Assimilation is the least diverse activity with only three CSFs mapped to it - Methodology 8%, Communication 40% and Commitment 52% - suggesting that the connection between Communications and Commitment in the assimilation activity is more significant than between either of them and Methodology, and perhaps that Methodology, like Monitoring and Strategy above, has a subsidiary role to Communication and Commitment.

Communication and Commitment map closely, but are independent, with only Communication appearing on all three activities. Between them they contain 43% of the observations, with almost half of these concentrated in the Social Dynamics aspect of assimilation. Communication and Commitment are tightly coupled in the assimilation activity.

While the Communication and Commitment CSFs are seemingly independent, their concentration in the assimilation process is overwhelming, with 94% of Communication and 98% of Commitment observations being mapped to assimilation. 43% of Communication and 38% of Commitment observations were classified as Social Dynamics. The Social Dynamics aspect of assimilation with nearly 20% of all observations is by far the largest single lever that architecture can pull. No other cell comes close.

The other standout cells realization / Process and realization / Management with 13% each support the importance of methodology to execution. From this fact it can be speculated that the Commercial Publications' domination by the Builders' paradigm is predicated on advice that applies to as little as a quarter of the subject domain while virtually ignoring a sociological dimension that is both as large and, more importantly, closer to the business.

3.9.1 Interpreting the Model

The model reveals the paucity of advice on cultivation again reflecting the observations of Nakakawa et al. (2011) that the literature is often "*in generic form*" and "*somewhat silent on some essential or operational details*". Particularly striking are zero scores of the Structure and Social Dynamics cells. Accepting Giddens's proposition that structures are inherently sociological phenomena perhaps these two cells are actually recording the same absence. However, while another sample of data might populate these cells, the precise numbers are irrelevant; the research has clearly identified the body of knowledge as deficient. It offers little to nothing to those seeking answers to the social aspects of architecture, yet this topic dominates the interviews with professional architects.

The Architecture Topography model's demonstration that our understanding is less than perfect and that individual observation may have multiple aspects suggests that social dynamics, like the Communication CSF, is not ontologically independent. Perhaps some observations only exist in the context of execution and, like some sub-atomic particles only have mass in motion; perhaps they only have a performative existence.

Such axiology explains the banality of lists of success factors in sociological domains and leads to the argument that success is a product of how practice is conducted and not what is done as the Builders' paradigm purports, making the *mastery of architecture practice* a key to success. This has profound consequences. The paradigm, under which architecture programmes operate, is a closed system that may well fail to reflect their reality or offer a theoretical way forward.

As a consequence the output of the Builders’ paradigm is methodologically-centric. While there is data about what an *assimilated* programme looks like it is mostly commentary, describing what it would look like, not how to achieve it as Nakakawa et al. (2011) note. The data only tells us how to improve processes and management not social dynamics or the fundamental sociological vehicle the structure. However, discursively the data does hint that architecture’s internal structure consists of three mutually constitutive activities: realization, cultivation and assimilation.

So, it seems that practice mastery consists of synchronizing three architectonic activities in the performative cultivation of organizational routines to facilitate the assimilation of architecture.

From a managerial perspective, while methodology is important it is probably more so as a medium of *reflexivity* that maintains the Business-IT Dialogue than as a technical exercise. This is because good architecture methodology *routines signify* competence, project *authority* and ultimately *legitimize* architecture. Furthermore, the *activities* demonstrate that the success of an architecture programme is largely dependent on the attitude (and motivations) of external actors.

3.10 The Data

In the tables below each observation is detailed and referenced by bracketed numbers to APPENDIX B – REFERENCED OBSERVATION SOURCES. The lists are abbreviated for brevity and typically the citations are not the only source of the observation.

3.10.1 Realization Activity

Given that realization is the primary activity of architecture the dominance of methodology is not surprising. The contents of each cell are listed below.

Table 15: Realization Observations

Aspects	Observations
Strategy and Goals	The organization must balance agility with cohesion. (42) The organization must build a business case for EA. (20) The organization must accept that complex problems require strategies to tackle them. (20, 44) The organization must build a holistic architectural practice that reflects the business strategy. (34) The organization must determine the scope of the architecture. (Integrating with partners, etc). (1, 19) The organization must specify the Architecture strategy. (20, 42) The organization must decide the meaning and purpose of efficiency. (22) The Architecture strategy must set any technology in a holistic context to allow its full exploitation. (15) The Architecture strategy must use metrics tied to the business strategy and governance alignment. (22) The Architecture strategy must establish an architecture compliance strategy. (41) The Architecture strategy must reduce risk. (34) The Architecture strategy must break down silos. (28, 34, 43) The Architecture strategy must develop incrementally learning with each stage. (7)

	<p>The Architecture strategy must build agility by lowering the complexity barrier. (34)</p> <p>The Architecture strategy must increase flexibility when linking with external partners. (34)</p>
Management	<p>The Architecture must:</p> <p>Have a strategy guided by a framework and a road map. (34)</p> <p>Have a strategy with an enterprise wide scope. (34)</p> <p>Be execution focused and value driven. (8, 26, 35)</p> <p>Seek agility by lowering complexity. (34)</p> <p>Sustain the momentum for change. (12, 36)</p> <p>Identify business problems. (21, 32)</p> <p>Build capabilities holistically and sustainably. (7, 36)</p> <p>Model the organization as information centric not technology centric. (35, 37)</p> <p>Guard against building cathedrals. (25)</p> <p>Guard against “standard solutions” that reduce competitive distinctions. (40)</p> <p>Understand that the performance of a project is fundamental to making decisions about it. (12)</p> <p>Build a governance model. (19, 22)</p> <p>Have governance that balances scope, objectives with detail and resources. (20)</p> <p>Have a governance model that enforces the Architecture. No rubberstamping. (20, 29)</p> <p>Have governance that supplies ongoing standardized business metrics, including ROI and TCO. (23, 32)</p> <p>Have governance that grades the Architecture practice’s contributions.</p> <p>Have governance that does not replace communication with metrics. (27)</p> <p>Manage the criteria that control governance processes. (41)</p>
Structure	<p>The Architecture must be:</p> <p>Domain driven. (16)</p> <p>Include data governance. (25)</p> <p>Organized to execute. (33)</p> <p>Proactive organization. (34)</p>
Process	<p>Framework and method appropriate to circumstances. (9, 10, 12)</p> <p>Strategic level design must be used to derive IT architectures. (4, 16)</p> <p>The architecture must outline the design strategy. (19)</p> <p>Architecture must form a clear vision and stick to it. (4, 23)</p> <p>The Architecture must define the mission and deliverables, including dates.</p> <ul style="list-style-type: none"> Initial projects must be short-term Some of deliverables will be for immediate delivery Use ROI to establish objectives Deliverables must be fit for purpose, but not necessarily perfect or even complete (12, 19, 23) <p>Architects must analysis the models, using metrics and automation when possible. (5, 13, 15)</p> <p>Use Architecture as a tool to collect metrics and record problems. (18)</p> <p>Use Architecture as a tool to manage after the engineering phase. (17)</p> <p>The Architecture must avoid “one size fits all” approaches.</p> <p>Use Architecture to provide solutions for each step of the transformation; do not jump stages (7, 18)</p> <p>Control must tighten as the process proceeds and EA’s intrusion increases. (22)</p> <p>The Architecture must monitor progress using objective metrics and continually and rigorously survey.</p> <ul style="list-style-type: none"> Operationalize a core set of metrics including ROI and TCO. (23, 32) Rigorous Architecture for its own sake is a failure. (8, 28) Architecture must prevent the premature physical implementation of systems. (3) <p>Create only the architectural artefacts that are needed as needed. (8)</p> <p>Architects must understand that Architecture as a science has limits. (24)</p> <p>The Architecture must use appropriate standards to contain costs and facilitate reuse of assets. (8, 25, 26)</p> <p>The Architecture must be subject to standards enforcement mechanisms. (29)</p> <p>The Architecture must have standards conformance criteria. (29)</p> <p>The Architecture must allow and manage exceptions. (8, 21)</p> <p>The Architecture must assign responsibilities. (21)</p>
Knowledge and Skills	<p>The Architects must harvest experiential knowledge. (1, 2)</p> <p>The Architects must know which artefacts and processes are appropriate. (8)</p> <p>The Architects must take a holistic approach to every problem. (3, 4, 5)</p> <p>The Architects must understand the complexity of the problem. (4, 6)</p> <p>The difference between different domain architectures, (for example Business, Information, Application and Technology) must be understood. (7)</p>

Social Dynamics	<p>The Architecture must consider all stakeholders. (35, 45)</p> <p>Stakeholder behaviour is moulded by and is part of the EA. (46)</p> <p>The Architecture team must create a common vision. (46)</p> <p>Stakeholder behaviour is moulded by and is part of the architecture. (23, 34)</p>
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3.10.2 Cultivation Activity

Table 16: Cultivation Observations

Aspects	Observations
Strategy and Goals	<p>The Architecture team must develop a Strategic Capabilities Architecture. (26)</p> <p>The Architecture must develop a framework rather than individual strategic statements. (47)</p> <p>The Architecture must highlight the overlaps between domains. (47)</p> <p>The Architecture must aim to make the validation of IT architectures straightforward. (47)</p>
Management	<p>The Architectural programme must:</p> <ul style="list-style-type: none"> Use an integrated lifecycle. (50) Use portfolio management. (25, 43) Plan the target state carefully. (49) Formally harvest assets. (1) Excel at collaboration to reduce reviews. (27) Make reviews a win – win process. (28) NOT hold a complex technocratic world view. (13, 20) Have a governance process that decides what to do and governs how it runs. (22) Ensure that the organization and the practice are prepared for EA. (12) Use exceptions to improve its processes and governance. (21)
Structure	No observations were assigned to this cell.
Process	<p>The framework must be appropriate to the circumstances. (1, 9, 10, 12)</p> <p>The framework must have place holders for artefacts not yet required. (1)</p> <p>The framework must include business architecture that maps strategy to business structure. (6, 8, 47)</p> <p>The Architecture must include people, processes and organization. (6, 35)</p> <p>The Architecture must have an appropriate set of principles. (25, 41)</p> <p>The Architecture process must have an appropriate set of standards. (23, 26, 27, 29)</p> <p>The Architecture process must include an enterprise data model. (48)</p> <p>The Architectural methodology must:</p> <ul style="list-style-type: none"> Be specific, rigorous and effective with disciplined but flexible methods.(8) Provide the means to analyse models. (17) Use industry developed approaches, not home grown. (29) Draw the AS-IS state from configurations. (19, 25) Must provide a TO-BE state. (19) Provide gap analysis of the AS-IS / TO-BE states. (19) Create technology and design transition maps. (25) Be a tool for engineering the transformation process. (17) Provide solutions for each step of the transformation. (18) Collect metrics, record problems like bottle necks and identify inaccurate data. (18) A strong architectural methodology fosters commitment. (5, 19)
Knowledge and Skills	The Architects must know what artefacts to create. (8)
Social Dynamics	No observations were assigned to this cell.

3.10.3 Assimilation Activity

Table 17: Assimilation Observations

Aspects	Observations
Strategy and Goals	<p>Business must be involved in IT Planning. (8)</p> <p>Organizations must balance the long and short terms. (60)</p> <p>There must be strong business leadership and broad political support. (20, 53, 57)</p> <p>There must be political support for the strategy. (22)</p> <p style="padding-left: 40px;">Success is tied to people outside the team, they must want to change. (22)</p> <p style="padding-left: 40px;">There must be executive ownership of EA. (37)</p> <p>Architecture alone will not ensure alignment. (61)</p> <p>Enterprise Architecture must be established at the enterprise level not IT. (19)</p> <p>The CIO and the CFO must understand that Enterprise Architecture is about “shifting” the organization. (22)</p> <p>CIO support is imperative. (28)</p> <p>The move from silo to enterprise needs to be understood by the business. (28)</p> <p>Architecture must not be seen as IT and money taken away from the business. (12)</p>
Management	<p>A credible Architecture leader is essential. (20)</p> <p>Conflicting goals of internal organizations must be surfaced and resolved. (13)</p> <p>Architecture needs to be congruent with the maturity of the organization. (28)</p> <p>The organization must be engaged and the Architecture communicated. (54)</p> <p>Architecture must manage cultural and organizational change. (19)</p> <p>Expectations must be managed. (57)</p> <p>The architecture team must develop linkages with the business. (55)</p> <p>Architectural principles must be accepted by business and IT. (25, 58)</p> <p>The Architecture team must have committed resources and adequate funding. (53)</p> <p>Architecture must be considered an investment not a cost. (20, 53)</p> <p>Executive management must buy in to Architectural governance. (21, 45)</p> <p>Governance must be proactively designed. (19, 21)</p> <p>Planning cannot be delegated solely to the CIO. (12)</p> <p>The CIO must have the authority to plan the Enterprise Architecture. (59)</p> <p>Momentum must be sustained after the initial sponsorship. (12)</p> <p>The Enterprise Architecture must be adhered to by the business as well. (55)</p>
Structure	<p>There must be:</p> <p>A specific and authoritative governance team. (19)</p> <p>A cross organizational architecture board and steering committees. (1, 28, 41)</p> <p>A Chief Architect who reports to the CIO. (29)</p> <p>Sponsors positioned throughout the organization. (56)</p> <p>Position Architects in the business and away from infrastructure. (28)</p> <p>Create cross functional teams. (8, 49, 55)</p> <p>Involve and develop user / stakeholder roles. (45)</p>
Process	<p>Architecture must:</p> <p>Inform the management process. (35)</p> <p>Define the Business Architecture to clarify the strategy to business structure. (6, 8, 47)</p> <p>Measure the information orientation of the organization. (37)</p> <p>Define the information intensiveness of products. (37)</p> <p>Include a communications model. (53, 54)</p> <p>Communicate with developers. (27, 45)</p> <p>NOT emphasize metrics at the expense of communication. (27)</p> <p>Architects must:</p> <p>Understand the “natural” misalignment between requirements and code and design’s role in reconciling them. (52)</p> <p>Use a business relevant vocabulary. (8)</p> <p>Use effective presentations. (20)</p> <p>Identify the “real” stakeholders, those who will be accountable if the project fails. (45)</p>
Knowledge and Skills	<p>Architects must know how to glean knowledge from things that go wrong. (51)</p> <p>Architecture leaders must know that: (20)</p>

	<p>Architecture is not simple. Business people can do architecture. The benefits of architecture may not be obvious. That any business involvement is NOT good enough. That an IS plan alone is NOT adequate. Inexperience is a major inhibitor to architecture. (20) That organizational leaders need to understand architecture. (12, 22, 37)</p>
Social Dynamics	<p>The Architecture team must: Be user-centric. (5, 17, 35) Engage and win over the IT teams. (35) Engage the business. (13, 22, 28, 53, 62) Establish executive understanding of data. (37) Engage with the largest scope of groups possible. (49) Sell the idea and value of EA. (45) Sell to opinion group leaders. (31) Educate managers. (21) Foster the idea that EA and business strategy are the same thing. (37) Know how to get stakeholder buy in. (21, 60) Plant the seeds of ideas early. (28) Architects must have strong communications skills. The Architecture team must show the owners which battles must be won. (28) The Architecture team needs to work with suppliers. (19) The Architects must NOT bore the business to death. (8) The Architects must operate an open learning environment. (36) Architecture must be seen as in the interests of the IT and the business. (63) Resistance to central planning or authority must be overcome. (20, 63) Architecture is simpler to institute in a small organization. (61) Architecture is simpler to implement in organizations with forgiving cultures. (61) The Architecture teams need to be aware of executive resistance. (64) The Architecture team must be aware of the organizations political divisions. (20) The Architecture team needs to be aware of resistance to the formation of Architecture groups. (8) The Architecture team needs to be aware of resistance to new ideas. (20) The Architecture team needs to be aware of the rejection of the need to change. (20) The Architecture team needs to be aware of the fear of the loss of control or ownership. (20) The Architecture team needs to be aware of asking people to make changes that are not to their advantage. (36) The Architecture team needs to be aware of resistance to analytical approaches and “natural selection” arguments. (36) The Architecture team needs to be aware of appearing to be a “grab for power”. (30, 36) The Architecture team needs to be aware of resistance to EA being considered IT or the EA practices problem. (59) There must be the political will to implement EA. (30) The business and users must accept the costs of EA. (20, 31) Business and users must consider architectural issues as important. (58) The best Architecture programmes become internalized and are embedded in the organization. (57) The organization’s culture must be EA compatible. (20) The organization must understand that EA and organizational change are profoundly interconnected. (19, 43)</p>

3.11 Summary

These observations could be considered the application rules of the CSFs derived from the literature. To our knowledge no similarly derived list has been published. While this proven advice, albeit only in the context of the original authors, it will help programmes *cultivate* their practice and promote a broader

organizational understanding of EA. However, it cannot be considered definitively prescriptive. While *realization* has, through the *performative* aspects of its *routines*, a social component it is easy to misconstrue it as largely mechanical, processes to follow and artefacts to create. However, with the majority of Communication and Commitment observations (94% and 98%) mapping to the *assimilation activity*, the Architecture Topography model demonstrates that *cultivation* and *assimilation* are fundamentally sociological.

These compilations offer, despite being contextually disjointed by their instance specificity and the lack of an accepted unifying EA epistemology, details of the purpose of the observed routines. Each is a narrow, sometimes discursive, insight into practice. But each is true, and each has been appropriate for a particular instance of architecture. But because of their specificity the knowledge is difficult to generalize.

The observations are reports of *routines* performed in the *durée* and as such are the interception of an artefact-centric paradigm and the socio-organization theories of Giddens and Pentland and Feldman. This nexus is the genesis of Purpose Driven Architecture Practice (PDAP).

Routines are an elemental component of a reflexive social *durée* and the adaptation of routines has social consequences. This is *practice* in the Whittington (2007) sense of *praxis*. PDAP proposes that social *structures* can be purposely manipulated, by the adaptation of its practice routines, to improve the likelihood of architectural success.

EA has an epistemologically challenging literature pays scant attention to the practice of architecture in the *praxis* sense. However, it provides a plethora of advice on how to execute the mechanical and considerable speculation on the attributes of an *assimilated* programme, but little on how to achieve that end. The commercial methodology publications, potentially the best source of *practice* advice, appear to be a captive, closed system of iterative technical refinement.

Despite some positive indications the literature does not satisfy the search for the means to architectural success. But this does not mean that conclusions cannot be drawn from it. For example, the continued relevance of architectural concepts long after the obsolescence of their contemporary technologies proves their technical agnosticism (Zachman 1987; Cook 1996 and others) and suggests that if technology is not the key to success then perhaps methodology is. On the other hand the continuing series of commercial methodology publications suggests otherwise. So, structurally if not

definitively, the literature rules out both technology and methodology as critical success factors without offering an alternative.

Perhaps even more ontologically damaging for the literature is that even as it defies classification the EA body of knowledge continues to accumulate, raising a question about the practical relevance of epistemologies. Perhaps despite the methodological façade, architecture remains and might always remain, at a pre-scientific non-formal stage, operating just as physics did before Newton codified its laws.

However, what can be deduced directly from the literature is also significant. There are consistent themes, evolution for example, and challenges like definition. And while a set of literary CSFs are derivable it is by no means certain that they are even ontologically independent. And as clearly none of the CSFs are singularly sufficient; despite their thematic constituency suggesting an elemental truth, we must accept that somehow collectively the CSFs contribute to success without definitive proof.

From the failure of decomposition, the literature's thematic consistency, and by viewing architecture as a dialogue, a structure of architecture emerges that consists of three architectonic activities - realization, cultivation and assimilation. Corroborated by Wagter et al.'s (2005) and van den Berg and van Steenbergen's (2006) work the activities are the mutually constitutive components of architecture *practice* that draw their dialect from the innate *evolution of architecture* programmes.

With the literature analysis complete and yet not definitive, the research, following Hevner et al.'s (2004) advocacy of alignment with "*real world experiences*" sought validation through the triangulation (Yin 2009: 114) of primary sources. A survey of architects was conducted based on the insights from the literature analysis.

4 SURVEY ANALYSIS

“Routine and prejudice, the natural result of ignorance, are its foundation and support.” (Marshal Saxe 1698 – 1750)

4.1 Survey

To test the literary results against real world experiences, as Hevner et al (2004) suggest (Figure 2), a survey was developed. Intended as a triangulation of the literary CSFs, it gathered opinions on the importance of the literary CSFs. To separate the *ostensive* aspect of the *routines* from the *performative*, it also asked how well the *routines* were executed.

Designed using Creswell’s (2003: 154) methodology, it accepts that it can only ask whom, what and where. And that the limitations of positivist instruments preclude how and why. Epistemologically the survey’s concentration on contemporary events is an elaboration of Yin’s (2009: 8) approach.

The survey, by integrating the literary CSFs with real world experience, to predict the attributes of *Enabling* programmes, moves the research into a “Predictive theory” (Gregor 2007) stage. It is not intended to identify or canvas opinions on what factors might be. Nor does it test any hypotheses in the statistical sense. However, demographic data is collected to provide an interpretive scaffold to generalize the data. (Ritchie and Lewis 2010: 263)

4.2 Survey Organization

Questions were posed in five categories, Demographics, Critical Success Factors, Architectural Practices, Organizational Demographics and Management Structure.

4.3 Demographics

The Demographics provide a profile of the architecture community as described by architects.

4.3.1 Work History

Over 85% of the respondents (N=191) had worked in IT for more than 10 years. 70% had been architects for less than 10 years, with 40% of having been architects for less than five years suggesting that architecture achieved a general level of acceptance sometime around the turn of the century.

4.3.2 Background

The respondents’ come predominately from an IT background with around 80% (N=179) of them describing their previous roles as either application developers (62%) or roles like software engineering

and systems administration. 10% had been Project Managers and 7% Business Analysts. About 3% claimed an accounting or operations background.

This demographic concentration has consequences for the analysis of the literature. With perhaps only 3% of respondents claiming a non-IT background it is reasonable to assume that the commercial methodology literature is authored by people with a similarly narrow background making its methodological bent almost inevitable.

4.3.3 Education

Educationally 5% (N=176) claimed a high school certificate as their highest educational achievement. While another 35% held a Bachelor's degree, 40% a Master's degree and 7% a Doctorate. As a group architects are formally well educated.

4.3.4 Titles and Roles

The job titles and the role descriptions demonstrate a similar epistemological fragmentation to the literature. 23% (N=186) described themselves as Enterprise Architects, 13% as Enterprise IT Architects, 22% as Solution Architects and 10% as IT Architects. Other titles included Software Architect, System Architect, Application Architect, Enterprise Application Architect, Network Architect, Product / System Architect, Enterprise Security Architect, Chief Strategy Officer and Entrepreneur.

Roles by comparison are not as diverse 29% (N=175) describe their role as Enterprise wide both IT and business. The same percentage described their role as Enterprise wide IT only and 7% described their scope as Domain – defined by business function. Only 1% described their role as Enterprise wide business only.

The roles data suggests that the *purpose* of architecture varies considerably. This combined with only a minority of architects believing their role to be holistically enterprise wide must contribute to the challenges of alignment. A point supported by the interviews' (Chapter 5) revelation that an organization's understanding of architecture's primary attributes (*purpose, scope and definition*) is significant for its *legitimacy*.

4.3.5 Vocational Training

Overall architects' vocational training is less impressive than their formal education. Respondents rated their training in a number of categories as None, Poor or Ad Hoc, Competent, Good or Excellent.

4.3.5.1 IT Related

30% (N=158) have No or Poor Project Management training. Less than 50% reported competent Requirements Gathering training with 32% having no Requirements training at all. Despite the predominance of a development background 26% (N=156) considered their Software Development Methodology training inadequate as did 54% their Testing training. 39% of architects have no Data Analysis training with another 19% (N=155) rating their training as Poor or Ad Hoc.

4.3.5.2 Methodology

37% (N=156) rated their Architectural Methodology training as Poor or None. 45% considered theirs better than Competent. It seems that methodologically architects are either reasonably well trained or hardly trained at all. Indirectly, this debunks the notion that methodology alone is the critical success factor. If it were then Ross et al. (2005) would surely have reported a success rate closer to 45%.

4.3.5.3 Problem Solving

Formal training in Problem Solving does not fare well with 34% (N=155) never having received any training and a further 12% rating theirs as Poor. Problem solving it seems is for many a heuristic experience which cuts to the core of why we employ professionals. We believe that they know what they are doing. The doctor has studied medicine, the lawyer law. Furthermore, we don't expect the lawyer to perform surgery or the doctor to attend court. Architects however, do not have the luxury of such neatly regulated domains.

4.3.5.4 Business Theory

Reflecting their technical background 33% of architects report no Business Theory training and another 17% (N=155) report theirs as Poor. This is not promising for a discipline purporting to be business focused.

Lacking business skills makes the task of *boundary spanning* to *business communities of practice* difficult, reducing the effectiveness of communication and the architect as a Knowledge Broker. Arguably, this is a cause of the *assimilation* failure that undermines an architect's *authority* and the *legitimacy* of architecture.

4.3.5.5 Communication Training

Technical Writing a key communication skill fared worst with 39% (N=155) of architects never having had any training and 17% describing theirs as Poor. Given the importance of written communication and

the observation *“You know, the written word ... seems to be fewer and fewer people who can actually construct a cogent argument in writing”* (DEAN, VN860014, 3:22), this must inhibit communication.

By contrast 75% (N=155) reported that they had received Competent or better Interpersonal Communication training. This anomaly could be interpreted as an industry level attempt to address the “communications” issue. However, whether soft-skills training is actually effective or is simply found novel by a technical constituency bears consideration.

4.3.6 Vocational Training Summarized

Overall the architects’ background did not seem to influence the training they received. They were least likely to claim Excellent training in Testing, Data Analysis and Technical Writing.

4.3.7 Bodies of Knowledge

Despite being well educated and claiming that their vocational training was less than optimal only 63% (N=151) were prepared to expend their own resources to improve their situation by subscribing to bodies of knowledge like TOGAF and IASA (International Association of Software Architects) an organization that hosts a vibrant EA community. Furthermore, subscribers are probably over represented as the survey was promoted through the IASA forum. When IASA members are excluded the percentage falls to about 38% a similar level to certification. It seems that most architects do not invest in their own professional development.

4.3.8 Certification

About 40% of the surveyed architects are certified (N=175). Of these 35 are TOGAF, 21 vendor and 13 certified by their own organizations. However, as the survey was promoted through sites affiliated with certifying bodies the certified are likely over represented. Even assuming this is not the case the interviews show that certification is not highly regarded by architects.

This raises a question about the source of the impetus for certification. The architects’ failure to engage suggests that it is external. As if it were internal then the education upon which the certification is based would address the architects’ needs. However, the vocational training and the interview data suggests that this is not the case. The conclusion can be drawn that certification is driven by external parties, like the certifiers and management. This is a situation that other professions would not tolerate and can be interpreted as indicative of a lack of professional recognition.

4.4 Critical Success Factors

The architects rated the importance and the execution of the literary derived CSFs on a scale of 1 to 5 with 1 being Not Important, 2 Somewhat Important, 3 Important, 4 Very Important and 5 Critically Important.

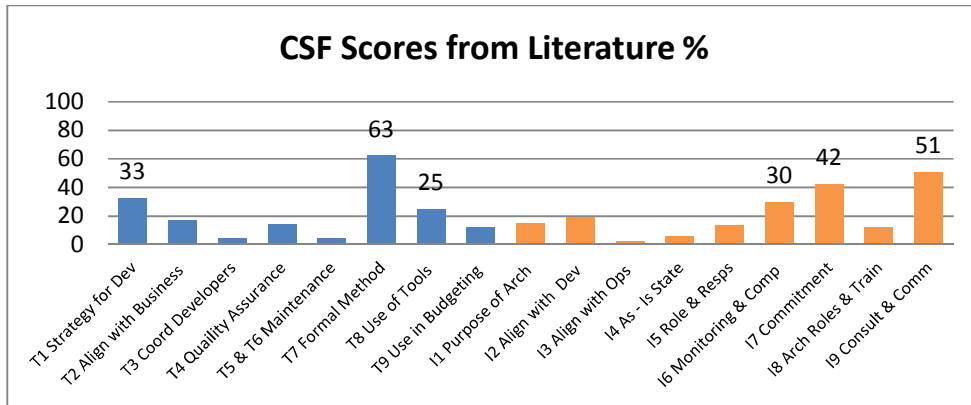


Figure 21: CSFs Identified in the Literature as Percentage of Sources

According to the literature (Chapter 3) the dominant CSFs are Strategy for the Development of Architecture (T1), Use of a Formal Methodology (T7), Architectural Tools (T8), Monitoring and Compliance (I6), Commitment to the Use of Architecture (I7) and Consultation and Communication (I9).

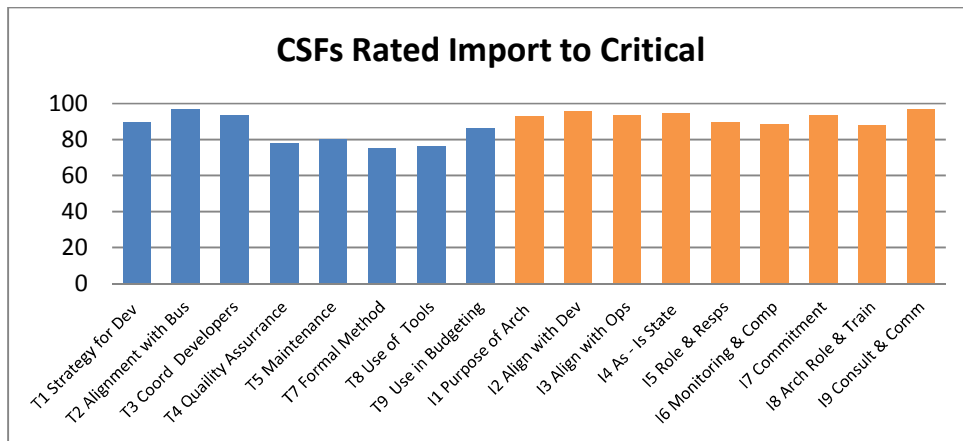


Figure 22: Percentage of Surveyed that Rate Factors Important to Critical

The sample sizes varied from 94 to 98. Most CSFs were rated 3 or higher by over 85% of respondents and all Integration CSFs were rated 3 or above by more than 90% of the respondents. Given a statistical variance of + / - 10% it seems that the respondents cannot differentiate the important from the critical.

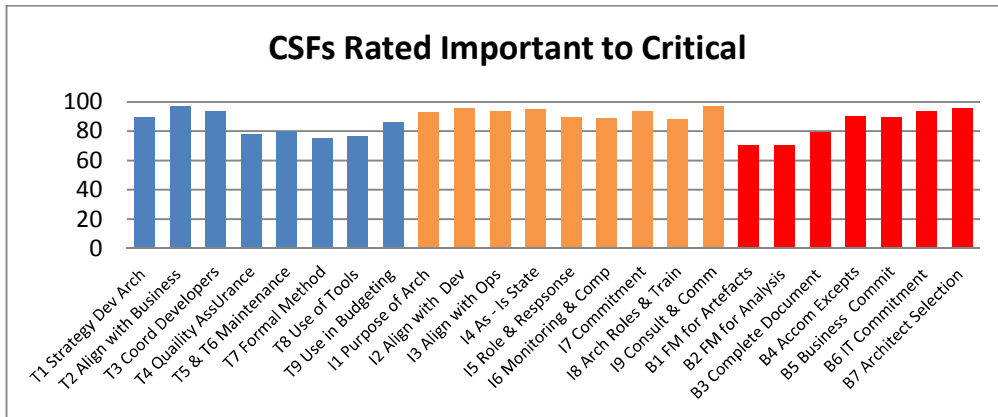


Figure 23: Percentage of Surveyed that Rate Factors Important to Critical with Bogus Factors

This proposition is supported when seven red “bogus” CSFs are introduced (Figure 23 above). Four were rated important or higher by over 80% of respondents. The bogus CSFs also test the hypothesis that architects shy away from notions of a formal methodology. While by no means conclusive it is notable that the three lowest scoring CSFs, genuine and bogus all contain the word “formal” in their description.

When filtered for Very and Critically Important the data is more discerning with only two scores over 90% (T2 Alignment with Business and I9 Consultation and Communication) and the Thinking CSFs in particular falling to between 37% and 53%. Arguably, the Thinking CSFs are procedurally rigorous. Formal methodologies, tools, quality control, maintenance and budgeting are all objectively assessable tasks. Curiously, for a discipline concerned with detail it seems that rigor is unwelcome.

The data becomes more useful when filtered to Critical (5) only.

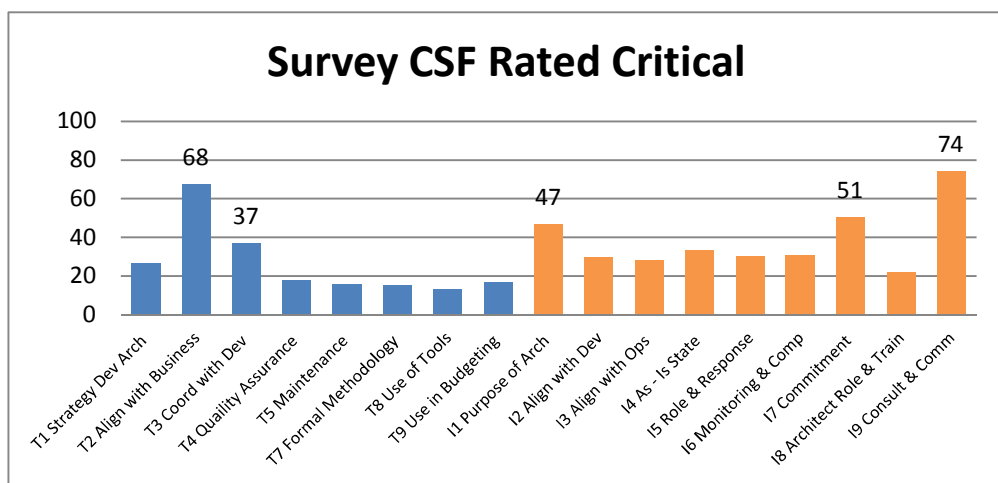


Figure 24: CSFs Identified in the Survey

Although views become more focused they do not reflect the literature. Alignment with the Business (T2) with 68% and Coordination of Developers (T3) at 37% are the stand out “Thinking” CSFs. However the “Integration” CSFs are Purpose of Architecture (I1) with 47%, Commitment and Motivation (I7) with 51% and Consultation and Communication (I9) being the highest single score at 74%.

Table 18: Survey Derived CSFs

Label	Critical Success Factor	% Respondents
T2	Alignment with Business	68
T3	Coordination with Developers	37
I1	Purpose of Architecture	47
I7	Commitment to the Use of Architecture	51
I9	Consultation and Communication	74

4.4.1 Alignment with the Business

Alignment is a term frequently encountered in IS literature, but beyond a self-evident desire for congruence between investment and outcomes the term remains ambiguous. That architects consider alignment critical (68%) is unsurprising given their function. But, this assumes that architects know what the business needs.

When architects assess their “Business Education” only 25% considered it Good or better. Another 30% confessed to none at all and 20% described theirs as Poor. With half of architects reporting little business education how do they know that alignment is important, let alone what it means? Alignment does not present as significantly in the literature. We must question if the survey is an educated response or indicative of some communal discourse. Could it be that as a *community of practice* architects have internalized a belief that they do not understand? Might it be that compliance is mistaken for alignment, and is this a symptom of a dysfunctional Business-IT Dialogue? The interview data (Chapter 5) suggests that this may be the case.

4.4.2 Coordination with Developers

The coordination of developers is a major component of an architect’s duties; so it is important, although only about 40% consider it Critical. Considering their backgrounds this is surprisingly low and may indicate a tendency to avoid engagement. If so why? From a sociological point of view this is important because if architects are reluctant to engage with a like-minded *community of practice* then *assimilation* into the business has little prospect of success.

4.4.3 Purpose of Architecture

A clear understanding of the *purpose* of architecture was considered Critical by only about half of the

respondents. Given White and Fortune's (2002) research into project managers, that identifies the clarity of their vision of the final product as the best forward indicator of success, this observation is troubling and may be another indicator of a reluctance to engage. It's difficult to imagine how agents unsure of their purpose can positively influence a *durée*.

4.4.4 Commitment to the Use of Architecture

The commitment to the use architecture was identified by the third highest number of literary sources, (44%) but only by about half of the respondents. There are few professions that would tolerate such a situation. Doctors expect hospitals to be committed to medicine. Accountants are committed to accounting principles and engineers to engineering standards. Architects, it would seem, are not so particular which must have consequences for the *legitimacy* of architecture.

4.4.5 Consultation and Communication

Consultation and Communication is rated Critically Important by 75% of the respondents. Given the coordinating nature of architecture this seems appropriate perhaps even low. However, the prominence of communication should not be seen merely as a numerical fact. Communication might also stand apart from the other CSFs as an enabler of the others, making it epistemologically unique. This possibility indicates the need to understand what communication means for architecture.

4.4.6 Executing on CSFs

The architects' view of execution is not encouraging. Only two CSFs were considered to have been excellently executed and only by 10% of respondents. These are Alignment with the Business (T2) at 11%, considered critical by 68% and Understanding the AS-IS State with 10%, considered critical by 33% of respondents. Consultation and Communication (I9), considered critical by 75% of respondents, scores only 8%. This demonstrates again that communication is a major issue highlighting the need to understand communication in an architectural context.

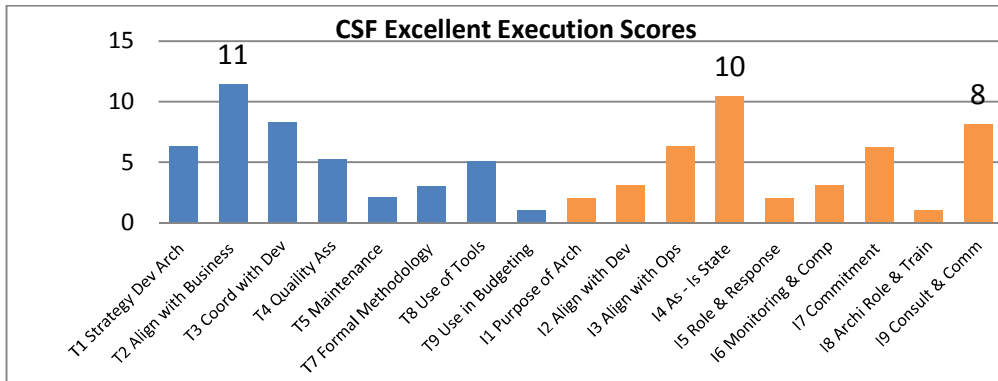


Figure 25: CSFs Execution

Loosening the filtered to Very Well or Excellently (Figure 26 below), Understanding of the "AS-IS" State is the standout (42%). With Coordination with the Developers (26%), Alignment with Development (21%), Alignment with Operations (23%) and Consultation and Communication (21%) making up the group. No other factors score over 20%.

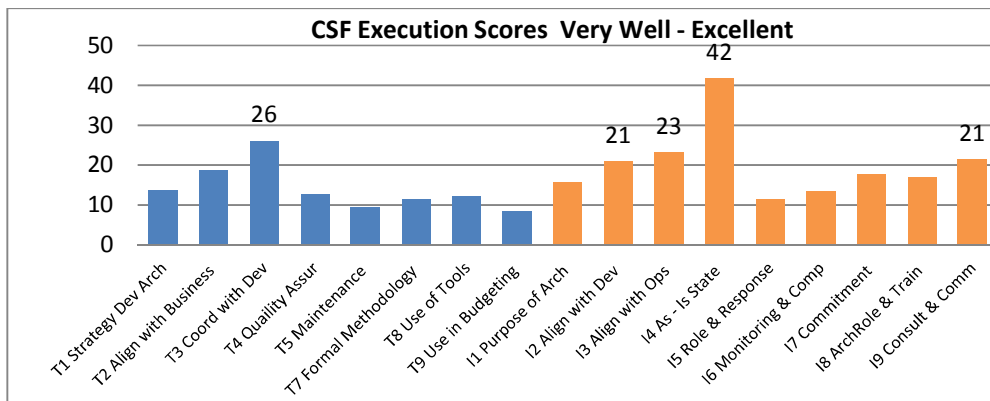


Figure 26: CSFs Executed Very Well or Excellently

4.4.7 AS-IS State

Among the Integration CSFs the AS-IS State stands out. Considering the importance attached to coordination with developers and communication together with the architects' backgrounds, this is the CSF that architects should be good at, but still less than half assess it as well executed.

4.5 Summary

The architects portray themselves as well educated applications developers, poorly prepared for their architecture roles and seemingly reluctant to move away from their technical origins. Collectively they are unable to discern what is important and believe their time is best spent coordinating developers.

Arguably, there is discursive evidence that they shun rigor that might hold them accountable. While they have opinions on the CSFs there is little useful consensus. Furthermore, few think that any CSFs are executed well.

The key question is, why is the gap between what architects think is critically important and its execution so great? Logic insists that architects would execute what they believe is critical for their success. Which means either that they do not know what is important, there is some support for this proposition, or that they are simply unable to execute. In either case, the situation is theoretically surmountable by the introduction of a methodology that infuses the required competence.

The “Achilles Heel” of such arguments is the assumption that architects are the sole arbitrators of their fate. Alternatively, programmes might fail because of factors beyond their control. With the data showing little discernible *practice* difference between the “Best” and “Worst” programmes, based on their self-assessed execution scores, we are bound to accept the latter conclusion because for so many formally well-educated architects to be incompetent in all CSFs is incredulous.

The data could also be interpreted as indicating a failure to engage. This proposition is empirically supported as 75% believe Consultation and Communication is critical, but only 8% believe it well done. Furthermore, this seems to be discursively recognized by the industry as “interpersonal communications” is the best vocational training that architects receive. The uncommunicative architect is a literarily acknowledged stereotype assigned to the *Isolated* quadrant of Wagter’s model. “*These are the organizations where architects sit in those well-known ivory towers. The organizations know what they want but fail to achieve it.*” (Wagter et al. 2005: 62). The fact that technically sophisticated *Isolated* programmes fail, as in PHIL’s case (Chapter 5), is another indicator that technical and methodological factors are not the most critical success factors.

The survey extends our knowledge by empirically determining what architects consider important, how well they execute it and providing hard data on a neglected problem space. From this data, backed by the literary analysis in Chapter 3, the explanations of the Business-IT Dialogue model and the Architecture Topography model a sociological theme emerges that is confirmed by the interview data (Chapter 5). The principal points of the survey data can be summarized as:

Table 19 Principal Survey Points

Section	Results
Demographics	<p>Overwhelming from a technical background</p> <p>85% have more than 10 years IT experience</p> <p>70% less than 10 years architecture experience</p> <p>40% less than 5 years architecture experience</p> <p>Typically well educated</p> <p>Poor vocational training</p>
Critical Success Factors	<p>There is little consensus about the CSFs</p> <p>They nominate different CSFs to the literature:</p> <ul style="list-style-type: none"> Alignment with Business Coordination with Developers Purpose of Architecture Commitment to the Use of Architecture Consultation and Communication
Architectural Practices	<p>Architects are certain that little is well and even less is performed excellently</p> <p>The best performed function is understanding the AS – IS State</p> <p>There is possibly no methodological difference between the “Best” and “Worst” performing programmes</p>

Overall, the picture is of a formally well educated work force from a technical background, ill prepared and supported, for a role that they are uncertain about. The Survey data provides many useful insights, but still leaves us some distance from answering the research questions. So, in order to explore the “uncertainties” of their role a number of architects were interviewed.

5 THE INTERVIEWS

“Knowledge of the world can only be acquired in the world, and not in a closet.” (Lord Chesterfield 1694 – 1773)

The literature suggests much about how architects should operate, while the survey data revealed much about how they actually do operate. However, objectivist techniques reach their limits trying to explain the variances. Only by interviewing primary sources, architects, is it possible to unlock the social dynamics of *assimilation* that the above analyses suggest is critical. The interviews sought the “*causal explanations*” of Gregor’s (2007) type IV “Explanation and prediction” theories marking a critical shift to a sociological viewpoint.

“The success of the interview depends, to a large extent, on the personal and professional qualities of the individual interviewer.” (Ritchie and Lewis 2010: 142) The researcher’s professional history allowed, as the candid nature of these interviews demonstrates, the establishment of “*a good rapport*” (ibid) arguably overcoming some of the “*filtering*” that Creswell (2003: 187) warns of.

So, guided by Ritchie and Lewis’s suggestion of establishing credibility by “*asking the relevant questions*” (ibid: 143) and not wanting to bias the outcome with leading questions, the research employed unstructured (ibid: 144-146) interviews, but remained mindful of Creswell’s “*indirect*” observation warnings. This approach might be ill-advised in some circumstances; however it was made possible by the experience of the interviewer, by the preceding objective assessment of the interviewees’ architectural programmes, using of the Quadrant model (Wagter et al. 2005), and by a knowledge of the histories of the programmes gained from the researcher’s long professional connections with the sampled organizations.

The transcripts were analysed using the Classification Tool (Appendix A Classification Tool) as a conceptual framework (Ritchie and Lewis 2010: 221). The texts were tagged (ibid: 224) using the CSF names. However, not all observations could be accommodated by the initial framework and as an alternate view of the data emerged new themes were identified.

The “*new*” themes were then used in a second parse of the transcripts that resulted in the abandonment, consolidation or refinement of some of the original themes. This new set of ten themes freed the analysis from the constraints of the original conceptual framework, which ultimately draws its epistemology from van den Berg and van Steenbergen’s (2006) Key Areas.

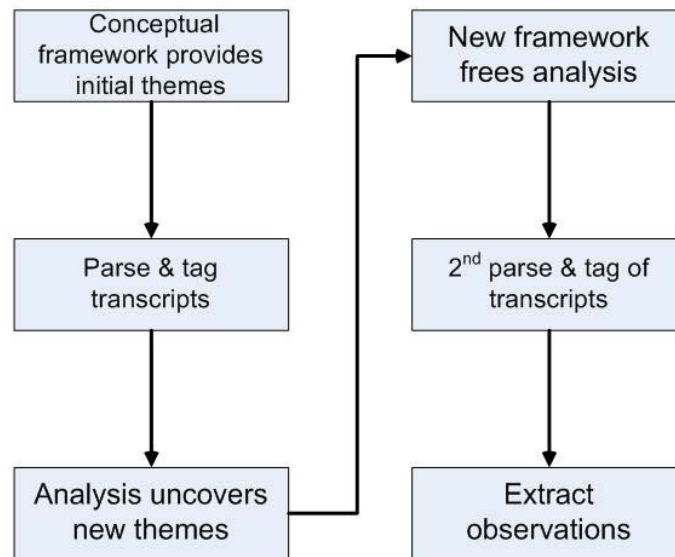


Figure 27: Transcript Analysis

The process is illustrated above (Figure 27). Finally, for utility, the observations are compiled into a single summary document (Appendix F Interview Analysis).

The interviews provide greater insight when set in context, rather than being considered as isolated texts. This chapter provides a synopsis of the interviews, with two aims, to provide a narrative aide-memoir for reading the transcripts, and more importantly to establish the interviewees' context.

The interviewees, selected from programmes in all quadrants of the Wagter et al. (2005) model, provided insight both directly from their experiences and indirectly in the sense-making of their context. As might be expected the circumstances of some interviewees require a fuller explanations than others.

5.1 The Participants

The participants are from Australian Federal and State government agencies, the big four Australian banks, insurance companies and financial services companies. All interviewees held senior permanent positions and had more than a decade's architecture experience, with one exception who is a highly regarded consultant with more than 30 years' experience.

The participants were asked what they thought were the critical success factors for enterprise architecture. No definitions were offered and while some interviewees commented on "enterprise" architecture specifically most did not and none limited their remarks solely to enterprise architecture. EA was generally used as an umbrella term for architectural activities, including enterprise and

enterprise IT planning, solution design, business architecture and even data architecture. It seems that the academic difficulties associated with the definition have little practical consequence.

5.2 Interview Overviews and Analysis

The interviews were conducted face to face using Ritchie and Lewis's six stage approach (2010: 145). Following the introduction of the research, they were asked, in stage three (ibid), a series of questions (Appendix D Interview Method) to verify their programme's position on Wagter et al. (2005) Quadrant model. In all cases the researcher's initial evaluation of the programme was validated by the interviewees.

The interviewees were then asked what they thought it took to be successful. Some participants defined Enterprise Architecture as an aspect of a more holistic architecture, but typically they did not. This comment sums up the group attitude.

"We need to think about what type of architecture we're talking about because it's become such a general and vague term that it now encompasses a fairly wide spectrum of the IT life-cycle, IT world and depending on which part of talking about you'll get a different answer."
(IAN, VN860005, 3:04)

None of the interviewees restricted their comments to the enterprise aspect of architecture which was typically seen as:

"The responsibility of enterprise architecture is to keep those standards current, to communicate them to people and then govern against them." (PETE, VN860017, 22:00)

Without exception their scope included other aspects of architecture with few attempts at delineation, for example:

"I'm the enterprise architect for applications within BANK so across the group I do strategic planning around the applications space for these systems (pause 3s) and therefore can see the strategic goals ... from an umm intuitive perspective. But also I'm getting down to the detail required to transform the governance piece ... to make sure we actually

mature our practice of a method around doing architecture.” (FRED, VN860022, 24:54)

No time limit was set and the interviews typically lasted between forty five minutes and an hour. The participants stopped when they felt so inclined.

While all of the interviewees had worked for several organizations references to previous organizations are rare and only one interviewee made mention of any literary influence. Interviewees focus on their current experiences. This reflects the review conclusion that the literature largely presents its authors’ narrow perspectives. It seems that context and heuristic experience constitute the architects’ true body of knowledge and as one interviewee commented *“The architect is important and it’s not about being TOGAF certified.”* (PHIL Notes)

“I get a sense that there’s a tendency to focus on the technical side because it’s easy to think about and easier to demonstrate you’ve got superiority on that, it’s easy to grade someone and say that yes you are certified on that. It’s harder to assess someone on how they work with people and how they can get things done in a real organization.”(DEAN, 860015 4:24)

The content of the interviews is overwhelmingly sociological. Where methodological aspects are encountered it seems that their greatest impact is the way in which they influence the sociological. No one reported having been saved by a methodology or attributed their success or failure solely to a tool or a technology.

The details of the interview threads are presented in Appendix F Interview Analysis

5.3 The Losing Interviews

Losing programmes are defined as being neither architecturally sophisticated nor integrated with the business.

5.3.1 IAN – A Federal Government Department

IAN works in a Federal Government regulatory body that sees itself as an investigative organization. However, it is required to maintain numerous public registers and listings.

As an early adopter history has bequeathed the organization with what is now a small mainframe. Initially the core systems required a mainframe database capacity. However, the mainframe is no longer particularly suited to the organization's tasks and while modern at the time of implementation the proprietary database has become an impediment.

The researcher, while working for a major vendor observed the organization struggled for years with three architectural constraints. Firstly, while satisfying the organization's key functions, the mainframe is clearly no longer an optimal economic solution. Secondly, the database is not relational, which limits migration options to prohibitively expensive "rip and replace" operations. Finally, also stemming from the nature of the database, technical complexity limits the integration options for new applications.

While platforms have been introduced, which from a performance perspective could replace the mainframe, the cost makes migration unpalatable. The situation has led to integration techniques that have embedded escalating complexity and levy additional costs on every new project. These facts emerged during an engagement, in which the researcher was engaged, into the organization's strategic technology options.

The response was to initiate a number of "transformation" projects. During the course of this research the organization was again restructured and all the architects have been retrenched. The organization continues to pursue what is effectively an in-house managed outsourced IT development strategy that turns staff over at breath-taking speed. Much of the business management is also on short-term contracts. This has institutionalized a discontinuity that has destroyed both architecture and IT governance. The consequence is the wholesale destruction of organizational routines:

"So any, any processes we try to put in place for governance purposes soon gets lost, nobody knows what they should be doing, nobody who can tell them what they should be doing also knows, and so can't tell them." (IAN, VN860005, 47:16)

This led to a collapse in architecture as an organizational capability.

"There is now two managers in charge of the architecture area one of whom has been here six months if not more, twelve months. The other one's been here three months and neither of them has yet seen or tried

to look at our TO BE architecture and roadmap. They didn't even know they existed, yet they are managing the architecture and they've been here for a year, didn't know we had a target architecture" (IAN, VN860005, 47:49)

From a Structuration perspective the *structures* of this organization have failed because the constant staff turnover prevents their *social reproduction*. As the number of full-time employees declined and the number of contractors increased the *durée* increasingly consisted of actors who had never been exposed to the organization's sociological *structures*. As the interviewee reports, "*nobody with any long-term skin in the game is around to keep things consistent*" (IAN, VN860005, 45:13). With fewer and fewer boundary spanning agents the *communities of practice* became increasingly isolated until the architecture programme became irrelevant.

This interview demonstrates the *structural* dependence of architecture. The competence of the architects and their methodology were not in doubt, but once the *structures* through which architecture was executed were degraded communication broke down and the programme became isolated.

5.3.2 DAVE – A Large Insurance Company

DAVE was caught up in a restructure which saw the retrenchment of most architects, but survived to lead a much reduced solutions architecture team. After claiming that the relationship with the business was broken the organization established a structure that ironically isolated the business further by instituting "gate keepers" to control access to the business, charging architects for engaging subject matter experts and physically relocating the development teams several suburbs away; because the real estate was cheap!

DAVE was one of a minority of participants to comment on what might be described as the methodological.

"They just didn't get it a box with a little box on top, (UML notation)"
(DAVE Notes)

"they only know what they know they don't know what they don't know" (DAVE, VN860006, 6:30)

He also comments on the resistance of a poorly educated work force married to obsolete paradigms.

“so they’re actually very entrenched with their legacy systems. Um, you know, two-digit codes rather than talking about um the, some policy attribute in insurance terms, ... [they] ... talk about you know a T40 or something like that ...”

“[The] complicating factor here is the architect with such knowledgeable legacy based ... customers. And quite often customers can't see over the horizon ... can't see that their system isn't delivering.” (DAVE, VN860007, 1:59)

This is a community of practice whose *routines’ ostensive* aspects are modified by their *performative* choice of pursuing “*the easier actions*” (Feldman and Pentland 2003), leaving them marooned in the past. The usual mutual constitution process of architecture *practice*, via its *routines*, is overthrown by the *authoritative* power of the business, a path dependency with its locus in the existing knowledge base of the business. With this the virtuous circle of organizational learning degenerates into a cycle of increasingly detrimental *routines* that degrade the Business-IT Dialogue until it ceases to be a “*process of collective thinking and generative learning*” (Brown and Isaacs 1996).

While the aberrant behaviour of project managers is noted by several participants, and DAVE identifies similar behaviour in some architects, noting a reluctance to accept responsibility.

This architectural programme is subjugated to a charge back system and an organizational structure that seriously impedes communication and maintains a power imbalance between the business and IT.

“PM's then set up their teams and set up the project accordingly. If, for example, if they believe in architecture then they'll put an architect on the project. If they don't believe in it, there's no mandate to make them do it.” (DAVE, VN860006, 3:01)

These tangible realities, combined with an organizational culture in stasis, mean that the programme cannot *assimilate* and the level of architectural thinking remains near zero.

From a Structuration standpoint this programme failed because it was never *legitimized*, there is no *Agreed Programme Strategy*, and so the *structures* that are the foundation of *practice* were never established. Instead the same mechanism *social reproduction* has, through the cycle of detrimental

routines, created a self-perpetuating *durée* of failure. Again the technical competence of the architects is not at issue, a failure of the centre piece of the *durée* the Business-IT Dialogue prevents architecture from *assimilating* and this is the root cause of failure.

5.4 The Isolated Interview

Isolated programmes may be architecturally sophisticated, but have failed to integrate.

5.4.1 PHIL – An Insurance Company

PHIL was head-hunted from a senior position in a successful architectural team by a new CIO at the Large Insurance Company where the existing architecture team had become insular and obsessed with a grand vision (costed in \$100s millions) that, given the organization’s history, was never likely to be implemented.

“Business and IT have completely different world views and competing systems of logic and that’s where the conflict comes from” (PHIL NOTES)

“CIOs who come from IT don’t like architects because they already know how it should be done. They also tend not to talk to business” (ibid)

His mandate was to take architecture to the business. This is IT-initiated architecture trying to assimilate with the business. An approach he describes as *“supply side architecture”*. (PHIL NOTES)

In a culture that had already marginalized one architecture team PHIL struggled to engage, particularly after the instigation of a Business-IT relationship management group by the business management to *“facilitate”* access. Whether the relationship management group was a deliberate strategy to stymie the architects was never clear. Whether conscious or not, it constituted a form of passive aggression intent on maintaining the status quo by dominating the Business-IT Dialogue and controlling the *durée* through the distortion of its *routines*.

PHIL, a highly ethical professional, resigned following a dispute with management over the engagement of a consultancy firm. Following their review the architecture team was retrenched and the function taken over by the consultancy. A short time later the senior consultant joined the organization as the next new CIO.

PHIL came with a more sophisticated architecture *practice* than the organization had previously

encountered. However, the arrival of the consultancy firm to “review” the architecture programme, with what might cynically be considered a predetermined outcome, suggests that the programme had remained *Isolated*. Perhaps PHIL’s attempts to engage had been perceived as threatening.

This programme failed because it lacked *legitimacy* beyond the IT department. While the CIO could enforce an architectural approach within his department, establishing a limited structure, he could not assimilate the programme with the business as the other C Level executives were intent on maintaining the existing power structure. The programme remained *Isolated* a situation not helped by a financial regime (*allocative power*) that charged the lines of business for the architects’ time, a situation that left the programme open to the ROI argument. The business managers faced a situation where no trust had been established and the architecture programme, rather than reducing their anxiety, contributed to it by increasing their costs and reducing their control for no apparent advantage.

5.5 The Barrier Interview

Barrier programmes are defined as chiefly lacking architectural sophistication.

5.5.1 JIM – A Global Insurance Company

JIM is a senior architect working in one of the largest insurance companies in the world. He comments on the importance of organizational maturity and the need for establishing a balance of power.

“Levels of skills and knowledge of the people who make up the teams, the engagement model that the organization sets up to enable it to function, The culture of the organization in terms of acceptance of that function. That probably starts to touch on change management. Another aspect is clear roles and responsibilities – a level of maturity of the organization and the IT function overall. It has to be relatively high.”
(JIM, VN860016, 1:07)

“That’s historical as well. 20 years ago we had developer who became analysts and systems analysts. The systems analyst was a mixture of a BA [business analyst] and an architect. We’ve split the roles apart. In this company - in insurance which is not known for adopting new ways - we still have systems analysts. They can’t understand the BA role so they do the requirements and the design. So they are in that old world and no

one has told them about this new world.” (JIM, VN860016, 21:21)

The Global Insurance Company was created by an initial merger of three small regional insurance companies and has since grown rapidly by acquisition. Its ability to “pick the right takeover targets” is considered by many in the industry to be its true competitive advantage.

This growth by acquisition strategy has fragmented the company’s IT systems and for the last decade the business has been increasingly frustrated by the inflexibility of the core systems, a problem that has claimed several CIOs. Despite becoming global the company retains its regional values. Amongst these is a genuine commitment to its workforce, many of whom have been with the company for many years, if not their entire working lives. These demographics and the prevailing cultural stasis have a serious impact on the company’s attitude to innovation and consequences for the way that architecture is perceived.

Following the arrival of yet another CIO the organization underwent the only IT restructure that anyone could recall that actually resulted in job losses. Most of the architects were retrenched, the architectural function was reorganized and most of the IT processes were destroyed. In almost weekly reviews the annual application development budget was reduced from \$70m to \$38m and then to \$14m.

The new CIO has since made a new commitment to architecture and the rebuilding of the capability has begun. Contradictorily, while blaming the architecture team for the failure of its IT, the management obviously still believes in the importance of the function and yet seems to not understand what that entails, or even to have considered how to avoid the failure recurring. The result of the governance vacuum and the slow pace of its reestablishment have reduced architecture to a project activity.

“If the PM has more power than the architect then you get individual solutions that are not optimized.” (JIM, VN860016, 10:08)

The programme is being recreated from the bottom up but, with no strategy or accepted methodology and so there are no foundational *routines* to support the Business-IT Dialogue and the *durée* does not contain any “*useful kinds of conversations*” (Brown and Issacs 1996). Without a methodological body of knowledge to set their *ostensive* aspect the *routines* are sabotaged as “*organizational members choose to take the easier actions*” (Feldman and Pentland 2003: 98) undermining any attempts to develop any kind of *mastery*. The architects cannot engage management, business or IT and are frequently locked in

tactical power struggles with project managers.

Sociologically this programme differs from the *Losing* programmes only in that it maintained a monitoring function. However, like the *Losing* programmes, lacking *legitimacy* it cannot enforce its point of view. Having neither the allocative power of a budget nor *authoritative power* the architects are continually in conflict with project managers.

This failing, and probably ultimately a fatal behaviour, is propagated by the same *social reproduction* of the *performative* and *ostensive* aspects of *routines* as in successful programmes. But, in this instance it sustains a default negative *routine* of fighting with the project managers that undermines the Business-IT Dialogue.

5.6 The Enablers Interviews

Enabling programmes have the organization thinking architecturally and are well integrated.

5.6.1 ALAN – A State Government Department

ALAN is the Enterprise Architect in a new state government “super department” that has recently been created by merging a number of related departments that for historical reasons had remained separate entities for longer than made sense. Their merger was not merely a cost saving exercise it had become necessary to support a modernized legal and administrative structure. Enterprise Architecture was introduced in the midst of perhaps the most radical restructure the departments had ever undergone.

Sociologically the existing *structures* were experiencing massive dislocation. This allowed ALAN to introduce architectural methods and control the *routines* that constitute the *durée* to quickly establish an *Agreed Programme Strategy*.

5.6.2 DEAN – A Financial Services Company

DEAN is the Enterprise Architect in a financial services company that has recently successfully redeveloped its core systems. The business, IT and architecture had developed a highly effective relationship based on trust, in which each party ceded authority as needed.

“As an architect the people you are advising or influencing generally don’t report to you. They are people in the business or they are people in the project teams or they are people in other areas. Or you are trying to get an outcome to happen but you are not a CIO or a CEO you can’t just

say this is what's going to happen. But you can have those people back you up to make sure that it does happen.” (DEAN, VN860013, 2:49)

Formal governance seemed an unnecessary overhead. Then along came a new manager who did not play by the rules.

Until recently companies in this industry were typically modest in size and turnover. However, recent legislative changes have led to an industry consolidation with two or three first-tier companies emerging to take the lion's share.

This company embarked on a growth by acquisition strategy designed to leverage economies of scale. Acquisitions' systems were to be immediately consolidated into a single central system. In anticipation the company undertook a successful business transformation that included the redevelopment of its core systems.

As a consequence of this success the solution architect was promoted first to be the Enterprise Architect and later to Group Enterprise Architect.

“I was recently appointed group architect by the managing director who said yes architecture is important to us. But at the same time not that important. What people really see in the value of architecture at that level, it's having some smart guys to advise to make things happen, but (long pause) Maybe in a couple of years I'll have built up that level of trust with him to be able to say, look I really think that we should stop this.” (DEAN, VN860013, 11:32)

Architecture at this organization began with the design of new systems for a new business model. It functioned almost completely within the IT department and while it had to engage the business the architecture's scope was neatly defined by the new system. The project proceeded in an open and cooperative manner.

The executive, pleased with their new business model, were sold on the idea of architecture, even establishing the group-wide role. The company is now positioned in the top three of its industry with a new system optimized for the current environment. Given the state of the industry's systems in general the new system can genuinely be considered a competitive advantage that has placed the company in

an enviable position.

This had all been achieved with a laissez faire approach to governance. *“Generally, by the time it reaches that board it’s been past my desk.”* (DEAN, VN80013, 6:03). However, one missing element was formal governance. With its high levels of trust, governance was by common consent. This cooperative model served the company well, but its weakness was that it was embedded in the informal relationships between the architect, the CIO and the CEO and when challenged it had no formal governance *routines* to manage the situation.

This *durée* had developed heuristically with no guiding strategy. As a result its *routines* had no methodological origin; their *ostensive* aspect was no more than the cooperation of the participants. The lack of a consciously constructed *ostensive* aspect left the *routines* open to interpretation. As a result a maladjusted *performative* became the source of their adaptation. With no rules or expectations the *routines*, and so the whole *durée*, were vulnerable to any actor who did not wish to cooperate.

A new manager, with a reputation for getting things done was appointed by the CEO to implement a new business unit. He was a far more political operator than the organization was used to and he proceeded to implement “his” system, using a technology that the architect had previously disqualified as unsuitable and in which the company had no skills. Facilitated by the lack of architectural governance, the manager assumed decision rights beyond his competence.

He purchased the technology out of his own budget, bypassing procurement and based on his personal preference. As the technology was alien he had to establish a parallel development and support organization that even included some offshore developers.

There being no formal governance mechanism there was no way to prevent the rogue behaviour and appeals to the CEO were ineffective for reasons that were never clear.

“I guess that’s what I mean by clout. It’s having the support. Is clout formal authority ... No I won’t say so ... it’s not, it’s definitely not reporting lines. It’s not even controlling budget, or anything like that - the sort of things that architects don’t do a lot of - it’s really it’s about organizational power structures, influence and politics and all those things that you need to have aligned to make a difference in any

reasonably sized organization.” (DEAN, VN860013, 1:56)

The architect’s response was to quarantine the alien system by controlling the integrations to the core system. Unfortunately, this resistance resulted in additional functional duplication in the alien system.

This is perhaps the most *Enabling* programme researched. It is a simple and yet seemingly rare example of near perfect alignment between business strategy and architecture. Its *practice* was technically sophisticated, it was well-integrated with the business and its *legitimacy* was high. But, it lacked a governance model. And so its authority was overthrown by a single rogue agent who, in the process, might have mortally wounded an otherwise competent programme. A failure of commitment by a single manager, combined with a methodology that did not include the *routines* that could call him to account, seriously undermined the programme.

From a Structuration perspective this organization had effective *structures* that were continually refreshed by the *routines* of a vibrant *durée*. The rogue manager disrupted the *structure*. However, once he left the *durée* returned to normal as *social reproduction* re-established the original *routines* and the *structures* reasserted themselves. The timing of his arrival, after the delivery of the new system, may have been significant. While the project was underway it seems that the *durée* so reinforced the architecture *structure* that the thought of acting contrary to the architects simply did not occur to anyone.

While the *practice* had evolved to a point where it dominated the IT discourse it had not yet evolved into a “*process of continuous facilitation*”, and so in the hiatus that followed the project implementation there was “sociological” space for the disruption to develop. That a single strong-willed individual could be so destructive is instructive. If an EA strategy is a contract that constrains behaviour then, this case suggests that it must be explicit and include all sources of *allocative power*. This suggests that an *Agreed Programme Strategy* is a foundational element of governance.

5.6.3 PETE – A Senior Architect at a Big Bank

PETE is a senior architect in an organization that recently began the transformation of its legacy core systems. Enterprise Architecture played the key role in creating the vision and planning its execution, and it continues to monitor and influence the implementation.

The instigator of enterprise architecture at this company had been a senior executive at another large

bank, which up until his departure had also been successful. However, the former organization's central governance was eroded as the individual execution projects secured their budgets. This seeping away of control was avoided at the new institution by co-locating the architects with the project teams, having many smaller projects and a rigorous monitoring regime.

“Entropy in XXXX is an enterprise architecture function of 2 or 3 people and completely federated architecture at the solution level completely spread across the business. That’s how it was 3 ½ years ago, now it’s the exact opposite of that. But it takes a force of will; it takes good people and the right organizational structure and appetite to make that work.”
(PETE, VN860017, 1:37)

Implementation will continue for a number of years, but is already perceived as a success. Consequently, architecture is well thought of. Two recent events reinforce this perception. The formal assignment of enterprise innovation as an architectural responsibility, and the decision that all initiatives going to the board, regardless of their IT component, must be scrutinized by the architecture team with the Chief Architect briefing the board.

This programme employs less sophisticated techniques than might be imagined:

“my portfolio, sits somewhere between zeros and twos, not more than that in terms of capability and maturity” (PETE, VN860017, 0:50)

However, it is highly regarded and well connected. In terms of scale it is easily the largest programme researched. This is an organization in which the successful structures continue to reinforce themselves. It remains to be seen how damaging the loss of a significant leader will be.

5.6.4 FRED – Another Big Bank

This interviewee is a senior architect in a large bank with responsibilities closer to the coal face than most of the other interviewees. He is more concerned with methodology, creating and leveraging artefacts in the practice of architecture than the other participants. What this interview demonstrates perhaps, is the fine line between methodology and practice. He leaves us in no doubt that the skills of the architect are vital and that those skills are not technical, thus confirming that the background of the overwhelming majority of architects does not prepare them for their role.

“Don’t get me wrong ... the role of architects, is to produce useful (pause 1 second) sales messages (pause 1 second) to bring whoever your stakeholder is on board and along the journey, and to sell that message. (pause 2 seconds) whether my primary tool of trade is PowerPoint to develop my message (pause 1 second) and that’s the way I bring people on the journey, but (pause 1 second) describing what is required and building those relationships is key.” (FRED, VN860022, 10:00)

But perhaps the most interesting data he provides is that the technical sophistication of this very successful programme is in fact quite low.

“We create artefacts, but we don’t have a standard way to create artefacts ... we ... those artefacts if they are created in, let’s say Visio for example for a modelling tool we don’t have a ... the ability to capture those point in time ... artefacts and draw them into the bigger picture. We can’t strategically plan by using those artefacts and doing any sort of analysis on them in terms of how they would evolve over time in light of where our strategic direction wanted to go”. (FRED, VN860022, 2:08)

5.7 Consultant Interview

5.7.1 BILL – A Respected Consultant

BILL differs from the other interviewees in that he is a consultant. After five years as the CIO of a global corporation BILL spent six years as the Principal Consultant of a well-known consultancy firm with offices in seven countries. After the consultancy was acquired he decided to practice what he had preached implementing business coordination and transformation capabilities in large organizations including a state police force, an international insurance company, a global consumer goods manufacturer and a state government transportation corporation.

He talks at length about the nature of EA, its relationship to change, the psychology of change and the skills of the architect in helping people through change and the place of governance in that process. His advice is a striking contrast to the experience of most of the other interviewees.

"If you have somebody who's grown up through technocrats environments they'll be blown away by the business people who just don't want to talk techie stuff; who don't want to be bothered with the detail business process; who want to talk about what it is they want."
(BILL, VN860041, 3:24)

5.8 Themes

The complexity of some data made classification more subjective than is ideal with many comments arguably containing elements of more than one theme. However, the establishment and maintenance of a conceptual framework, as advocated by Ritchie and Lewis (2010), minimizes this impact. For example:

"In my opinion the fundamental that the enterprise architect has to have in his mind is an understanding of data structures for that enterprise and they are not that difficult to have. The trouble is over the last 15 to 20 years data has lost the primary position for a lot of architects and they talk about process ... that's where they move into analysis paralysis and process is just subjective where as data must reflect reality." (BILL, VN860041, 24:32)

Does BILL's comment refer to the qualities of the architect, the *evolution of architecture* or is it a critical success factor? The following example was classified as pertaining to the Scope of Architecture:

"So what we used to call programmer analysts are now calling themselves architects and so architecture has drifted down towards the program design end of IT activities." (IAN, VN860005, 3:04)

While these examples are classified as referring to a Commitment to the Use of Architecture:

"... they are actually part of the business not part of IT, and the business, ah well these guys don't have to follow the rules of XXXX IT because they are our organization ... we'll get them to deliver something for us because it's quick and easy and it avoids oversight" (IAN, VN860005, 42:29)

"SMEs [Subject Matter Experts] don't give you the information you need

they hide information from you.” (DAVE, VN860006, 10:01)

And this example is classified as Alignment with the Business:

“What people really see in the value of architecture at that level, it’s having some smart guys to advise to make things happen” (DEAN, VN860013, 11:32)

However, this analysis is not dependent on precise numbers and so the margin of error does not matter.

Table 20: Interview Themes

Topic	# Comments
Communication and Consultation	11
Alignment with Business	24
Tools and Methodologies	21
Monitoring	6
Coordinating with Developers	5
Appropriate Architecture	15
Scope of Architecture	14
Critical Success Factors	34
Qualities of the Architect	33
Commitment to the Use of Architecture	109
	272

The significance of the number of comments lies in their proportion of the whole. In the previous analyses Communication and Consultation rate highly, along with Commitment to the Use of Architecture, Alignment with the Business and Use of a Formal Methodology. However, of 272 observations extracted from the interviews 109 (40%) are classified as Commitment to the Use of Architecture with the next highest number of observations being those concerning CSFs (34 or 13%). A commitment to the use of architecture is the architects’ overarching concern.

This primary source data is neither coloured by its distance from practice, as the literature may be, nor a distorted positivist survey. Thematically the data is in tune with the secondary sources, suggesting a degree of authenticity. So, the question is how else does this data enrich the picture?

In this data (Table 20) most, if not all, of van den Berg and van Steenbergen’s Key Areas are clearly present. And although structurally similar to the secondary sources, in that it is dominated by the same Key Areas, Commitment to the Use of Architecture as an antecedent to successful practice, the most sociological concept, is by far the most significant theme. Ideas about critical success factors, communication and the qualities of the architect are overwhelmed by the proposition that architectural

programme success is dependent on commitment.

5.9 Interviews Insights

Initially the consolidated transcripts' observations seem as impenetrable as those derived from the literature. However, the advantage of primary sources is in knowing their context. And this is the key to understanding architecture *practice*, why the literature continuously expands, why the epistemological challenges remain and why an agreed set of critical success factors has not emerged. Each instance of architectural implementation is unique, with its body of knowledge being a social construct of the community of practice charged with its implementation. And so the "operational" details of its success factors are also unique. The result is the broad thematic consistency, already observed, and the vague operational details that Nakakawa et al. (2011) report.

This also accounts for why van den Berg and van Steenbergen's Key Areas, a promising start on account of their apparent universality, fall short of epistemological unification. But this does not mean that the ontological quest is hopeless. As demonstrated by the data, programmes share a common goal the creation of competitive advantage. This remains so, even if it is not acknowledged in a formal strategy. It is this pursuit of this advantage, sometimes unconsciously, that gives rise to the architecture's *primary attributes* of purpose, scope and definition.

The interviews provide an insightful characterization of *practice, from the interviewees' perspective*, because the environmental context and fates of the EA programmes are known. The interviews are more than the sum of their comments and instructive both in observation and narrative. However, the greatest value comes from comparing those narratives.

The interviews, each a glimpse of an organization's *durée*, are notable for the preponderance and the complexity of their sociological insights. Viewed through the lens of Structuration they are a powerful research instrument. These programmes' attempts to maintain, promote or prevent their demotion are stories of architecture *practice*. The contrasting sociological circumstances of the *Enabling* and *Losing* programmes provide the basic comparisons that are the source of the research findings. Transcripts of the interviews and notes appear in Appendix E.

6 FINDINGS

“So we are sailing against England in the confident hope of a miracle. Never can such a vast enterprise have been launched on such a flimsy basis”

(Hanson 2006: 171)

At the outset this research sought the answers to two questions:

What are the critical success factors of enterprise architecture?

And:

How these factors are influenced by, or influence, the practice of architecture?

These questions are now exposed as being almost as inadequate as many of the prior attempts by others to answer them. It seems that like the CSFs, the questions are only indicative of more complex phenomena. And so we must satisfy them with a holistic explanation.

This chapter begins with a summary that refutes the current dominant Builder’s architecture paradigm (Zachman 1987: Brandt and Boynton 1991: Cook 1996: McGovern et al. 2004: Lankhorst et al. 2005: Op’tland et al. 2009: Smith et al. 2012 and others) and proceeds by elucidating a sociological understanding of architecture. This is followed by sections on context, content and interactions. Each is composed of related topics which, as might be expected of a sociological duality, have aspects exposed by and connections to other sections. It is only in their unity that a topic can be fully appreciated.

6.1 Epistemology of Findings

These findings were iteratively interpreted from a synergy of the interview, literary and survey analyses. This process of assertion by generalization is discussed at length by Ritchie and Lewis (2010) who suggest that the most important characteristic is that:

“Generalizations must be truly universal, unrestricted as to time and space. It must formulate what is always and everywhere the case, provided and only provided that the appropriate conditions are satisfied.”(Kaplan 1964 cited in Ritchie & Lewis 2010: 267)

They go on to discuss features and constraints of theoretical, inferential and representational generalizations laying guiding principles for both the internal and the external validation of generalizations (ibid: 275) To this approach the research adds, as an accommodation of the

unstructured nature of the data, Hughes (1984) “*burden of proof*” and Kagan’s (2007) “*higher naiveté*” as introduced at the end of the second chapter.

6.2 Key Findings

The key findings are formatted by the original research questions:

What are the critical success factors of enterprise architecture?

And:

How these factors are influenced by, or influence, the practice of architecture?

How architecture is *practiced*, how its *routines* are *performed*, is the Critical Success Factor for architecture. This is not to say that what is practiced is unimportant only that it is less important and so not the critical factor. The research even suggests that inferior *routines*, as described in Chapter 3.8 The Structure of Architecture Practice, practiced well may be more effective than the best *routines* practiced poorly. And that even the best *routines* can be *performatively* modified into bad *routines* by poor *practice*.

Routines are influenced by and influence the *practice* of architecture by their *social reproduction* of the Business-IT Dialogue in the *durée* of daily operations. This means that we need to think less about the design science of artefacts and more about their purpose as *boundary objects* and resources of the sociological *structures* that *realize* an architecture. The research suggests that this would lead to the *legitimation* of architecture allowing it to *assimilate* and develop normatively into an “*interactive process of continuous facilitation.*” (van den Berg and van Steenberg 2006: 83).

6.3 Paradigms

Architecture emerged from a technical antecedent with a positivist epistemology and the Builders’ paradigm as its guiding analogy. Initially this was sufficient, but as business became dependent and IT mainstream, success, as noted by Checkland (1981) and Eason (1988) in the 1980’s and later by Avison and Fitzgerald (2003), became increasingly sociological in nature.

The ascendancy of the Builders’ paradigm denied architecture the opportunity to appropriate from other disciplines despite, as pointed out by Hevner et al. (2004), Kanellis and Papadopoulos (2009) and others, the accepted limitations of the positivist approach to socio-technical phenomena. The result has been a methodologically focused literature that struggles to furnish the ontological basics. This lack of

definitions reduces the literature's efficacy as an actionable body of knowledge and retards the discipline's development. (Noran 2003)

It seems probable that if success were solely derivable from the rigorous application of methodology then such a methodology would have long since been secured. And yet there is no universally accepted epistemology and regular cycles of publications perpetuate the fragmentation noted by Saha (2007). Methodology per se is clearly less important than its presence in the literature suggests. The most accessible literature and arguably the most industrially influential, the commercial methodology publications offers no way forward for practicing architects.

FINDING: The Builders' paradigm does not reflect the realities of architecture practice

By shifting our focus from the Builders' paradigm to the interviewees' concerns and accepting the significance of people to architecture an alternative lexicon emerges. This sociologically-centric perspective compels the acceptance of each instance of architecture as, on account of the prominence of the sociological, being unique. From this the research develops an alternative body of knowledge, derived from the *purpose* of each instance of architecture, called Purpose Driven Architectural Practice (PDAP).

PDAP is a socio-centric practice framework that uses a new body of knowledge to shape the way in which architecture is implemented. It does not replace architectural methodologies like TOGAF or RM-ODP; it supplements them by structuring the way that they are practiced. PDAP can accommodate any methodology and is adaptable to any organizational circumstance. PDAP is an alternative paradigm for the implementation and management of architectural programmes that structures the sociological environment to the purpose of the architecture.

6.4 Attributes and Dialect

This section explains how the origins and nature of an instance of architecture, regardless of the methodology employed; provide the *primary attributes* that establish the architecture's sociological *structures* and epistemology.

6.4.1 Origin and Attributes

Enterprise Architecture is a business management tool and so, it is what it must be to achieve its purpose. And so each instance of architecture has its own context specific *purpose* and *scope* from

which emerges its *definition*. This proposition reflects the Proper et al. (2005), suggestion that the variety of architectural nomenclatures stem from different approaches to the development of information systems. This implies that searching for universally applicable *primary attributes*, in the technical detail of implementation is unlikely to be successful.

These *primary attributes*, *purpose*, *scope* and *definition*, always exist even if they are not formally acknowledged. What they are and what people believe them to be are important.

FINDING: *Each instance of architecture is unique*

6.4.2 Nature and Dialects

The Builders' paradigm concentrates on artefact production. While superficially the *realization* of architecture might look like civil engineering the data shows us that it is very much a social undertaking. It is more akin to an alliance, "*Architects must be everyone's friend*" (PHIL, NOTES) in which allies must be continually persuaded, than to the direction of construction.

"Don't get me wrong the role of architects, enterprise or otherwise, is to produce useful ... sales messages ... to bring whoever your stakeholder is on board and along the journey ... that's the way I bring people on the journey ... describing what is required and building those relationships is key." (FRED, VN860022, 10:00)

"If a person is doubting the objective and you say that's our objective and we have to stick to it they lose the respect for management. If people say why we are here I don't understand it you've lost them anyway and it's dysfunctional." (BILL, VN860041, 24:00)

A *community of practice* subordinates itself to a sociological *structure*, an alliance, in return for strategic benefits and can only be held in this arrangement with its consent. Strategy and *practice* the entwining of the methodological and sociological are van den Berg and van Steenberg's (2006) axes writ large. They can be considered vertically (Strategy - Thinking) as the application of technical, methodological and ultimately business skills, and horizontally (Practice - Integration) as the acquisition of *power*, initially by formal governance models, then by a sociological extension achieved through the manipulation of the *durée* by *social reproduction*. The interviews, PETE and DEAN in particular and IAN discursively by its absence, demonstrate that the efficacy of *practice*, the vehicle of *social reproduction*,

is dependent on its degree of *assimilation*.

“you need to have it ingrained in the day to day operations of the group on one hand and in the strategy of the group in the other hand.” (PETE, VN860017, 22:00)

“An enterprise architect is a behavioural irregularity ... cause you need to be able to in my bridge type of world be intuitive but be (sensitive) at the same time. Be able to get down to the detail, but see the bigger picture” (FRED, VN860022, 24:25).

To this end architects need the vision of strategists, the skills of technicians and, as suggested by Lankhorst et al. (2009), the empathy of negotiators.

Regardless of *purpose*, technical rationalization to organizational restructure, architecture programmes have the same dialectic. Sometimes discursively, often it seems unknowingly, they pursue competitive advantage. In the course of this they contend with the tension between tactical gratification and strategic cohesion.

FINDING: *All architecture programmes pursue, sometimes unknowingly, the same objective and contend with the same tension*

6.4.3 Dialect and CSFs

The literary observations, accumulated into CSFs, are their authors' attempts of specify the pursuit of competitive advantage and the innate balancing of the tactical and strategic. It is this endeavour that leads the authors to publish their methodologies. Methodologies are ordered sets of *routines* developed to standardize the consistent and reliable creation of architectures.

Paradoxically, given this dialectic commonality, when surveyed, architects as a group, have difficulty discerning the CSFs. They are however, certain that they are not executed well, a conclusion only possible with the exhaustion of all alternatives and one that substantiates the proposition that none of the CSFs are singularly sufficient.

However, the Business-IT Dialogue, the alliance *structure*, demonstrates how, the collective exercise of otherwise inadequate factors, *practice* is the key to success. This suggests that the *practice* of architecture is somehow greater than the sum of its parts (the individual CSFs). This proposition is

supported by the data's revelation that there is possibly no discernible methodological difference between the "Best" and "Worst" performing programmes.

This is not to say that these programmes use the same actual methodology only that the intent that their *routines* are put to are thematically consistent. It seems that without an understanding of the *architectonic activities*, to focus their *purpose*, the *routines* are isolated *performative* episodes modified only by the obvious *realization activity* with little effect on the *structures* of the *durée*.

In fact only about 27% of surveyed architects "usually" or "always" use a formal methodology (Question AP1-14 in Appendix C). And another 40% "never" or "rarely" use a formal methodology. (ibid) Yet despite this, when measured against van den Berg and van Steenbergen's Key Areas, their *practices* appear very similar. It seems that the theoretical underdevelopment bemoaned by O'Neill et al. (2007) and the common dialect, the pursuit of competitive advantage and the attendant necessity of balancing the strategic and tactical, has the practical consequence of many programmes heuristically developing surprisingly similar *practices*.

Regardless of their sophistication to-do lists of CSFs ignore the complexities of architecture, leaving a situation analogous with a motor accident. The skid marks, the CSFs, tell us in which direction the vehicle was travelling, but not why the driver swerved (i.e. the process of attaining the success factors). Even a statistically reliable set of CSFs is no golden to-do list as the experiential specificity of the foundation observations defeats their generic applicability. This leaves CSFs as more a description of an end state rather than a means to it, with despite a thematic consistency, the details of execution remaining, as pointed out by Nakakawa et al. (2011), vague.

The failure of CSF lists also casts doubts on the effectiveness of positivist instruments in EA research and favours interpretive approaches, like the alliance analogy, a sociological turn that is confirmed by the interviews.

FINDING: *Architecture is too complex to be satisfied by to-do lists*

6.4.4 Evolution of Architecture

This pursuit of competitive advantage drives the *evolution of architecture* from typically an initial focus on technical efficiency to a process of continuous facilitation.

If the *purpose* of an architecture is not clearly understood by the organization then this innate behaviour

can be a source of misalignment. Even more damaging, it can be sociologically disruptive, if it is perceived as “*a grab for power by the back room*” (Perera 2006), that threatens the existing *structure*; something that Giddens tells us can make people very angry.

“*that didn’t go down very well, then you find all sorts of funny behaviours.*” (JIM, VN860016, 49:01)

The Evolution of Architecture model suggests, that like isolated ancient astronomers, authors report the same phenomena from different perspectives. The thematic consistency of the literature also supports the evolutionary axiom.

While particular observations are demonstrably true, collectively they are difficult to organize as an exploitable epistemological foundation. This seemingly insurmountable epistemological problem of instance-specificity is typically ignored by heuristic methodologists. This inhibits theoretical development impoverishing the discourse (O’Neill et al. 2007) and contributes to the fragmented epistemology (Saha 2007), leaving the prevailing discourse undisturbed.

The *evolution* concept allows a decomposition of architecture by demonstrating how the repositioning of a programme on the Wagter et al. (2005) Quadrant model (evolution) requires three mutually reciprocally constitutive architectonic activities *realization*, *assimilation* and *cultivation*. These *activities* are the mutually constitutive engines of *evolution*.

Methodologically *architectonic activities* can be considered as sets of similarly intentioned *routines*. Together the three *activities* might be considered a kind of meta-routine, with *cultivation* providing the theoretical *ostensive* aspect and *realization* the *performative*. However, *activities*, as noted previously, differ from *routines* in not necessarily having an *ostensive* aspect, and perhaps not even a *performative aspect*, although even in their absence they influence the Business-IT Dialogue. For example, *assimilation* may be achieved without any forethought (*ostensive* aspect) as in Dean’s case (Chapter 5) and *cultivation* may simply never be attempted, as the survey data suggests is often the case.

6.5 Environment and Context

Architecture is a techno-sociological phenomenon deeply entwined in the social *structures* of the host organization. The generic roots of these social *structures* are shown in the Enterprise Architecture in Context diagram (Figure 2). This model bisects the organization, vertically aligning IT and business only

at the strategic and infrastructure levels. Architecture, from its central position, provides the means of aligning all levels and perspectives by spanning *communities of practice*.

6.5.1 Structure, Alignment and Authority

The *primary attributes* of an architecture, and so its *authority*, are inherited from its initiating organizational *structure*. The *structure* provides the architecture's epistemology, its *purpose* and *scope*, sometimes by design often it seems by default. For example, a CIO can apply architecture to the IT department, but not necessarily to the whole organization. As noted by one interviewee.

"You can have supply side architecture and demand side architecture. Supply side architecture doesn't work." (PHIL, Notes)

The instance specificity of architecture decides its *purpose* and *scope*. In turn these determine the methodology. Whether formal or heuristic the methodology is the source of the *ostensive* aspects of the architecture's *routines* and it is from their *performance* that the architecture's *definition* emerges. So formed *definitions* contribute to the discipline's fragmentation in that this typically assumed prerequisite is in reality often emergent, raising interesting yet ultimately spurious questions. For example, trapped by the logic of a universal definition one interviewee wonders:

"Why does architecture need sponsorship? Infrastructure doesn't, applications don't." (PHIL, Notes)

Applications do not need sponsorship because there is no question about their value, they have *legitimacy*. Architecture on the other hand is an emergent discipline with many failures and sceptics, particularly amongst expert *communities of practice*, who are reluctant to cede *directive authority* to those they consider technically or organizationally inferior.

Aligned architectures do not require sponsorship because they are an extension of an existing *structure*. Architecture's *legitimacy* grows from and through its initiator's power *structure*. Programmes isolated from their originating *structures* or conceived extra *structurally* lack *authority* like ALAN's records officers:

"The two ladies I was presenting to looked at each other very knowingly and said this (unclear works like?) DIRKS, - I said what's DIRKS? It's Document Information Record Keeping methodology which is much the same as an EA

approach. They do exactly the same thing ...” (ALAN, VN860021, 2:34)

Given that architects exercise *authority* by reference, those without a business sponsor are compelled to recruit one. Such programmes are poorly *assimilated* and likely starved of *social reproduction*.

“If you need sponsorship, that’s a warning sign.” (PHIL, Notes)

The inheritance of *primary attributes* from an authorizing *structure* assures alignment. Misalignment is the consequence of the *purpose* and / or the *scope* of the architecture not being drawn from an appropriate *structure*. These failures perhaps result from a belief that architecture is simply the application of a methodology independent of other considerations.

In DEAN’s case the executive initiated the architecture programme as a consequence of its business strategy. Structurally the programme was a child of the business strategy defined by the CEO and so was innately aligned. Being a consequence of the CEO’s strategy *authorized the practice* of architecture and unambiguously set its *purpose* and *scope*.

The programme according to the interviewee enjoyed a high degree of *assimilation* and barely required formal governance:

“You’re part of the team solving a problem or trying to achieve something you’re not just someone in the corner.” (DEAN, VN860013, 3:20)

This *assimilation* was reinforced in the daily *social reproduction* of the new system development project, the *durée of realization*. It was only after the new system had gone live, when the programme’s *scope* was less clear, because the task had been completed, and the reinforcing *durée* less intense that a challenge emerged.

The literary analysis did not identify Alignment with the Business (T2) as a CSF. It was cited by just 18 sources in contrast to 95% of the surveyed architects. Alignment also recorded the largest delta between importance and execution. The survey’s “Worst” performing programmes, based on their self-assessed execution scores, returned an importance / execution delta of 2.7 (out of 5) no other delta was greater than 2.2. The “Worst” performing teams fail in their execution of Alignment by the largest margin of any factor surveyed a result that requires examination.

One possible theoretical explanation is that the literary sources, removed from the immediacy of social *structures* are inclined to ignore or reduce their relevance. This is a situation possibly, if the authors' experience is reflected in the survey group, exacerbated by an educational and experiential background that did not sociologically sensitize them. Furthermore, the authors have probably been successful and possibly benefited from *assimilation* with no awareness of it; a situation similar to Verner and Evanco's project managers: "*Neither business managers nor project managers appeared to understand the specific causes of failed projects*" (2005). Survey respondents on the other hand, are reminded daily of the *authority* of business. The scant attention paid by the literature as a whole to sociological detail tells us that it is not front-of-mind for commercial methodology authors, suggesting that the literature may be distorted by their remoteness from *practice* in general and hostile organizations in particular.

Architecture might originate in an attempt to impose order as suggested by Lindstrom et al. (2006) or be used to redesign the enterprise (Bernus et al. 2003). That architecture varies by instance and evolves with its *realization* is attested by the data:

"Architecture started off as architecture, then it's expanded downstream, if you like to encompass design. But it's also expanded up stream to cover strategy and now it's actually gone further than that to encompass pre-strategy innovation." (PETE, VN860017, 0:31)

"So there's a long-term often painful ... pain-staking ... taking one step at a time evolution." (JIM, VN860016, 29:29)

The data suggests that this is not widely understood and that perhaps accounts for the belief of some that architecture is an IT issue. When *purpose*, *scope* or *definition* is not congruent with the authorizing *structure* conflict occurs:

"So often the programme management side of things will create a challenge to successful architecture in the sense that they don't hold the same long-term holistic, total portfolio over the life of the asset view." (JIM, VN860016 9:05)

"Business and IT have completely different world views and competing systems of logic and that's where the conflict comes from." (PHIL, Notes)

In JIM's example the project managers did not see a role for architecture beyond technical implementation. Architecture was thus limited by their commitment to use it, namely none. It also seems that these same project managers could not differentiate between *allocative* and *directive* authority. Having secured *allocative* power within the *structure* of "their" project they assumed all power and were not about to share it with another *community of practice*.

In PHIL's case architecture was established by the CIO who attempted to implement architecture organization wide by offering it as a service. The business managers accustomed to wielding both *allocative* and *directive* power without reference were not inclined to engage anyone who might constrain them. The concept of an *authoritative* context settles an epistemological dispute by resoundingly claiming architecture as a verb. Without an instance architecture has no meaningful *definition* because it emerges from its *purpose* and *scope* and is modified *performatively* by the *evolution of the architecture* as intermediary states are *realized* dynamically redefining the *primary attributes*.

Such specificity and dynamism makes a universal technical epistemology difficult. Architecture is a business management tool, and so is what it needs to do. Without context concepts like *definition* have little meaning and perhaps less value. There is considerable discursive support for this in the observation that architecture is often executed in the absence of seemingly theoretical necessities.

Failing to understand the dimensions of *authority* has dire consequences. IAN's organization employed contract architects to reduce cost, not realizing that the resulting churn would disrupt the *durée* destroying the *social reproduction* and the *habitus* of claiming *directive authority*, rendering the architects ineffective and the programme's termination inevitable.

"I would go along to these meetings with all different projects and I would be the only person in the room who was a permanent IT, permanent XXXX staff member. Everyone else was a contractor or a consultant. None of them is still here today. In fact every one of them has been replaced by at least two if not three times since then. So, agh, it's almost like a regular complete change of staff in all these projects every six months." (IAN, VN860005, 45:13)

"So any, any processes we try to put in place for governance purposes

soon gets lost, nobody knows what they should be doing, nobody who can tell them what they should be doing also knows, and so can't tell them. I mean the project management office supposedly maintains governance has just appointed its fourth manager in as many years. So, (pause), there's just a lot of churn. I think that's what it's about." (IAN, VN860005, 47:16)

The destruction of the architecture *community of practice* resulted in an unintended loss of *organizational capability*. It seems that under-resourced programmes and those with a high staff turnover are innately in peril. Contrast this situation with the comments of an architect in an *Enabling* programme.

"It's almost like it's got its own brand recognition now. I want an architect telling me if I should even be looking at this business strategy. Tell me better ways of doing it."(PETE, VN860017, 0:05)

"It's natural for architects to communicate requirements down to projects. At the project level, projects take direction from solution architects and they implement it ... that's the hygiene factor for good architecture to function. But at some point we start making recommendations in design that (unclear) that sit above the project level that are more enduring. Anyway to put in place enduring capabilities is to secure the level of sponsorship needed at the level of the business that can implement more enduring capabilities." (PETE, VN860017, 4:10)

In the latter organization projects expect to be directed by architects and the programme has a role *"above the project level ... at the level of the business ..."* (ibid). Architecture *practice* is *legitimized* and the programme's *authority* allows it to align projects with the strategy because it draws that *authority* from a level of management above the projects. This programme functions as bridge between strategy and design (Greefhorst and Proper 2011: 16).

These reports also possibly indicate an organizational difference. The *Enabling* programme has direct access to management. It is not inhibited by intermediaries like relationship or project managers. This directness is reflective of the CSFs derived Business-IT Dialogue model and aligns with van den berg and van Steenbergen's assertion of the significance of integration.

It is also notable that Zachman's original architecture scenario begins with an architect, not a project manager. And the architect's second task is to:

"convince the owner that the owner's desires are understood well enough so that the owner will pay for the creative work to follow, and in effect, initiate the project." (Zachman 1987: 456)

The relationship between the two perspectives that shape the building / project is direct. The interception of this relationship with a project or relationship manager seems to be the misapplication *directive authority*.

"Solution Architect hands down a solution design to a PM for delivery. I think it's dangerous to have an IT delivery manager prematurely involved. That's a seed for failure. There is a need for a business PM to be involved earlier because they are involved in the business initiative right. That's what they should be managing ... And if you mix those two together you run into trouble. A lot of the problems I see are around that engagement with the project manager." (JIM, VN860016, 16:50)

FINDING: *Many project managers cannot differentiate between allocative and directive authority*

In another instance an organization (DAVE) failing to realize the significance of *authority* and believing the architects incompetent, culled thirty-plus positions from Enterprise to Solution architects leaving a much reduce *community of practice*. The new programme was much cheaper and just as ineffective, as the *power* issue remained unaddressed. Additionally, the redundancies had the consequence of making the remaining architects unwilling to appear obstructive. They opted to continue the same failing *durée*. The situation was so bad that their manager was observed to have removed the word "architecture" from his title and his business card.

FINDING: *Power imbalances, reinforced by the social reproduction, result in perpetual failure*

It was plain to the researcher, who witnessed this, that with no strategy to govern against and no access to higher management, the programme lacked both *authority* and *legitimacy*. Without these the Business-IT Dialogue was ineffective and the *power* imbalance, reinforced by the *social reproduction* of

the nervous architects, resulted in the perpetuation of a failed *practice*. Applying the Quadrant model to this scenario, the architects could not integrate and were forced into the *Losing* quadrant by projects that simply refused to engage them.

An architecture programme established by an *authority* that is not organization-wide will struggle, although as ALAN demonstrates it is possible, as will programmes where the *agents* are refreshed with a frequency that compromises the social *structure*. (IAN)

PETE's comments highlight the need for *commitment* to span the organization supporting the notion of architecture as a single holistic domain. Only then can the organization be considered what Spewak and Hill (1992) and Gregor, Hart, Dennis and Martin (2007) describe as favourable.

"It is multiple levels of engagement you have a team of people who provide the solution architecture for a project" (PETE, VN860017, 5:50)

FINDING: *The commitment to the use of architecture must holistically span the organization*

Where architecture is misaligned its *authority* will be challenged because it is seen as impinging on the sovereignty of the other project delivery disciplines. This seems particularly likely when architects make their services a forced sale.

"So, yeah, when I say it is as successful as the architect it means that, you know if, if you can come in and demonstrate value, communicate well, um, show that customer focus, um, and basically appear to be adding that value that the project team believe, um um, you know, is valuable to the project assisting the delivery and you'll probably do okay." (DAVE, VN860006, 3:01)

Here the suggestion is that architects have to "prove" the value of architecture to a project team that they are not part of. The responsibility for gaining *legitimacy* has devolved to the individual architect because the programme lacks it.

To blame the architect whose value is casually assessed by people who "*only know what they know they don't know what they don't know*" (DAVE, VN860006 6:30) is an architectural form of the Dunning - Kruger Effect (Kruger and Dunning: 1999) a well-accepted phenomenon which explains how the

“incompetent” overestimate their ability while the *“competent”* underestimate themselves. This phenomenon distorts the *social reproduction* process, sabotages the Business-IT Dialogue, undermining the architects’ *authority* and ultimately destroys architecture’s *legitimacy*. This psychological mechanism strikes at architecture’s critical vulnerability *assimilation*.

FINDING: *Architecture as an emergent discipline is particularly vulnerable to the Dunning - Kruger effect*

In the interview data the frequency of words like “value” can be informally correlated with programmes in difficulties. *Losing* programmes typically report a general lack of integration which is consistent with van den Berg and van Steenberg’s assertions.

“and the sponsorship from the management isn't wasn't consistent, um, in setting that you know, in making sure that those things were put in place to ensure it happened.” (DAVE, VN860006, 6:30)

Explaining the inputs the *“things”* that had to be *“put in place”*(ibid) was a challenge for the interviewees and they easily switch to concentrate on outputs like “value” seemingly unaware of the intellectual sleight of hand. The *“multiple levels”* of engagement, enjoyed by the *Enabling* programmes, seem particularly elusive for an organization that has outsourced the architecture function.

“In general that means that continuity is lost and nobody with any long-term skin in the game is around to keep things consistent” (IAN, VN860005, 45:13)

Without integration with the business an architectural programme will languish on the left side of the Quadrant model, being at best *Isolated* or more likely *Losing*. Multiple levels of commitment are vital. This is a point that *Losing* programmes are unlikely to learn, but one that is front of mind for a senior member of an *Enabling* programme.

“It is and I don’t know how much of that we will sustain because a lot of it comes from strong leadership. Our inspirational leader has made the decision to move on. ... Without a leader who inspires confidence where people feel comfortable giving up some of those capabilities (power) is another question, that’s the challenge we’ve got ... (Truncated) the challenge (for his successor) is how do I maintain the momentum that’s

already there and actually ensure that we don't go backwards.” (PETE, VN860017, 0:49)

“We were identifying successors to ourselves in our team, Tony’s openly admitted the fact that I’m leaving and there is no clear successor indicates a failure on my part” (PETE, VN860017, 2:15).

Commitment to the Use of Architecture provides the *authority* that defines the architecture. Architecture is only effective within the *legitimacy* of its establishing *structure* this may be a project, a business unit or the entire organization. Architecture is unlikely to prevail in encounters with powerful external *agents*.

FINDING: It is only through social reproduction that architecture can assimilate

Methodology reinforces *authority* by *signification*. This is why documents like terms of reference and charters - in the early stages often incorrectly considered “*so esoteric that no one uses them*” (Minoli 2006) - are in fact important. Stemming from formal *authority* are the *ostensive* aspects of the *routines* that in their *performance* bring architecture *legitimacy*.

FINDING: Methodology reinforces authority by signification

Architecture is developed and reinforced by *social reproduction* and to become an organizational capability it must be established by the highest *authority* “*The CIO and the CFO must understand that Enterprise Architecture is about “shifting” the organization.*” (Gruman 2006)

FINDING: Architecture inherits its attributes from and is limited by the authoritative power of the structure that initiates the programme

FINDING: Programmes isolated from their originating structures or conceived extra structurally lack authority

FINDING: When purpose, scope or definition is not congruent with the authorizing structure conflict occurs

FINDING: Architecture is innately political

6.5.2 Power and Dialogue

A balance of *power* that allows the Business-IT Dialogue to function effectively and be procreated by *social reproduction* is essential. Interviewee’s talk about partnership and acceptance and ALAN, the only

interviewee to affect a programme repositioning, is clear about this:

(Interviewer) *“So you actually had to readjust the power structure, the discourses in the corporation?”*

“Yep, and that’s ... the CEO always believes in hybrid vigour, in fact in the power structures he liked a bit of discord, he liked us having argie bargie stuff going on as well because that always bought a bit of (unclear) tension ... it’s frustrating...”

(Interviewer) *“Creative tension?”*

“Yeah, yeah, but it was frustrating.”

(Interviewer) *“I can imagine. How did you sustain yourself in that?”*

“Beroccas, vitamin B, I think that we sustained ourselves we knew as professional IT folk we can do this. The technology part wasn’t that hard.”

(ALAN, VN860020, 38:12)

The successful employment of *power* is dependent on the *authority* and *legitimacy* of its *agents* and *structures*. That only about 33% of the surveyed architects (Question AP1-08 in Appendix C) “usually” or “always” enforce standards and that 50% of them either don’t have or are uncertain if they do have a formal governance model (Question AM3-1) suggests that many programmes lack *power*.

FINDING: Architects must ensure the organization’s commitment to architecture by cultivating and rigorously defending the programme’s authority and legitimacy

FINDING: The balance, appropriation and exercise of authoritative power are critical to architecture practice

6.5.3 Organizational Culture and Monitoring

Monitoring is a fundamental component of any strategy model. Monitoring projects for compliance with the *Agreed Programme Strategy* is essential. The culture of an organization determines the level of monitoring required. But, even with the best intentions there can be misalignment.

“I think that there’s the stick and the carrot, there’s good intentions, but

good intentions can be lost in delivery and day to day decisions. So it's a multi-faceted approach." (PETE, VN860017, 8:15)

"If we are going to make a \$20m investment in a project that's going to have us treading water or worse still building further legacy that we'll have to get off. You all as very senior GMs also want to get to that long-term target we'll really scrutinize you. And because projects realize they will get that extra level of scrutiny if they get a flagged project from an architecture certification they actually work very hard to avoid that" (PETE, VN860017, 10:16)

Unfortunately non-compliance is not necessarily a benign accident there can be ulterior motives and subversive challenges to *authority*:

"So what they did was, agh, when a function came along that would obviously be an off-the-shelf product as a solution they would go and write their own system to deliver it, because then they wouldn't have to involve us because it's ... using the [existing] technologies but in an inappropriate way. So people would find ... ways around [architectural oversight using] any freedom that we gave them, to avoid their responsibilities." (IAN, VN860005, 41:59)

"Cause they are in YYY and we are up here. We don't look over their shoulder and they can therefore do what they like and so they do all sorts of weird and wacky stuff to their system that we because we don't understand it and we have no oversight of it we can't say to them you can't do that because we don't know what they are doing; and so they know that and so they go, they do whatever they like, so it's a bit dangerous I think." (IAN, VN860005, 44:20)

However, monitoring regardless of how formal or rigid, without a commitment to governance is just as unlikely to be ineffective.

"Formal governance model is only used when communications breaks down."

“Escalation through a formal governance model is the last resort.”

“I’ve spent a lot of time on governance and decision rights and I’ve moved way past it, it doesn’t work.” (PHIL, Notes)

PHIL’s last comment is interesting on two counts. First, what he moved on to was never made clear. And secondly in its contrast with DEAN, who having begun with a “soft” consensual governance approach and been blindsided by a rogue project, seeks a more formal governance model.

“There is a formal governance group (Truncated) there is architectural sign off if there is architectural content” (DEAN, VN80013, 4:51)

Indicating the degree of laissez faire prevalent in the organization, he goes on.

“Generally, by the time it reaches that board it’s been past my desk and I’ve had a chance to review it and change the direction of things or at least ask some questions.” (DEAN, VN80013, 6:03)

Unfortunately, not everyone plays by the rules.

“There’s a particular manager who has come in who somehow has got to the point where he is reporting directly to the managing director of the group and everyone else is reporting to the CIO or someone else within the company.” (DEAN, VN80013, 6:54)

This manager had secured his own *allocative* and *authoritative* power bypassing the governance process.

“So he’s got a direct line to God as it were. So he’s gone off and secured his own company capital. And somehow he’s managed to make it so the CIO is responsible for making sure that that capital expenditure is not exceeded. This is an example, he’s got a bit of a technology background and he’s pushed SharePoint as a technology platform for this thing against my best intentions, my best wishes, my best effort to steer it.” (DEAN, VN80013, 7:48)

These two architects from different organizations each desire the other’s governance style. Both a “soft”

consensual and a “hard” formal approach were sabotaged. Those with the *authority* to sanction were not committed to architecture and this undermined the governance *structures* leaving doubts in the minds of both about the efficacy of their model.

“He’s an extremely savvy political player, he’ll wedge people. He’ll tell people half of the truth. He’ll talk to the managing director with one version of things. Who knows what he’s saying, but he’s basically wily enough to get the outcome he needs. He’s not liked at all in the organization, he doesn’t care, he’s doing what he wants to do - he’s building his empire. His boss is seeing this fabulous web thing we are building. Why care what technology it is on?” (DEAN, VN80013, 10:31)

The key to the rogue project manager’s success was appealing to the selfish agenda of an executive. In organizations that have not assimilated *architectural thinking* an *Agreed Programme Strategy* is essential both as the *signification* of architecture’s directive *authority* and as a foundation of governance. In this instance the architect had not secured an *Agreed Programme Strategy* and so had little leverage to argue against the introduction of a new technology and risked appearing obstructive if he objected on arcane grounds. Here the research empirically reveals a cause that is neither technological nor methodological. But it is clearly sociological, and definitely critical.

To prevent the perception of being obstructive it must be made clear that architects do not stop projects and that the *authority* to do so is the management’s. Architects simply provide the information for an informed decision via a formal architectural governance process that depoliticises the decision.

“People would actually like to get a good report card from us because we keep it pretty simple are you unaligned. Are you neutral, aligned or accelerating? If you are accelerating you are actually laying target state capability if you are aligned you’re just reusing the target state that already exists. If you are neutral you’re not really creating a big mess, but you are not really adding - you’re not taking us forward. If you are misaligned you are actually using some capability that we want to move off, and in fact there’s a worse one contrary which is actually implementing capability that is directly opposed to the stuff we want to be doing.” (PETE, VN860017, 11:40)

In monitoring projects these architects function less like police and more like their informers, passing on the option of invoking *authoritative* power to the governance *structure*.

Monitoring must not be restricted to the project portfolio. It should be integrated into all facets of the IT function, management decisions, job design and employee behaviour.

“Clear roles and responsibilities and decision rights; making them very clear and enforcing those. That’s through governance activities and basically senior management endorsement and making sure that it’s built into people’s measurements. However the organization measures their performance and that there are consequences for not following them.” (JIM, VN860016, 11:22)

Just as *“Culture eats strategy for breakfast”* (widely attributed to Peter Drucker management consultant 1909 - 2005) governance is no substitute for culture.

FINDING: *The stringency of monitoring is determined by the maturity of the organization*

6.5.4 Contractors and Consultants

No conversation on architecture *practice* would be complete without considering the role of contractors and consultancies. We see in the data how, in IAN’s case, the profligate use of contractors, regardless of the rationale, destroyed an organizational capability. And this must be taken as a warning.

It seems that individual contractors, carefully injected into a well-formed Business-IT Dialogue are likely to *reflexively* adapt, and should be welcomed as a potential source of *routine* evolution. However, the wholesale outsourcing of an architecture programme is a different proposition.

Consultancies, global ones in particular, are often engaged on the strength of a brand that gives them *legitimacy* with the executive. However, this by no means assures their *assimilation* into the *structures* of the engaging organization.

Arriving with a new methodology in an existing *structure* places the consultancy at a disadvantage. While it has the *authority* of the executive, as we have seen that is not enough, the *consultants* must earn their *legitimacy* with all *communities of practice* involved in the Business-IT Dialogue. *Legitimacy* is a function of *reflexivity*, and that which has not yet occurred cannot be replicated.

Perhaps the take away from these findings is that the key asset that a consultancy can initially offer is a well-developed protocol for communication, a methodology. And that the engaging executives can reduce their risk considerably by insisting on a comprehensive demonstration of the *appropriateness* of the consultancy's methodology and some familiarization training for their own staff. Because without an *appropriate methodology* the journey will falter and the *cultivation* of an *Enabling* programme is unlikely.

6.6 Architecture Programme

The organizing *structure* for architecture is the Architecture Programme. Unlike its antecedents, before this section can proceed it must first tackle the epistemology of the existing body of knowledge represented by the literature.

6.6.1 Literature and Reality

The literature does not align with the real world experiences of the surveyed architects. And, while broadly thematically consistent, it is fragmented (Saha 2007) and unable to provide a generically applicable body of knowledge.

The construction analogy traps the literature in a methodologically-centric pattern of iterative instance-specific observations made by isolated authors. While their observations are undoubtedly true, systemization is problematic. Furthermore, the dominant Builders' paradigm seems a closed objectivist system reluctant or unable to explore socio-technical phenomena.

While the literature analysis furnishes a set of CSFs none of them is singly a credible "critical" success factor. And despite the Business-IT Dialogue suggesting a collective effectiveness, individually the CSFs lack generalizable operational detail. The literature's authority is further reduced by the surveyed architects' repudiation of most of the literary CSFs. The exceptions are perhaps the two most obscure CSFs, Consultation and Communication and Commitment to the Use of Architecture.

Overall the respondents have difficulty discerning what is important, with every suggestion being considered almost equally important by an overwhelming majority. Which could be taken as a validation of van den Berg and van Steenbergen's (2006) assertion that these are "*areas that must be represented in performing the architectural functions*" (ibid: 83).

The surveyed architects are also unable to differentiate the merely important from the critically

important. That they cannot be more discerning suggests that the alternatives on offer are perhaps deficient, which is contrary to van den Berg and van Steenbergen (2006). Alternatively, presuming van den Berg and van Steenbergen (2006) are correct; their thematic congruence with the literature certainly suggests so. Then the CSFs importance, in the survey, is most likely prescribed based on the architects' experience. With each instance of architecture being unique all CSFs must have been critical for some instance, but clearly none were in all instances and so the CSFs are equalized across the sample. Perhaps most striking of all is the admission that none of the factors are executed well! Collectively the surveyed architects do not know what makes architecture successful!

Most significantly, the surveyed architects seem unable to execute the CSFs that they do consider critical, suggesting that they are not the sole arbitrators of their fate. A comparison of the "Best" and "Worst" programmes reveals little and possibly no practical difference suggesting that the theoretical underdevelopment bemoaned by O'Neill et al. (2007) has the practical consequence of programmes generally behaving similarly.

With alternatives like technology and methodology eliminated as the critical success factor the research is left with the proposition that it is perhaps not so much what is done as how it is done. This is not to say that methodology is insignificant - in fact this thesis argues that is important in more ways than are obvious - simply that it is not the most critical factor. The emergence of the idea that "how architecture is done" might be a critical success factor is significant in that it provides a non-methodological alternative, opening up a new paradigm.

With the data from the interviews being overwhelmingly sociological, in itself not absolute proof, but contrasted with the difficulties of the objectivist data, it is difficult to refute a sociological alternative validated by the interviewees' heuristic truths. From this foundation of believing all things to be true from the observers' perspective the research interprets disparate sources synthesizing a sociologically-centric theory of architecture.

FINDING: *The existing literature is not a suitable theoretical foundation for architecture practice*

6.6.2 Organizational Capability

Before theoretical concepts can be appropriated it is necessary to establish an epistemological link between the disciplines. We link architecture to the broader body of organizational and management theory by demonstrating its conformity as an *organizational capability* (Winter 2000) defined thus:

“An organizational capability is a high-level routine (or collection of routines) that, together with its implementing input flows, confers upon an organization’s management a set of decision options for producing significant outputs of a particular type.” (Winter 2000: 983)

This research considers an *organizational capability* to be as Winter describes, a subdivisible “*collection of routines*” “*substantial in scale and significance ... a large chunk of activity that enables outputs that clearly matter*” (ibid). Winter’s notion of the “*routine as a primitive*” (ibid), a micro- component of *organizational capabilities* is the link. *Routines* guide the actions of *actors* in *processes*, enabled by *structures*; together these are the “*microfoundations*” of *organizational capabilities* (Felin et al. 2012). The specifics of each collection of *routines* vary with the *purpose, scope* and *definition* of each instance of architecture. This is one reason why *routines* cannot be enumerated and why the stream of commercial methodology publications continues, unable to be definitive, and yet is still able to add value.

Feldman and Pentland (2003) ascribe *routines* have two aspects, *ostensive* and *performative*. Using the Wagter (2005) Quadrant model axes, Thinking and Integration, to structure architecture there is a temptation to simply equate *Thinking* with the *ostensive* and *Integration* with the *performative* aspect.

However, reality is perhaps more subtle. *Thinking*, while overtly *ostensive*, is both *performative* in its planning *routines* and *ostensive* in that methodology, as a foundation of architectural thinking, prescribes which *routines* to execute. The alternate axis *Integration*, innately *performative*, is also *ostensive*, as pointed out by Feldman and Pentland (2003) in that “*the performative aspect creates, maintains, and modifies the ostensive*” and that “*the ostensive aspect of routines includes the task that people are trying to accomplish*”.

Considering methodologies as tool boxes of *routines*, which may, as circumstances require, be employed as part of an *organizational capability* is ontologically consistent with these views, and so architecture can be claimed as an *organizational capability*. This in turn confirms the *realization* and *assimilation* architectonic *activities*, leaving only *cultivation* in need of substantiation

Cultivation is, given Feldman and Pentland’s (2003) observations on the impact of the *performative* on the *ostensive*, at least partly, as in the case of unplanned *cultivation*, derived from the *routines* that compose the *realization* and *assimilation* activities. The *cultivation* of an instance of architecture,

whether planned or heuristic, is a consequence of its execution, as each state requires the architecture to evolve to facilitate its *purpose*.

Architecture is, as Ross et al. (2006) claim an *organizational capability* founded on a methodology, a set of *routines*. These *routines* may produce Design Science artefacts, behavioural changes or shifts in *authority* (Feldman and Pentland 2003). The *ostensive* aspects of those *routines* are the patterns for artefact creation and conduct that enable collaboration and coordination. While the *performative* is the application of those patterns, the *practice*.

FINDING: *Architecture is an organizational capability*

6.6.3 Strategy and Legitimacy

The establishment and development of an architecture programme requires *authority*, which can be granted and *legitimacy* which can only be secured by the actions of the programme.

6.6.3.1 Agreed Programme Strategy

While the *Agreed Programme Strategy* informs the Strategy for the Development of Architecture and that in turn influences the *Agreed Programme Strategy* they are separate and different. The *Agreed Programme Strategy* is the contract between the Business and the architecture programme that states the latter's mission. While the Strategy for the Development of Architecture develops the means of delivering the *Agreed Programme Strategy*. The latter is the external direction of the architecture programme while the former is an internal function of the programme.

The organizational integration initiated by mandate and governance may bring *authority* but only *assimilation* brings *legitimacy*. The need to transmute *power* makes the *Agreed Programme Strategy* the single most important architectural artefact. An *Agreed Programme Strategy* differs from a mandate or charter in its demonstration of *commitment to the use architecture*. A charter may be a licence to do architecture, but until there is a strategy to execute *purpose*, *scope* and *definition* are only theoretical. Without the act of *realization*, *social reproduction* the means by which commitment is *reflexively* generated does not occur and there is no exercise of *authority* to shape the Business-IT Dialogue. The *Agreed Programme Strategy* is the statement of intent that gives the programme impetuous and the measure used to govern architecture decisions.

“And what allowed that governance structure to take off was to do a very comprehensive long-term technology strategy with the business in

the first place. If the business felt comfortable with the long-term technology strategy - [that it] was actually implementing what they wanted from a business perspective - they were more likely to cede control, cede governance to a group that was testing for alignment to that technology strategy. If they saw a technology strategy that they hadn't been involved in or didn't reflect the priorities and requirements of their business function they would have been a lot less willing to be governed by it." (PETE, VN860017, 5:50)

"We see ourselves as a strategic partner of the business. They do as well, but sometimes technology is seen as a constraint ... in the mix as opposed to an enabler." (FRED, VN860022, 6:15)

Programmes that fail to establish an *Agreed Programme Strategy* find themselves struggling with a chaotic agenda and unable to shape the Business-IT Dialogue.

"It really just kept us bound and we were endlessly chasing our tail. There was no innovation at all and it was very punitive" (ALAN, VN860020, 35:38)

Programmes that fail to understand the significance of the *Agreed Programme Strategy* struggle to *assimilate*.

"neither of them has yet seen or tried to look at our TO BE architecture and roadmap. They didn't even know they existed, yet they are managing the architecture and they've been here for a year, didn't know we had target architecture or a roadmap for it," (IAN VN86005 47:48)

Contrast these comments with those of a senior architect from an *Enabling* programme.

"I want an architect telling me if I should even be looking at this business strategy. Tell me better ways of doing it." (PETE, VN860017, 0:05)

"Not hold back go and talk to the business at senior levels and listen to what they are saying and try make sure what is being responded to and delivered is actually achieving some of those longer term requirements."

(PETE, VN860017, 5:01)

Two attributes are implicit in these examples: First there is an acceptance of partnership, exemplifying the integration of business and IT - while business is paying it is certainly getting something for its money. Second, this is a proactive programme that goes to senior managers. This is at odds with the surveyed architects only 50% of whom think that they should act solely as a consultancy. (Question AS1-5 in Appendix C)

The *Agreed Programme Strategy* gives the Business-IT Dialogue, the Meta *boundary spanning* artefact, a form that makes it a “*process of collective thinking and generative learning*” (Brown and Isaacs 1996). In the absence of an *Agreed Programme Strategy* a well-formed Business-IT Dialogue may not occur leaving the *durée* filled by the noise of competing interests.

“What tends to happen after that there isn't a continual prioritization process. So that's one of the things that is missing and then there's a huge scramble for available resources” (DAVE, VN860006, 5:27)

The *Agreed Programme Strategy* is the instrument of *authoritative power*. It is by reference to the strategy that architects govern. Without it architects are relegated to governing against criteria like technology standards that the business might be inclined to avoid, as noted in several interviews (IAN, DAVE and DEAN), a situation that presents architects as inhibitors, motivating challenges to their *authority*.

In *assimilated* programmes, DEAN's case for example, there may be an implied *programme strategy* and this seems sufficient in the absence of *authoritative* challenges. However, as DEAN discovered, not having a formalized strategy puts the architect at a disadvantage with those who have *allocative* power; a situation that puts the entire programme at risk.

The *Agreed Programme Strategy* is a variable contract that architects use to invoke executive *authority*. More importantly it is a tangible *signification* of commitment. A programme without an *Agreed Programme Strategy* is left second guessing an unconstrained business.

FINDING: An Agreed Programme Strategy is the single most important architectural artefact. It is the foundation of governance and the source of authority

6.6.3.2 Strategy for the Development of Architecture

The objectives of the Strategy for the Development of Architecture, not to be confused with the *Agreed Programme Strategy* or a business strategy is to establish the programme's *legitimacy* and *assimilate* the *practice* of architecture as normative, so that it can effectively employ *directive authority*.

Enabling programmes manipulate the organizational *durée* through their *practice* of architecture. They achieved this by formally structuring the Business-IT Dialogue and, more importantly, through the *social reproduction* of the architects' *practice*. The methodology's *routines* *signified* by their artefacts, shape a homophylic *durée* that raises the communication maturity of the Business-IT Dialogue, reinforcing architecture's *legitimacy*. By this mechanism architecture can create what Spewak and Hill would describe as a favourable climate (1992: 23). Methodology, the centrepiece of the Builders' paradigm, may ironically have more impact sociologically than technically by its *signification* of the architecture's *legitimacy*.

Cultivation is the mindful adaptation of *routines* for the *social reproduction* of an effective Business-IT Dialogue we will see that this is a fundamental characteristic of PDAP.

It is as Knowledge Brokers (architects) *practicing* their *appropriate methodology* that demonstrably adds value, as noted widely in the literature, that architects modify the Business-IT Dialogue into a process of collaborative learning. It is this *assimilation* of *routines* through *social reproduction* that restructures the power relationships of the *durée*. It should be noted that the *assimilation activity* can be impeded by the *social reproduction* of intermediary *actors* from other *structures*, like relationship and project managers, who acting as proxies for the business adapt *routines* for their own ends.

And so we see that the choice of methodology, while important, is secondary to its acceptance as sociologically normative and its implementation. And that architecture must be *cultivated* to evolve in step with the wider organization.

6.6.3.3 Authority, Legitimacy and Practice

Architectonic activities are sets of similarly intentioned *routines* that are components of architecture *practice*. Different *communities of practice* take the precedence in each *activity*, confirming the relevance of *assimilation*. In *realization* IT are the principal *actors*, in *assimilation* the business, while in *cultivation* architects take the lead.

"a good architect can then in this situation can start to use their level of

knowledge to to quietly educate and start to ask certain questions”

(DAVE, VN860006, 10:01)

Authority is the key to *realization*. Without *authority* architecture is subverted by a desire for tactical expediency emanating from competing power *structures*. Denied *authority* the architects have limited influence and *assimilation* is resisted. Forced to compromise (DAVE, VN860006) their *practice* is undermined by the inappropriate modification of their *routines*. This degrades the methodology and reduces architecture’s *legitimacy* beginning the programme’s descent into the *Losing* quadrant.

The element that enables *assimilation* is trust. Without trust there is no *legitimacy* and the programme atrophies to irrelevance as was the case with IAN’s organization. ALAN’s story tell us that in the early stages of programme establishment reputation and belief are perhaps more important than actual results. Eventually, however the *realization* process must deliver value.

Legitimacy is also the key to *cultivation*. Without it there is no commitment to architecture and likely no investment in the programme.

6.6.4 Leadership and the Development of Architecture

In the early stages of the programme when the Business-IT Dialogue is being established leadership is vital. As with the methodological factors it seems that leadership’s greatest contribution is the securing of *legitimacy* and the establishment of a *durée* of habitual architecture use.

“Architectural leadership is a critical success factor in its own right. That is the ability to communicate the value proposition and the outcomes of architecture upwards in the business.” (PETE, VN860017, 3:47)

ALAN enjoyed the trust of his executive, whom he knew in a previous organization, and notes how that trust is particularly important before tangible value has been demonstrated.

“I didn’t have to prove my methods and theories. I’d proved that before. So that gave me a fairly very big passport inside the organization, so I came with credibility.” (ALAN, VN860020, 23:00)

“So, that was the first initiative we kicked off. Immediately we then got the audit qualification taken off us ... the executive were listening we’d

fixed up a problem.” (ALAN, VN860020, 26:43)

Once architecture is normative questions about return on investment seem less important as value is accepted as intrinsic. Whether or not this is logical is another argument, but it does further emphasize the primacy of the sociological.

“It took 2 ½ years before we got the first payback” (ALAN, VN860020, 16:12)

The leadership leverages its own credibility in the transformation of the Business-IT Dialogue. This shaping of the *durée* allows architects to develop their *practice mastery*. Central to this is a Strategy for the Development of Architecture. While the research did not uncover evidence of the conscious development of such strategies, it did not seek to, they are nonetheless the *raison d’être* for the commercial methodology literature.

ALAN, perhaps the interviewee who came closest to deliberately developing such a strategy gives us some details. When considering the detail we must be mindful of the nature of architecture. While his comments are true for ALAN they are not necessarily generalizable or exhaustive.

Power must be productively transmuted, both in the organizational sense, but more importantly as a sociological constraint:

“When you started off with the original SLA it was so limiting in what we must do, it really limited us ... it was very punitive as a statement.” (ALAN, VN860020, 35:38)

“Initially the service level agreement was thou shalt fix this problem in ten seconds and people would say that’s ridiculous an SLA has two parties to it so I refused to sign anything that didn’t make sense.” (ibid, 34:51)

“If we were just subservient to accept what the business was saying we never would have built the portal to the extent that we had to.” (ibid, 36:35)

Architecture must integrate in an organizational sense and *assimilate* in the sociological sense. ALAN

engaged the business demonstrating how the models and lexicon of architecture were useful to them. He also trained the Business Analysts, raising the business's architectural awareness.

"I think that the confidence came in the first four months of doing this. They were not exactly sure what EA was, but as we started to do it, they started to see the models, they started to see what it is" (ibid, 24:08)

"So their strategy was to send BA's into my area and learn how to model, but and you know it is working." (ibid 32:05)

The methodology must be and remain appropriate to the *structures* involved and so become the accepted communication protocol of the Business-IT Dialogue the *structure* through which *authority seamlessly flows*. Clearly the methodology evolves along with the organization.

"I think that the other part is the methodology. We did that right. One of the things was we came up with a hybrid approach."(ibid, VN860021, 1:36)

"People are always asking me what tools do you use, I say system architect, argh! Great! Let me write that down, I need to get one of those. In reality we only use the repository towards the end of the 4 months, the first couple of months we just used very simple word documents we used excel spread sheets and we used Visio." (ibid, VN860020, 44:03)

Long-term the greatest challenge for a programme is maintaining momentum and getting beyond the end of Schekkerman's runway (2005: 31). A programme establishes and remains relevant through its architects, whose effectiveness is at least partially a result of their exposure to ideas.

"I'm not saying that you have to have a PhD to come up with ideas. But because we are researching, because we find some things we are always a couple of steps ahead of the business. We are looking at what other industries are doing. And we look at the way the world is approaching these things. We're coming up with papers we're going to conferences we're making inroads, were talking to different teams in the US. Your

guys in Texas, we speak to your folks up in Boston we speak to ESRI, so we're getting a lot of information. And that allows us to be innovative in terms of understanding what's happening out there with technology."

(ibid, VN860020, 30:00)

Programmes need to be prepared for the challenges of future *realizations* and *assimilation* to higher levels of management. Given the technical background of most architects this is no simple task.

FINDING: *Leadership's principal role is to create a durée in which the social reproduction of architecture practice flourishes*

Finally a warning, self-indulgent "*cultivation*" - that which applies only to the architecture programme, because it lacks the *legitimacy* to engage the wider *community of practice* or an understanding of the importance of *assimilation* - risks *Isolation*.

6.6.5 Roles and Responsibilities

Usually associated with methodology, but sometimes considered a separate dimension, are the skills, responsibilities and *authority* of the various roles involved. Well defined roles structure the methodology in the same way that the Business-IT Dialogue structures the *durée*.

Low skills, poor training and poor understanding inhibit architecture programmes. This apparently methodological shortcoming distorts the *power* structure producing a sociological impact that undermines the methodological *routines*:

"One of the problems I see coming from this organization but also from other organizations is level of the skill level is acquired within and without formal training without disciplines without going to market without having a mass-market, um, experience, um and therefore they only know what they know they don't know what they don't know."

(DAVE, VN860006, 6:30)

"They are hardwired to these systems and that's another, that's another, um complicating factor here is the architect with such knowledgeable legacy based ... customers. And quite often customers ... can't see over the horizon can't see that their system isn't delivering." (DAVE, VN860007, 1:59)

Having poorly understood roles undermines the architects' *authority* sabotaging the *legitimacy* of the architecture programme. From a sociological stand point these statements reveal the negative consequences of the *social reproduction* of a failing *durée*. Furthermore, they suggest that low skill organizations are predisposed to failure, particularly if reinforced by cultural stasis. Although possibly more pronounced in IT, due to the contrasting background of technological change, it would be a mistake to consider these failures are limited to IT.

"I've been doing Claims for thirty years and I'm telling you it can't be improved." (DAVE, Notes)

The expectation that architects educate the organization possibly has its origins in low skill organizations. It may be that the rigor and scope of architecture means that architects are the ones most likely to uncover problems. However, it is by no means clear that architectural programmes should be burdened so, although it is hard to argue that the Knowledge Broker role of architects does not have an educational aspect. Unfortunately, the data shows that many architects are simply not equipped for this.

The Business-IT Dialogue and the resulting quality of *assimilation* are directly impacted by the organizations' understanding of roles and *authority*. In organizations with a poor understanding architecture's *authority* will be directly challenged or covertly undermined.

"So we've got these people, with no technical background second guessing me. And if they don't like my decision they run off to the vendor and get a second opinion and take it to the business." (DAVE, Notes)

"CIOs who come from IT don't like architects because they already know how it should be done. They also tend not to talk to business." (PHIL, Notes)

"One of the obstacles I see from the architect here is that, um, that they are playing in a space where they, they are not understood by the people they're working with." (DAVE, VN860006, 7:54)

FINDING: *Understanding roles and responsibilities is an essential structural foundational for social reproduction*

6.6.6 Methodology

The question remains: what, technically speaking, might a sociologically-centric methodology look like? What features would it have? What artefacts would it recommend? Here the commercial methodology literature can help us considerably. Curiously, from a technical perspective a sociologically-centric methodology would look like an artefact-centric methodology. Because, as it is unlikely that anyone would write a book that detailed their failure it is safe to assume that published methodologies have all been appropriate in some instance. So, with hindsight we can see that the failing of this literature has not been in its technical detail, but its implementation. These methodologies are all correct, but unfortunately, about the wrong thing!

FINDING: *The technical aspects of architecture are not the key to success*

FINDING: *Architecture practice is a sociological process, in which technical artefacts play a pivotal role as communication medium*

FINDING: *Methodology's most important contribution is the facilitation of social reproduction*

FINDING: *To develop theoretically architecture needs an ontology based on the factors that actually determine success*

6.6.7 An Appropriate Methodology is Communication

Despite being primarily a vehicle of architectural thinking methodology is also a medium of *assimilation*. It is the protocol of the Business-IT Dialogue and, by its spanning of *communities of practice*, a *structure of legitimation*. This dual role elevates the significance of methodology both as an *artefact* and *routine*. To ignore this is to deny the importance of *legitimacy* in sociological *structures*. Architecture must both be done and be seen to be done. This is contrary to the pattern of declining involvement seen in the *Losing* programmes which is often voluntarily embarked on when there are insufficient resources, as in IAN's case, or imposed by a rogue project manager as in DEAN's.

The principal purpose of methodology is communication. Formal methodologies provide the artefacts and lexicon that span the *communities of practice* and shape the Business-IT Dialogue.

"And the frameworks of EA give us models - it gives us a lexicon to talk."

(ALAN, VN860020, 2:55)

"Embracing the EA approach for us and picking up on the Zachman framework was to try and get an overview of our organization as to

what business we were in” (ALAN, VN860020, 3:44)

The methodology itself is a set of *routines* (Feldman and Pentland 2003) with three components: individuals, process and structure. The individuals are the architects and the stakeholders. Typically having to deal with different *communities of practice* it is incumbent on the architect to *span the boundaries*. The research suggests that this is done by demonstrating an understanding of both *communities’* knowledge. This develops empathy and most importantly trust.

Artefacts used to assist in *boundary spanning* must be understood and accepted by both *communities* and convey agreed information considered valuable by both. This last point necessitates the architect acting as a *Knowledge Broker* whose actions structure the Business-IT Dialogue by the application of a recognized body of knowledge (methodology), so that it becomes a “*process of collective thinking and generative learning*” (Brown and Isaacs 1996). This enhances both architecture’s and the architect’s *authority* by the perceived constant delivery of benefit through improved knowledge, reduced risk in addition of quantifiable value.

Central to being able to perform a methodology are *mastery* and *habitus*. The architects must be so well-versed in their *routines* that they can improvise them while retaining their value. This application of a body of knowledge results in realizations that reinforce architecture as a *structure* enhancing its *legitimacy*.

The *routines of practice* are provided by the methodology; adapted to the organization (Pentland and Feldman 2008) they are kept relevant by a Strategy for the Development of Architecture (van den Berg and van Steenbergen 2006). The architects’ *practice* executed with the *authority* of the *Agreed Programme Strategy* structure the Business-IT Dialogue with their *routines* as they manipulate the *durée*.

The evidence for such adaptations is provided by descriptive titles given to architecture methodologies, each is a product of adaption. For example, Customer Orientated IT Enterprise Architecture (Mamaghani et al. 2012), SCOR-based (Medini and Bourey 2012), Agile (Shirazi et al. 2009), Organizational (Tiwana and Konsynski 2010), Process (Strnadle 2006) and Causal (Vail 2002). These different names signify the *purpose* of these instances of architecture. The necessity of adaptations suggests that a universal methodology is unlikely to develop.

There are several discernible ways in which a methodology must be appropriate. First and most obviously, it must interlock with the *realization* processes from strategic planning to the software development life cycle.

“It’s important ... in a software development lifecycle to have standard artefacts to communicate (pause 3-4 seconds) how a solution architecture will ... be delivered because when you got a number of programmes and projects that use the same method of building the solution architecture you can actually see where the overlaps are.”
(FRED, VN860022, 11:24)

The commercial methodology literature would have us believe that communication is simply the translation of requirements through a hierarchy of perspectives. While traceability is vital to alignment, the extension of the architects’ *authority* through the *delivery structures* is perhaps even more important.

“And because projects realize they will get that extra level of scrutiny if they get a flagged project from an architecture certification they actually work very hard to avoid that in the first place” (PETE, VN860017, 10:16)

However, it is the resulting *legitimacy* that is most significant.

“[Methodology] is in my opinion is not as relevant as what is done and built in those relationships.” (FRED, VN860022, 11:24)

To be *appropriate* the methodology should concentrate on the business model.

“You need to model the business model and not the business, because if you model the organization you end up with the same silos that you started with.” (PHIL, Notes)

And so be synchronized with the business cycle. An organization that develops products in three months needs a methodology that accommodates that.

“Time and long-term planning is dependent on the technology. Commodity technology has no long term.” (PHIL, Notes)

Methodology evolves both taking the organization on a journey and being part of the journey.

“So that’s our journey, so for us it was really trying to think through the business problem and use EA to identify where we wanted to attack and use it as a basis for funding to put forward a strategic plan that allows us to get on the band wagon and get that built and ... err, so that’s what we did.” (ALAN, VN860020, 15:24)

“The next stage of the plan was to empower people in the business, so we put BAs back in the business that understand the model, so we started a whole renaissance movement in the business. To build up as much EA skills in that area we use BAs in the business and taught them about modeller and showed them how to use the architecture. So we then have this complement of them working on this architecture” (ALAN, VN860020, 16:12)

Pentland and Feldman (2008) warn of the dangers of designing artefacts and hoping that the method (*routine*) around them will simply happen: *“the frequent disconnect between goals and results arises, at least in part, because people design artifacts when they want patterns of action”* (ibid: 235). Mismatched methodologies have negative consequences, damaging *legitimacy*.

“Architectural practice according to the nature of the organization, the environment the culture at the time. You can mismatch if you come in with a very advanced model it will not fit. They won’t understand it and they won’t accept it. So there’s a long-term often painful ... pain-staking ... taking one step at a time evolution.” (JIM, VN860016, 29:16)

Sometimes the results can be explosive:

*“So, he comes marching into my office and slams this down on my desk (architectural design document) and says “What’s this f*king bullshit!” They just didn’t get it, a box with a little box on top, (UML notation) they didn’t understand it so they really didn’t like it.” (DAVE Notes)*

This last exchange demonstrates the semantic gulf that can exist between *communities of practice* and

methodology's role as a *boundary spanning* artefact. Artefacts must be understood and valued by all parties.

While the literature reveals points, sometimes not explicitly, about how methodology is best applied these can only incrementally improve *practice*. In their totality they are no more than secondary compared to the insight of the interviewees. Perhaps the most telling remarks on the significance of methodology come from a senior architect in an *Enabling* programme.

"It's horses for courses. Everyone does their own way at the moment, it's not standardized. We've got principles, design and architecture principles, and they're used quite extensively and our governance forms score alignment with those." (FRED, VN860022, 7:03)

"My portfolio, sits somewhere between zeros and twos - not more than that in terms of capability and maturity" (FRED, VN860022, 0:50)

Methodology was not identified as critical by the survey nor does it figure prominently in the interviews. But methodology is the principal *boundary artefact* between the business, IT and architecture *communities of practice*, because of the content of its artefacts, but more importantly for its influence on the *durée*.

The methodology must be fit for the purpose of *realizing* the architecture by providing execution orientated artefacts. It must be in sync with the business temporarily and intellectually. And most importantly, it must be the accepted syntax of the Business-IT Dialogue.

These findings are the obverse of the Spewak and Hill (1992) comment on the suitability of some organizations for architecture. It is not a matter of having an organization that is favourable to architecture or a methodology that is acceptable, but of making the two mutually constitutive. Having established relationships between methodologies, the Business-IT Dialogue and communication, a theoretical disambiguation of "soft skills" can begin, suggesting that architectural communication can be modelled (Figure 28 below).

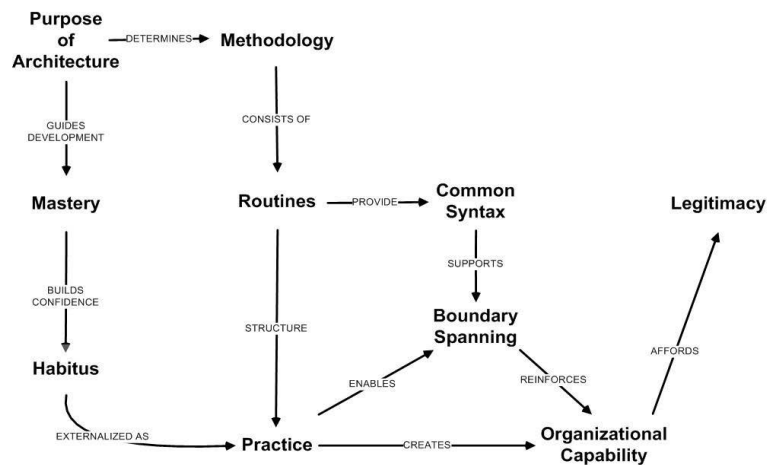


Figure 28: Architectural Communication Model

For clarity the model shows only the core communication paths. Exceptions and iterative mechanisms like the *performative* adaptation of *routines*, the mutual constitution of *architectonic activities* and *social reproduction* as discussed earlier are omitted.

A *purpose*, founded in business strategy, preferably explicitly stated as in Spewak and Hill (1992) allows the development of a methodology, which the research shows, must be appropriate to the organization’s architectural sophistication and *assimilation*. The methodology, a mindfully regulated and adapted set of routines, assists architects in developing their *mastery*, in the sense of knowledge exceeding mechanical execution, rather than by ad hoc heuristic episodes.

Methodology specifies the *routines* that underpin *practice*, creating a common syntax that facilitates *boundary spanning* and promotes *practice* as an *organizational capability*. Key amongst these *routines* is those that shape the Business-IT Dialogue, a *structure* that distributes *power* and regulates *authority*. Communication begins with the architecture’s foundational *purpose* stated or perceived.

No comment on the link between methodology and communication can be complete without mentioning conversations in the general sense, as oppose to the “*useful kinds of conversations*” (Brown and Isaacs 1996) that constitute the Business-IT Dialogue, as these constitute the bulk of the *durée*. Bolton (1987: 23) suggests that there are twelve common communication spoilers that are “*more likely to block conversation*” and logic is one of them.

“*Logic has many important functions. When another person is under stress, however, or when there is conflict between people, providing*

logical solutions can be infuriating. Though it may seem that those are the very times we most need logic, it nevertheless has a high risk of alienating the other person.” (Bolton 1987: 23)

Logic it seems may be the point of contention that makes communication so vital in theory and so difficult in *practice*, particularly where it collides with the sociological.

“Probably a weakness I have ... is in the beginning in the role, 10 or so years ago now, was well, I kind of a belief that if I explain things logically and put the case down for people surely they’ll see that this is the way to go? And you put an honest case, but then you have to realize the politics of it all. If that conflicts with someone who’s been working on something for five years and all of a sudden you’ve come up with an answer in six months and it’s going to be cheaper and better for the business they are not going to be happy campers.” (JIM, VN860016, 46:35)

It is as the theoretical root of communication, with its attendant objectivist epistemology and its rational assumptions that the Builders’ paradigm struggles. Stemming from this is the neglect of the sociological and a failure to understand the implications for its *practice*. It seems paradoxical that methodology per se is not the key to success, but it is an important part of communication, which is. This might account for the methodological focus of the literature. Interestingly, if commercial methodology authors have confused cause and effect then it must be asked if they would have fared just as well using somebody else’s methodology.

The *appropriate methodology* is synchronized with the programme’s evolution. In being so its *purpose* and *scope* are aligned and the roles of the architects are in harmony with the *durée*. For example, if the programme’s *purpose* is to improve technical efficiency then the architect’s role is mostly likely that of the system designer, while a programme of business transformation requires a more strategic business perspective.

The methodology, the communication protocol, must be appropriate for the *purpose* and the degree of *assimilation*. The programme’s *directive authority* of the *practice* must be congruent with the *legitimacy* that architecture has attained. Programmes must progress the organization along the *evolution of architecture* journey or risk atrophy and fail. Programmes that “get ahead” of the organization risk

resistance as a perceived “*a grab for power*” (Perera 2006).

FINDING: *Architectural success is not secured with to-do lists*

FINDING: *A methodology must be appropriate for the organization, greater sophistication is not necessarily better*

6.6.8 Metric Relevance, Influence and Legitimacy

The technical aspects of architecture have gravitas that provides an *authoritative structure*. Architecture is a business management tool and for business *legitimacy* stems from the production of value, and so trust must be repaid by value creation. And this needs to be measured.

The literature offers many examples of metrics (Schekkerman 2005; Rico 2006; Ross and Petley 2006; Blumenthal 2007) along with warnings about not substituting metrics for communication (Ambler 2003) and the difficulties of an ROI debate (Schekkerman 2005; Theuerkorn 2005; Grigoriu 2007) that has plagued architecture from its inception (Zachman 2001). It is not difficult to assert that the failure to demonstrate value, which can be viewed as an *assimilation* failure, has been the undoing of many programmes.

The variety of metrics offered by the literature leads to the conclusion that like methodology, metrics must be appropriate to the *Agreed Programme Strategy*. Beyond that some, perhaps not intuitively obvious, specifics can be inferred.

Metrics need to reflect the *primary attributes* of the architecture; the *purpose* that gives the architecture its *scope* also identifies its metrics. For example, in a consolidation transformation numbers of software licences would be appropriate. However, for the introduction of a new technology, productivity is likely more significant. To be meaningful metrics must be tied to the business strategy, aligned with the governance model (Gruman 2006) and be standardized (Van Soye 2003; Rico 2006). The literature also suggests that the governance process should grade architecture’s contribution and be measured itself.

ALAN places the most emphasis on metrics and this seems to be the result of difficulties he encountered *assimilating*.

“It took 2 ½ years before we got the first payback. Payback came when we had our first services reused. And since then basically we’ve been

getting payback.” (ALAN, VN860020, 16:12)

“We started to count what is the residual cost avoidance to those business cases. So now we find after four years we’ve returned about 100 million dollars after four years of cost avoidance” (ALAN, VN860020, 16:12)

“and every year above and beyond that we’ve gone about 50 million extra so we started with 100 after 4 and I think it’s now 200 or 250 which is where we are (unclear) and we do that every year.” (ALAN, VN860020, 18:01)

His programme also collects metrics on organizational aspects.

“And every 18 months we do a whole benefits realization and we’ve also pick up what I call an intellectual capital statement where we are looking at the skill set growing and changing. Looking at how many people have studied formally the matrix across the organization gauges the complexities of what’s happening and is seeing that our staff numbers are actually staying static in fact becoming a lot less because of freezes in recruitment but our costs do not balloon because the benefits have accelerated.” (ALAN, VN860020, 18:01)

But this information comes at a cost.

“I think it came from embracing a SOA approach and a lot of times we did this in IT departments before but we never tracked those benefits and I think tracking the benefits shows clearly how you can return these investments so. The formal piece of work that we did to base line the organization I had about four people working on it and it cost a half million dollars okay, so that’s all half a million bucks we had a base line, we had a target plan.” (ALAN, VN860020, 18:01)

Metrics are not only used to justify architecture, but as inputs to the organization’s strategy and as a means of developing the programme’s scope.

FINDING: *Empirical data is essential for justifying architectural investment and securing its legitimacy*

FINDING: *Information (architecture) comes at a cost and programmes must have the allocative authority to collect data*

6.6.9 Critical Success Factors

Compiling an authoritative list of CSFs is no trivial achievement. However, despite its authenticity, the list is not beyond reproach. The Use of Formal Architecture Methodology (T7) for example might be considered the inevitable product of a methodologically centric literature. While the absence of, the intuitively obvious, Alignment with Business demands explanation. Although derived from an expert literature, stripped of context the CSFs are difficult to generalize and have less utility than might be imagined.

Along with the raw data of the CSFs we must consider the *evolution of architecture*. Objectively, the existence of this phenomenon may be difficult to sustain. However, the literature provides sufficient expert opinion, even as a secondary source, and considerable discursive evidence (Op'tland et al. 2009; van den Berg and van Steenbergen 2006; Ross et al. 2006; Theuerkorn 2005) to support its authenticity. Furthermore, the *evolution of architecture*, is theoretically consistent with the interaction of *ostensive* and *performative* aspects of *routines* as described by (Feldman and Pentland 2003; Pentland and Feldman 2008).

From these findings it can be concluded that architecture, both as a discipline and as a *practice*, has a common axiology and that all programmes drive, perhaps drift unaware, towards the common objective of the creation of competitive advantage, and in doing so share common experiences. But, each requires specific *routine* adaptations to satisfy the *purpose* and *scope* of that particular instance of architecture. Secondly, that any given experience can be interpreted differently by programmes at different stages of *evolution*, resulting in thematically consistent but varied observations.

CSFs, can like *routines*, be mapped to the architectonic *activities*, for example Strategy for the Development of Architecture is clearly a *cultivation* CSF. Therefore the *routines* of strategy creation must be *cultivation routines*. But, as we have seen *routines*, can shift between *activities*.

Perhaps failed attempts to create a definitive list of CSFs can be explained as the mistaken identification of instance-specific *routines* as generic CSFs. Observed “stand alone” with no understanding of their relationship to *architectonic activity* a *routine* could be erroneously credited with unconnected

successes. And so the execution of a *routine*, observed as undoubtedly successful in a particular instance, turns out not to be universally applicable.

A *routine* or its *performative* output, an artefact, while *ostensively* having only one purpose, may have more than one intended effect. For example, a UML diagram is clearly a *realization* artefact for a software developer. However, shown to a business manager to gain support for a design it has an *assimilative* and arguably a *cultivating* (educational) effect. Here the same artefact is perceived in different ways and is assessed from different perspectives.

Examining the CSFs from a *practice* perspective requires a context. The Business-IT Dialogue model provides a generic context that exposes the underlying sociological phenomena. While the Architecture Topography model (Figure 19), illuminates that context by highlighting the predominance of the methodological (*realization*) and the absence of advice (*cultivation*) pertaining to the sociological (*assimilation*). The result, is as noted by Nakakawa et al. (2011), that the objectives of architecture are clear, while the means remain elusive.

The survey CSFs stand in contrast to the literary CSFs. While architects considered many factors important, those considered critical were mostly different, with only two factors being common, Commitment to the Use of Architecture and Consultation and Communication.

The survey furnishes data from the architect *community of practice*. However, as with the literature, the data cannot be accepted uncritically. The most intriguing feature is the difficulty that architects have differentiating the significance of factors. It is only when the data is filtered to critical importance only that patterns emerge. While the responses can be considered truthful, in the sense that they are individual truths, their lack of universal applicability raises suspicions. As a group it seems that the surveyed architects are no more authoritative than the literature and that neither source can be confidently considered comprehensive.

The CSFs are the product of epistemological uncertainties; whether or not they are even ontologically unique is impossible to prove. However, the value of the CSFs lies in two indisputable attributes. Firstly, they represent the accumulated wisdom of a large body of expertise. Secondly, their constituting parts, the observations, are all truths; even if only in a particular heuristic episode.

Ironically the subjective nature of the original observations makes it difficult to drill down into this de-

contextualized positivist product leaving the researcher in a situation analogous to marking examination papers without knowing the questions.

Therefore, the conclusion must be the abandonment of the to-do list approach. Simply put, the phenomenon is too complex to be satisfied by explanations that do not account for architecture's evolution, context, practice, and most importantly, its sociological dynamics. What is required is the application of a new paradigm.

6.7 Practice

Practice in the praxis sense (Whittington 2007), the actions of the practice's execution, does not take place in a vacuum. The key to a successful praxis is the control of the situational sociological processes that determine the destiny of the execution.

6.7.1 Architects' Reality

While some interviewees specifically identified strategic planning as "Enterprise Architecture" none restricted their comments to it. Architecture *practice* is consistently portrayed as a holism devoid of such methodological decompositions.

"In previous times when I did EA in other organizations it was always in one of three or four areas. It was an information study, we would look at what information we were using; or it was a technology review because we had to do some refresh; or we would be looking at a business area rather than looking at all the business areas in our enterprise." (ALAN, VN860020, 6:51)

"So what we used to call programmer analysts are now calling themselves architects and so architecture has drifted down towards the program design end of IT activities." (IAN, VN860005, 3:04)

Tiered models, like TOGAF, barely figure in the discourse. The significance of this is the innate rejection of the Builders' paradigm, Design Science models are at odds with the architects' concerns. The interviewees concentrate on the sociological with scant comment on methodology, tools or technology. They have a considerable amount to say about the architect, again emphasizing the sociological. Methodological certification is dismissed, but experience, not necessarily technical, and communication

skills are vital, a skill set that the data informs us is not honed by the typical architect's career.

This sociological backdrop promotes the significance of the Business-IT Dialogue as *structure* through which architecture is *practiced* and *realization* is organized. *Assimilation* is the connection of all perspectives through the *durée* on a foundation of communication (methodology). While architecture may have a positivist methodological foundation, its successful execution is clearly dependent on sociological *structures*.

6.7.2 Architect Demographics

Practice cannot be understood without its *agents* and, while there is some anecdotal, there is little empirical data about architects. However, this data cannot be accepted without qualification. We must for example, note that the primary data sources are themselves architects. And that while attributes like education can be objectively assessed. Other attributes, like the quality of execution are subjective, but are nonetheless the architects' own truths. We must also accept that the architects' perceptions are not necessarily shared by their business community, nor are such communities necessarily consistent, even within industries.

The survey finds a formally well-educated profession overwhelmingly drawn from a technical background that struggles with both understanding its role and executing its task. Architects think they know how *practice* should work, but are unclear on how to make it work, a task for which their career has not prepared them.

Even in the seemingly uniform data of the survey insights are possible, if not quantifiable, by contrasting the self-assessed "Best" and "Worst" performing programmes. This is instructive in unexpected ways. While both groups respond similarly, with the "Best" performing programmes being more consistent. This group, in common with the *Enabling* interviewees, are more committed to assessable tasks like documentation, are not concerned with sponsorship or justifying investment in architecture and are proactive. These last three points are strong signifiers of *power*.

The research shows that almost half the architects had been in architecture for less than five years and 70% less than ten years. It would be interesting to contrast these tenures with their business equivalents. The suggestion is that not only are architects less politically experienced, they are also typically younger than their business opposites. These factors probably reduce their *authority*. Furthermore, architects concerned with tenure are at a disadvantage, a situation not conducive to an

effective Business–IT Dialogue; preoccupied with survival it seems that they may opt for compliant, but ultimately self-defeating behaviours.

“You can pick the architects from [Big International Consultants], they’ll be the youngest people in the room and that’s ‘cause they bend over and just [let] the business do what they want.” (DAVE, Notes)

FINDING: The background of most architects leaves them ill equipped for the realities architecture practice

6.7.3 **Durée and Dialogue, Methodology and Routine**

Giddens informs us that the duality of *structure*, being both the outcome and medium of social reproduction, “*is the main grounding of continuities in social reproduction*” (1984: 27). The constraint or enablement of a *structure* as medium, by its own rules, results in its *routinization* “*the habitual, taken-for-granted character of the vast bulk of the activities of the day-to-day social life; the prevalence of familiar styles and forms of conduct*” (ibid: 376) implicitly making *routines* (Feldman and Pentland 2003) a vehicle of *social reproduction*. So we see that *routines* are the dynamic element that supports the *evolution of architecture*.

Routines, as they enable and constrain actors, shape the major *structure* of the *durée* the Business-IT Dialogue, adapting it into a “*process of collective thinking and generative learning*” (Brown and Isaacs 1996). This transmutes the power relations of the *durée* and architecture *community of practice*, through the *social reproduction* of its *routines* by its agents the architects, making architecture *normative* and *legitimizing* it.

Methodologies are sets of *routines*. It is by selecting and adapting the *routines*, it seems often heuristically, that become part of the architecture *community of practice’s habitus* that *social reproduction* transforms the Business-IT Dialogue. So *routines*, despite their origins in technical methodology, by their *social reproduction*, play a vital sociological role in the outcomes of architecture.

FINDING: Architects are the principal agents of practice whose social reproduction creates an organizational capability engaged through a well-formed Business-IT Dialogue

FINDING: The Business-IT Dialogue is shaped authoritatively by the mandate of an Agreed Programme Strategy and legitimized through the praxis of architecture in

the *durée*

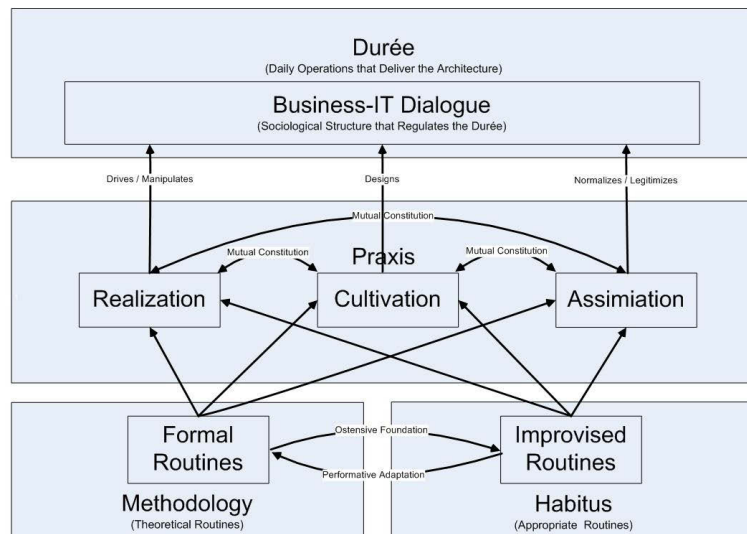


Figure 29: Methodology, Routines, Activities, Dialogue and *Durée*

Figure 29, demonstrates how *routines* translate theoretical methodology (*ostensive*) and experience (*improvised routines*), into new *performative* routines until they are improvised again to overcome some previously unseen obstacle. *Routines* are implemented by *practice (praxis)* which is divisible into three *architectonic activities: realization, cultivation and assimilation*; these shape, regulate and legitimize the Business-IT Dialogue, the major structure of the *durée* that is the delivery of the architecture.

It should be noted that while the *activities* can be seen as the classification of *routines* by their collective intent. As we have seen there is not necessarily a rigid relationship between particular *activities* and *routines*. This is why they cannot be enumerated. The same *routine*, in different circumstances, can belong to a different *activity*. For example, sharing a model between architects might be a *realization* or cultivation activity, depending on the intent. However, sharing the same model with the business is probably an assimilation activity. The intended use to which the *performative* output (artefact) of a *routine* is put can shift its *activity*. The continuum of *architectural evolution* further blurs the boundaries, allowing execution contexts to conceptually shift *routines* between *activities*. These context changes are the product of the uniqueness of each architectural state's *purpose, scope and definition*, a fluidity that goes some way to explaining the epistemological difficulties noted.

The *durée*, the Business-IT Dialogue and the *architectonic activities* are *structures* that ultimately rest, through the medium of the *routines*, on methodology. Whether deliberately or heuristically constructed,

methodology sets the *ostensive* bounds of the *routines* limiting the architecture's potential. These *structures* are the mutually constitutive accumulations and adaptations of their *routines*, the *situated learning* of the *community of practice*. If the *routines* do not *signify* and assert the *legitimacy* of architecture and transmit that through their *social reproduction* then *assimilation* will not occur.

These relationships also suggest that *social reproduction* as a mechanism can also work as a kind of anti-pattern. In a poorly regulated programme where technically ineffective *routines* became normative, perhaps because of a poor choice of methodology (set of *routines*) or the unplanned *performative* modification of the *routines*, execution can become an end in itself, as observed by O'Neill et al. (2007). And so the *routines* become the methodology rather than being of the methodology. The power of *habitus*, of the *performative*, can modify the *ostensive* into impotence, discursively demonstrating the superiority of *assimilation* over *realization*. It does not matter that a *routine* is ineffective so long as it is normative as became the case in JIM's (Chapter 5) organization. The researcher witnessed such a *routine* when at the conclusion of a negative risk assessment in a "poorly regulated" programme. A very senior enterprise architect stated to the team including the business sponsor:

"I'd rather carry on doing something I know is going to fail than tell the executive that I think it's going to fail" (A Large Telco, late 2010)

However, eventually the dysfunction becomes apparent to all and architecture loses whatever *legitimacy* it has, at which point the programme is probably terminally positioned in the *Losing* Quadrant (Wagter et al. 2005).

Figure 29 (above) shows us how low level elemental *routines* affect the *durée* contributing to the success or failure of the programme. *"It is multiple levels of engagement you have a team of people who provide the solution architecture"* (PETE, VN860017, 5:50). It also demonstrates the dangers of decomposing architecture into domains like Business, Information, Applications and Technology. Decomposition ignores and obscures the fact that the critical *structures* for architectural success are sociological, not some arbitrary technical delimitation

FINDING: *Architecture practice must be deliberately cultivated*

6.7.4 Architects in the *Durée*

The importance of the skills of architects is frequently raised in the interviews both by *Losing* and *Enabling* programmes and so cannot be dismissed as a particular narrow view. While technical skills can

be sourced from bodies of knowledge like TOGAF, the ambiguous categorization of social skills leaves architects with no obvious source of sociological advice.

The data shows that architects are typically well educated.

"We've got four PhDs in my area right including myself. Umm we've got two more studying, so we are constantly investing in our people."
(ALAN, VN860020, 30:00)

However, their background is overwhelmingly technical and this is not necessarily an advantage.

"I had a number of applicants ... 60% of the applicants were developers."
(FRED, VN860022, 26:20)

Since becoming architects their training has largely been neglected, for which they must accept some responsibility, as despite their acknowledged lack of vocational training and their admitted poor performance, they are typically unwilling to invest in bodies of knowledge like TOGAF, ISAS or AoEA (Association of Enterprise Architects). This can be interpreted in a number of ways. Perhaps these bodies of knowledge are unknown or are simply considered irrelevant.

On the subject of architects the interviewees are sure of three things. Firstly, that a broad technical background is preferable to a deep technical background. Secondly, that those communications skills are essential but not common:

"It's about soft skills, communications; I'd make sure someone was a good written communicator. I think that's important in the age of email and there's being able to write documents that hopefully someone will read." (DEAN, VN860014, 3:22)

Thirdly, that not everybody is architect material:

"You can take someone with a foundation in analytical skills ... and you can build on that. You can give them mentoring. There's no way you can teach someone to do architecture ... there's no cook book of how to do it. It's a mentored approach because it's that art." (FRED, VN860022, 26:48)

“Architects need to be turned on by technology.” (PHIL, Notes)

The cook book comment perhaps accounts for why, as the survey data demonstrates, the vocational training of architects is so poor. It seems that architecture is such a mystery that neither organizations nor individuals are particularly willing to invest in it educationally. To compensate *communities of practice* develop their own *situational learning* regimes - often it seems, given the execution data, without particularly impressive results.

The question must be asked why such a well-educated professional group struggles to be successful. Here again we see the influence of the nature of architecture both in its evolution and its fragmented epistemology. Unlike other roles involved in system development that have narrow established bodies of knowledge like project management, data modelling or a particular programming language, architects heuristically develop a personal body of knowledge. This is the source of the interviewees’ belief in the importance of experience. Enshrined in their personal *practice* their heuristic experience is their default methodology.

Architects can find that “their” methodology is inappropriate for an organization. They are effectively out of sync with the *durée* of the organization placing them at a power disadvantage as their dialogue is degraded by a lack of supporting *structure* that reduces their effectiveness and ultimately their *authority*. This conclusion is supported by the Reich and Benbasat (2000) who emphasise shared knowledge domains, confirming the architect’s role as knowledge brokers, recommending that:

“One important way an IT person to be heard is for him/her to devote the time necessary to develop shared domain knowledge, the most influential construct in the research model.” (ibid: 107)

This is an attempt to synchronize with the prevailing *durée*.

Several of the interviewees were “head hunted” from senior positions in successful programmes only to fail in less sophisticated organizations. This suggests that their “default” *practice* was inappropriate to their new circumstances. As one interviewee JIM (VN860016, 29:16) suggests and as Ross et al. (2006) assert, organizations cannot skip stages. Lacking a Strategy for the Development of Architecture to manage techniques introduced by new architects, an omission that destroyed one interviewee’s programme (IAN), the architects continue their “inappropriate” *habitus*. But, in its new context, their

practice is no longer effective because it is not a shared *practice*.

The data shows us that architects' education is narrow and technical and does not provide them with a sociological lexicon. In circumstances with no theoretical understanding beyond the Builders' paradigm even the informal coalescence of a Strategy for the Development of Architecture seems a matter of luck.

Architects are the principal *actors* in the *social reproduction* of architecture *practice*. The elusive qualities of a successful architect have as a result of the positivist tendency of the Builders' paradigm been aggregated as vague, impenetrable "soft skills".

The Sociological Schematic diagram (Figure 28) reveals architects are *Knowledge Brokers* who use their methodology to span *communities of practice*. While the knowledge that architects broker is technical, it must not be expressed too technically, and most of all must be meaningful to those being advised. While some interviewees touch on this point, most of this very experienced group were not equipped to articulate it. The required vocabulary was simply not part of their training or experience.

The effectiveness of architects is dependent on their ability to *assimilate*. In the absence of a Strategy for the Development of Architecture architects have perhaps no awareness of and only informal means of achieving, *assimilation*. Secondly, because *social reproduction* is vital to the establishment of architecture *practice* it seems questionable to employ contract architects on anything more than the most tactical assignment. Even then it seems necessary to indoctrinate them thoroughly to preserve the *durée*.

FINDING: *The social skills of successful architects have as a result of the positivist discourse been ambiguously labelled "soft skills"*

6.7.5 Enablers and Losers

While contrasting the *Enabling* and *Losing* programmes is an obvious means of analysis, comparing like programmes is also insightful. The *Losing* programmes interviewed, by different mechanisms, suffered catastrophic failures of *legitimacy*. In DAVE's case the programme never established its *authority* and never enjoyed any *legitimacy*. In IAN's case *legitimacy* was destroyed by the erosion of *authority*.

There seems no other profession in which a shortage of resources results not in the acquisition of more resources, as one would expect, but in the abandonment of the function. But this is precisely what happened in IAN's example.

Initially the shortage of architects was augmented by short term contractors, but under the pressure of

a transformation programme the organization contrived ways around the “bottleneck” of architecture to the extent that the architecture programme became irrelevant. This was only possible because architecture had no *legitimacy* in the wider organization, its *practice* was not *assimilated* and so it came to be seen as a separate *community of practice* from the delivery of systems, not part of it. Having become an inhibitor to business objectives, architecture was seen as an obstacle to be avoided or overcome. It is clear is that programmes must establish and rigorously defend their *authority* because its erosion seems a certain path to failure.

The *Enabling* programmes demonstrate different routes to *authority*. DEAN seems to have inherited it as a historical consequence. However, this did not stop challenges to the programme’s *authority*. When those challenges appeared the ease with which *authority* had been exercised may have worked against the programme by giving a diminished impression of its *legitimacy* and creating a sense of security that lead to the neglect of the formal governance mechanism. The implication is, circumstances change and it is best to plan for the worst.

ALAN arrived in an organization in which architecture had no *authority*; however he did have the trust, of his superior. By scoring some early goals and standing his ground he was able to transform the *power* structure. While never refusing the business anything, he did insist on realistic expectations. Having established the programme he used education and the collection of metrics to secure and extend its influence. From this it seems that architects must be both the *cultivators* and the *guardians* of the organization’s commitment to architecture.

6.7.6 Power, Trust and Commitment

Giddens’s notion of *power* is the mobilization of resources (1984: 33): *allocative*, which are physical resources like tools and budgets, and *authoritative* which generate control over agents. Directive authority, *power*, is germane to the success of architecture *practice*, sometimes in inconspicuous ways.

Comparing the *Enabling* programmes to the other programmes exposes the elements of commitment. First amongst these is trust which exists in a circular causal relationship with commitment. Trust brings confidence; this allows the ceding of *power*. In technology terms business managers operate from a position of less power, creating anxiety that can be placated by a knowledgeable and more importantly, trustworthy advisor. This is perhaps the reason why universally the interviewees consider the architect’s broad experience more important than technical knowledge, another pointer to the importance of communication.

“It’s like a Maslow’s hierarchy you need good architects. Once you have good architects then you need to do good architecture, then you need good programme architecture then you need enterprise architecture to tie it all together. And then you need to go beyond certain levels of confidence ... you need to have it ingrained in the day to day operations of the group on one hand and in the strategy of the group in the other hand.” (PETE, VN860017, 22:00)

This comment illustrates how a programme evolved developing and reinforcing the trust / commitment cycle. The trust built up by the architects gains them access to the next level of tasks and *authority*. The architect’s role is not that of technologist, but of an interpreter of needs and facilitator of solutions - a Knowledge Broker.

“I think that the confidence came in the first four months of doing this. They were not exactly sure what EA was, but as we started to do it, they started to see the models, they started to see what it is.” (ALAN, VN860020, 24:08)

ALAN’s story highlights how trust is supported and nurtured by methodology. This is an important point that could be mistakenly interpreted as methodology being the key to success, a view that conveniently locks with the literary discourse.

“So the method of how we do [Practice] architecture is (pause 2 seconds) evolving from ad hoc now more around a ... a loose type of method but it’s not been (unclear) defined” (FRED, VN860022, 7:03)

However, it seems that the actual methodology is perhaps less important than its implied competence. Methodology’s greatest contribution to architecture is the impression it gives of the application of a body of knowledge. It *signifies* architecture’s and the architects’ *authority*, perhaps explaining why management are more impressed by methodological certifications than are architects.

ALAN clearly inherited a programme that had no *power*.

“It really just kept us bound and we were endlessly chasing our tail.” (ALAN, VN860020, 35:38)

However, he acquired sufficient power to, if not have formal *allocative* power; at least have *directive authority*.

“use EA to identify where we wanted to attack and use it as a basis for funding to put forward a strategic plan that allows us to get on the band wagon” (ALAN, VN860020, 15:24)

This acquisition of power stands in stark contrast to the experiences of the Losing programmes (IAN and DAVE).

One final point needs to be made about trust. The desire for trust, when misguided, can have an insidious detrimental effect. As reported by DAVE *“They just hire their mates and none of them have a f*cking clue, so they’re all kinda covering up for each other.”* (Notes)

7 CONCLUSIONS

“No great improvements in the lot of mankind are possible, until a great change takes place in the fundamental constitution of their modes of thought.” (John Stuart Mill 1806 – 1873)

7.1 Purpose Driven Architecture

As might be expected of research with so many levels of analysis the conclusions are complex. The *architectonic activities*, the main components of the Purpose Driven Architecture (PDAP) body of knowledge are used here to summarize the research. The reader is reminded that the *activities* exist, as sets of *routines* employed with a particular intent, in mutually constitutive relationships for which these sections are only a terse description. And that the relationship between *routine* and *activity*, as explained in Chapter 3.8, is not necessarily fixed.

7.1.1 Cultivating

The reality of architecture is that its sociological aspects are critical to securing its success. That power, trust and commitment are the foundation and that the mechanics of *realization* must be firmly grounded in these for there to be any chance of success. Furthermore, these sociological concepts must shape the managerial functions of formal *authority*. The seed of this is the *purpose* and *scope* of the architecture, as decided by the executive. The trunk is the *Agreed Programme Strategy* that commits the organization to action.

Informed by this *purpose* and *scope* the architectural leader must define a Strategy for the Development of Architecture that develops the capability and, as the journey unfolds, maintains organizational alignment. The centre piece of this strategy is an *appropriate methodology*, one that is accepted as normative and recognized as the medium of the Business-IT Dialogue, the key *structure* of the *durée*.

7.1.2 Realizing

The *realization* of an architecture requires the *appropriate methodology* be executed by architects who have *mastered* its *routines’ ostensive* details and integrated the social nuances of the *performative* into their *habitus*. The methodology *signifies* the architects’ *directive authority*, provides the means to measure projects against the *Agreed Programme Strategy* and is the foundation of their *mastery*.

7.1.3 Assimilating

Cultivation and *realization* come together to facilitate *assimilation*. The former can theoretically impose *routines* and latter invoke *authority*, but for architecture to be normative it must be accepted as

legitimate. Only then can it fully meet the expectations of its *purpose*.

7.2 Design and Action

The thesis would be incomplete without an integration of the various theories and aspects of EA examined. If the Critical Success Factor is *practice*, then how should it be implemented? With this in mind the thesis provides the “*explicit prescriptions*”. (Gregor 2007: 620) of a “Design and Action” theory and the details that Nakakawa et al. (2011) and many others seek.

With architecture’s technical aspects giving no more than a thematic indication of the path to success the research adopts Hevner et al. (2004) approach of assessing the theoretical by reference to the actual. The interviews are the catalytic “actual” of the synthesis of a sociologically-centric viewpoint. Shifting the research to a “*theoretical focus on understanding the relationships between the actions that people take and the structures of organizational life*” (Feldman and Orlikowski 2011: 1240) requires the ontological acceptance “*that practices are fundamental to the production of social reality*” (ibid: 1241).

Two hundred and seventy odd comments addressing perhaps ten or twelve different threads (Table 20), depending upon definition, were identified in the transcripts. Even allowing for ambiguities the prominent feature is the volume (109) of observations ascribed to a Commitment to the Use of Architecture. This dominance is all the more impressive when considering that no other thread garnered 35 observations and that *commitment* is one of only two factors, along with *communication*, to be identified by all analyses.

The Architecture Topography model (Figure 19) assigned *commitment* observations to the Social Dynamics cell of the *assimilation activity*, the most populated cell, which also has the lowest populated equivalent cells in the *cultivation* and *realization* activities, indicating a lack of both theoretical insight and practical advice. The *realization* and *cultivation* activities are rough indicators of the extent of the implementable body of knowledge. The model’s distribution supports the proposition that, like the surveyed architects and the interviewees, the authors collectively know how architecture should operate but not how to achieve it either in a practical or a theoretical sense. Even the *Enabling* interviewees are unable to elucidate their success in a systematic fashion.

Using *commitment* as the ontological root frees the analysis from the Builders’ paradigm and allows the findings to be harvested for the compilation of a substantive theory of architectural *practice*. This section is “*about the principles of form and function, methods, and justificatory theoretical knowledge*”

(Gregor 2006: 628) of Purpose Driven Architecture Practice (PDAP).

Three artefacts are presented below: (1) a schematic representation of how Purpose Driven Architecture Practice (PDAP) would interact with its organization to create a “favourable climate”: (2) a catalogue of components and effects that explains who does what, to that end, and (3) a description of two complementary processes that establish the Authoritative Structure and Manipulate the Durée.

7.2.1 Sociological Schematic

The schematic (Figure 30 below) demonstrates how sociological factors *Enable* an architecture programme. The internal operation of *routines* and the iterations of mutual constitution are omitted to provide a more legible diagram. This is the environment that PDAP shapes by establishing the Authoritative Structure and Manipulating of the Durée (below).

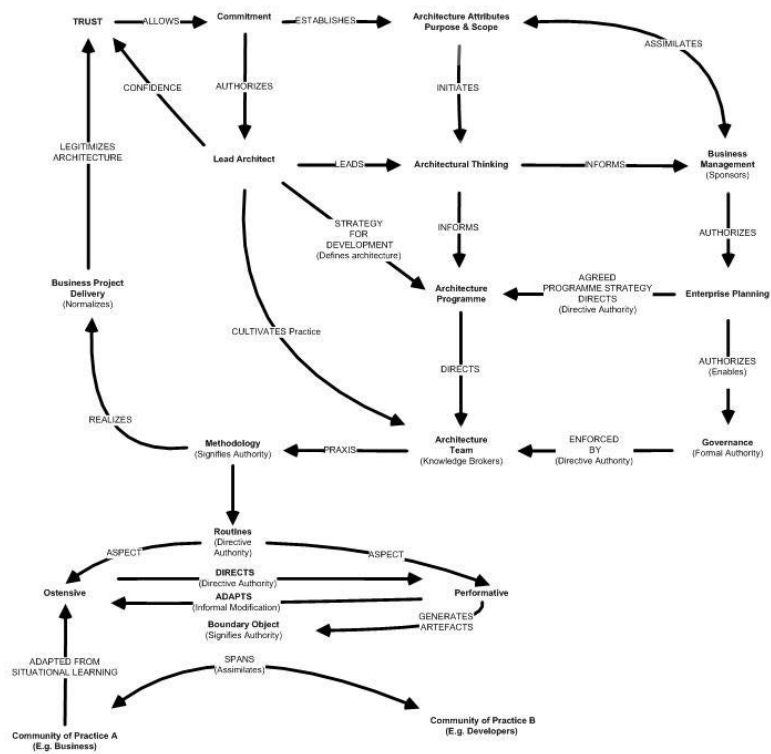


Figure 30: Sociological Schematic

Purpose driven architecture practice starts with a commitment to the use of architecture. This allows the ceding of authoritative power to the integrative processes of planning and governance. Commitment however, requires trust, which is gained initially through the confidence in the quality of the architectural leadership as in ALAN’s case. And later, through the methodological structuring of the

Business-IT Dialogue that normalizes and legitimizes architecture, and ultimately through the realization of target architectures. While authority can be granted legitimacy is only attained through practice.

Enabling programmes share many characteristics with other programmes, but the differentiators are sociological. While methodology is significant, it is so mostly in the way its *practice* influences the “multiplicity of contexts of social activity” (Giddens 1984: 32). Methodology supports *authority* by its *signification* of a body of knowledge and its facilitation of the *practice* of architecture; the successful execution of which develops architecture’s *legitimacy*. Commitment is created and sustained through these *socially reproduced structures*.

Programme failures undermine trust, a situation that when compounded by a failure to separate *practice* from methodology, perhaps leads to a false diagnosis. Rooted in the differing perspectives of architects and managers, blame can easily be apportioned to methodology. Furthermore, the data suggests that minor methodological adjustments are unlikely to improve a programme. Unfortunately the failure to separate *practice* from methodology reinforces a methodologically-centric discourse sustaining false beliefs.

Enabling programmes are only possible in organizations committed to the use of architecture. This in turn provides the *primary attributes* of the architecture and sets in train the logic of evolution noted by many authors.

7.2.2 Architecture Practice Framework

The Architecture Practice Framework (Figure 31 below) summarizes and explicates the contributions of, and relationships between perspectives, architectonic activities and theories to practice. The perspective rows detail their contribution to the architectonic activities.

The findings populate the architectonic columns as practice outcomes that culminate in Enterprise Impacts (blue) and Outcomes (green). These two rows summarize the *performative* impact of *routines* and their *ostensive* outcomes for the organization generally and the architectural programme in particular. The former is architecture as a verb the transforming of the current state. The latter is architecture as the noun, the output, the artefact that solves a business problem shifting the organization towards the future state.

The rows are augmented by columns that highlight the *organizational* and *structuration* theory elements

that the perspective will reproduce / constitute by their participation in the *practice* of architecture. While *practice*, being a superset of applied *routines*, is partitioned by its architectonic *activities*. Blue and orange are used, as previously, to indicate *Thinking* and *Integration*.

PERSPECTIVE	REALIZATION	CULTIVATION	ASSIMILATION	ORGANIZATIONAL THEORY	STRUCTURATION THEORY
OWNERS (Executive)	Commit to the Use of Architecture	Define programme purpose, scope, definition	Create the Agreed Programme Strategy	Design and nurture (sustain) the Business-IT Dialogue (making it part of org culture – i.e. “the way things are done here”)	Confers formal authority
PLANNERS (Architectural Leadership)	Develop an appropriate methodology	Create Strategy for the Development of Architecture	Govern to the Agreed Programme Strategy	Methodology is regarded as The ostensive aspect of routines and is modified by the situated learning of the performative (mutually constitutive)	Exercise Directive Authority (Power)
DESIGNERS & BUILDERS (Architects)	Use appropriate artefacts and Architect behaviour	The performative adaption of routines and artefacts to match problem context	Makes architecture normative	Performative routines as situated learning governed by the ostensive aspect of routines (mutually constitutive)	Social reproduction of practice through the performative aspect of the routines shapes the <i>durée</i>
ENTERPRISE IMPACTS	Shapes the <i>durée</i> by transmuting power	Creates Knowledge Brokers and spans Communities of Practice	Role acceptance	EA becomes part of organizational culture	Signification
ENTERPRISE ARCHITECTURE OUTCOMES	Business-Aligned Systems	Evolved, (enhanced and fit-for-purpose) Architectural Thinking	Architectural integration (business becoming architecture savvy)	A pivotal Organizational Capability for business strategy execution	Architectural Legitimacy

Figure 31: Architecture Practice Framework

The conspicuous feature of the framework is the prevalence of the sociological. There is much more here about what is done and how it is done than there is about the technical aspects of architecture. While *realization* might be considered as “doing things” with hardware and software both *cultivation* and *assimilation* are “doing things” with people. The organizational and structuration theory columns show us how profoundly *practice* impacts an organization. It seems doubtful that any technical aspect of a project has as great an impact.

Enabling architecture is something that organizations do, not simply something they have. Architecture needs to be seen as “a concern with what people do in relation to [architecture] and how this is influenced by and influences their organizational and institutional context” (Johnson et al 2007: 7) because its success is dependent on the sociological. It is through the reflexivity of the *social reproduction of practice* that the commitment to the use of architecture becomes normative.

Perhaps the model’s most significant point is that it links *cultivation*, through the efforts of Knowledge

Brokers, and the consequences of *routines to architectural thinking*. Demonstrating how in a narrow IT context *architectural thinking* can be considered part of the *realization* activity, while in an enterprise context it becomes a *cultivation* activity. Perhaps this perspective switching is the trick by which *cultivation* evades discovery by decomposition.

That *architectural thinking* presents as the Enterprise Impact of *cultivation* also suggests that, while van den Berg and van Steenberg are often correct, they have not definitively decomposed architecture. And that the ambiguity of their double-barrelled Key Areas names perhaps indicates the limits of decomposition. While architecture can be assessed on two axes its constitution seems more complex. *Practice*, with the *routines* of its three *architectonic activities*, is the means by which the duality of architecture and the attendant conflicts are resolved.

It seems that architectural maturity should be assessed on three axes, van den Berg and van Steenberg's integration and thinking and purpose driven adaptation. The latter being the ability of a programme to design its destiny by controlling its innate evolution and environment. This is the key to the maturation of the other axes and a consequence of a Strategy for the Development of Architecture, whether or not that strategy is formally constructed.

The model demonstrates what the CSFs lists only hint at, that the critical success factors of enterprise architecture are not discrete. They are complex multi-dimensional relationships between perspectives and *activities*; created and influenced by their own *routines*. And that architecture *practice* is those relationships in motion.

The data also suggests that perhaps the particular critical success factors of an architecture programme can struggle to be heard above the complex throng of the *durée*. This lack of fidelity is perhaps responsible for the failure of programmes.

While these research findings might be critiqued as a sociologically focused list, they have a cohesion and exhaustiveness that no to-do list can match. They provide a unifying ontology and holistic explanations that accommodate architecture's discontinuities. Nor can they be considered yet another fragmenting methodology, as they seek not to overthrow previous methodologies, but to subsume them into a holistic theory of practice.

7.3 A PDAP Approach

PDAP is concerned with the relationships between three kinds of constructs, sociological structures,

boundary spanning artefacts and praxis activities (architectonic). These complex relationships are presented in the PDAP Schematic below.

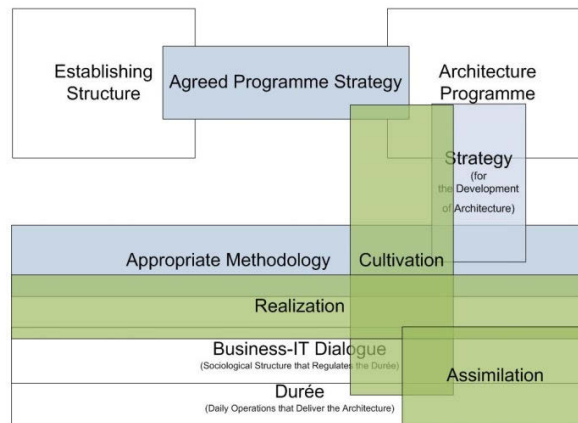


Figure 32: PDAP Schematic

The clear boxes represent the main sociological *structures* the Establishing Structure which ideally should include the CEO and the executive. The Architecture Programme the architects, the Business-IT Dialogue the interface between the Business, IT and Architecture Programmes and the Durée, the day to day operations. The diagram is now described in approximately left to right top to bottom order.

The first boundary spanning artefact (light grey) is the Agreed Programme Strategy which links the authority of the Establishing Structure with the Architecture Programme that will direct the implementation. The Architecture Programme uses this authority to create a Strategy for the Development of Architecture. The Strategy for the Development of Architecture is considered part of the architecture and so is shown as influencing the Agreed Programme Strategy, through the Cultivation activity, that gave rise to it. More importantly *strategy* is the major influence on the development of the other boundary spanning artefact the Appropriate Methodology. The development of these artefacts, the *strategy* and the *methodology*, is considered to be of the praxis of architecture (green) and so is a Cultivation activity. However, Cultivation activity mostly involves the adaptation of the *methodology* through the situated learning of the Realization activity.

The Appropriate Methodology is the boundary spanning artefact that holds praxis together, mostly by providing the *routines* for the Realization of the target architecture, but also through its feedback Cultivation of the Architecture Programme.

Realization is the overt activity of praxis that spans the *methodology* and the Business-IT Dialogue where

it intersects with Cultivation in episodes of *situated learning*. Realization is also a key ingredient of Assimilation which begins in the *dialogue* and ultimately pervades the *Durée*.

The research suggests that PDAP can be implemented by two processes, the Establishment of the Authoritative Structure, which occurs at the programme's initiation and the ongoing Manipulation of the *Durée*. Viewed as a simplistic chronological implementation, but not unfettered by the complexities explained above, these can be summarized:

1. Establishment of the Authoritative Structure

- 1.1. The establishing *structure* announce the *primary attributes* of the architecture its *purpose* and *scope*. *Purpose* and *scope* are limited by the *authority* of the establishing *structure* and so it is advisable to establish architecture at the highest level. The architecture's *definition* will emerge from these.
- 1.2. Establish an *Agreed Programme Strategy*, this refines the *purpose* and *scope* and bestows directive *authority*. This is a vital artefact as it is by its execution, rather than its mere declaration, that architecture reshapes an organization's sociological *structures*.
- 1.3. Develop a *Strategy for the Development of Architecture* that acknowledges the realities and *evolution of architecture* planning its *cultivation* and *realization* with the focus firmly fixed on *assimilation* with the business.
- 1.4. The key component of the *Strategy from the Development of Architecture* and the link between the Establishment and Manipulation is the development of an *Appropriate Methodology*. This must include a set of integrated metrics that reflects the architecture's *purpose*.

The architecture's *purpose* requires deliberate elaboration to ensure the architecture's sociological structural alignment, so that *authority* is granted, *legitimacy* accepted and power flows seamlessly. *Purpose* then is construed as being trusted to advise the executive on courses of action. Thus aligning with the existing structures, rather than risking the unintentional establishment of a competing structure.

2. Manipulation of the *Durée*

- 2.1. It is the performance of the *Appropriate Methodology's routines* that transforms the Business-IT Dialogue, the principal *structure* of the *durée* into a "*process of collective thinking and generative learning*".

2.2. Through the *legitimacy* generated by the *social reproduction* of the *routines* the architecture becomes normative and is *assimilated*.

2.3. The *assimilated* programme bridges *communities of practice enabling* the organization and securing architecture's recognition as an *organizational capability*.

PDAP offers a cohesive alternative to a deficient positivist paradigm. With the identification of the real critical success factor, *practice* and the insights of this new sociologically-centric body of knowledge comes the opportunity for organizations to break the cyclic failures that result in 40% of programmes being shut down every three years (Sessions 2008: xv).

8 DISCUSSION

“To know what you know and what you do not know, that is true knowledge.” (Confucius 551–479 BC)

8.1 Overview

In discussing our conclusions it serves us to revisit the original questions:

What are the critical success factors of enterprise architecture?

How these factors are influenced by, or influence, the practice of architecture?

The appropriation of concepts from organization and social theories makes it possible to view these questions from a new perspective and to draw new conclusions.

What are the critical success factors of enterprise architecture? The research concludes that it is not what is done methodologically that matters as much as how it is done, the *purpose* to which architecture and its elemental *routines* are put. In short *legitimate practice* is the critical success factor. While it is not the only success factor, it is the critical success factor, because all other factors are irrelevant if architecture *practice* fails to be accepted as normative.

How these factors are influenced by, or influence, the practice of architecture? Ironically, and perhaps contributing to the difficulty of discerning the CSFs, methodology a positivist *structure* plays a central role in the success of sociological *practice*.

Methodology's value is not so much in the technical *routines* prescribed, as in the *assimilative* behaviours (*practice*) that they engender. Appropriate *praxis legitimizes* architecture allowing a transmutation of *power* and a ceding of directive *authority* that *enables* the whole organization. An organizationally appropriate methodology facilitates *praxis* allowing *communities of practice* to develop a *mastery* of their *routines*.

The assertion that the technical content of routines is less important than the literature suggests challenges the prevailing Builders' paradigm and suggests a sociologically–centric alternative. However, unless this alternative can demonstrate the “*essential or operational details*” details that Nakakawa et al. (2011: 89) seek, it does no more than add to the fragmentation. (Saha 2007)

8.2 Discussion

As pointed out in Chapter one there is no universally accepted body of knowledge for architecture. Traditionally architecture has been defined by a largely unchallenged assumption that it is a technical / methodological discipline with the resulting quest for the definitive methodology fragmenting the discipline.

While present in the earliest publications, sociological considerations are not influential and advice is meagre. This leaves a closed insular system of thought that recycles methodology providing little guidance for the development of *practice*.

Minoli (2006) was correct to declare that architecture is not rocket science. And the data leaves little doubt that it is both a social and technical science. The findings portray architecture *practice* as sociological process, in which technical artefacts play a role as communication medium. It seems that construction as a guiding analogy has outlived its usefulness.

Furthermore, it seems that *practice* the means by which architecture affects an organization is, largely due a lack of an alternative, mostly heuristically developed. And that architects individually develop their own *practice*, largely unassisted. A far from satisfactory situation for such a critically important function and one that suggests that “poor” practice i.e. one that does not address the sociological concerns noted is a failure factor. Meanwhile the continuing failures drive industry through certification, down a Design Science path in search of a mythical universally applicable methodology. But what the research shows is that what is actually needed is a rethink about the nature of architecture and the acceptance of the sociological as a central theme.

Success is actually dependent on the *cultivation* of a *legitimized practice* that is the *habitus* of the architecture *community of practice*. Initiated by the management and procreated by the architecture programme, it evolves through time and space beyond the context of the establishing *authority* to encompass the enterprise as a “*process of continuous facilitation*” (van den Berg and van Steenberg 2006: 81)

Architects are the principal agents of *practice* whose *social reproduction* creates an *organizational capability* engaged through a well-formed Business-IT Dialogue. The Business-IT Dialogue is shaped *authoritatively* by the mandate of an *Agreed Programme Strategy* and *legitimized* through the praxis of architecture in the *durée*.

Enabling programmes develop their *practice* on the foundation of an organizationally *appropriate methodology* that *signifies* their *directive authority* by providing *routines* as the templates of *boundary spanning artefacts*. These *routines* performed in the *structure* and with the intent of the *activities* shape the Business-IT Dialogue, transmuting and distributing *power* reflexively to make architecture normative.

Architects with their technical backgrounds are ill-prepared for this. A few “experienced” architects tacitly learn some of these things. But with no supporting theory they struggle to even express their knowledge, let alone disseminate it, making the likelihood of establishing such a *practice* minimal.

This final point has serious consequences because the technique proposed to establish an *Enabling architecture practice, social reproduction*, may actually be at work undermining it with the kind of unregulated anti-pattern suggested above (Chapter 6.7.3), in organizations that are unable to harness architecture. Clearly the development of architecture *practice* cannot be left to the random heuristic experiences of its architects. It must be thoughtfully and deliberately shaped if it is to be successful.

8.3 Limitations of Research

While individual phases of the research are cohesive establishing the correctness of the whole required the development of a new theory of architecture practice which could not be tested.

The striking dichotomy of the three analyses also presents dilemmas. First, it challenges the wisdom of accepting secondary sources without first verifying their relevance to the living phenomena and determining exactly which questions a source can answer. It also seems that literatures can promote narrow discourses that are not fully representative of a problem space. And, as the divergence from the secondary sources of the interviews suggests, such discourses can bias outcomes.

8.4 Research Opportunities

The contrasts in the survey and interview data demonstrate the weakness of the positivist approach, creating the rationale for investigating architecture from a purely sociological perspective.

Having established an alternative perspective it would be informative to survey architects using an instrument structured by the architectonic activities. New insights might be gained from an epistemological comparison of the new survey’s effectiveness with a more usual positivist instrument, possibly a subset of this survey. This could perhaps definitively discount methodological approaches to

assessing the state of architecture programmes and might possibly produce a completely different view of architecture.

Opportunities also exist to research architecture from a sociological observation perspective perhaps to; as it were, pick apart an architecture programme in real time. And by examining programmes of differing sociological and methodological sophistication, it might be possible to assess the contributions of various routines to the *assimilation of practice*. One can speculate that such an exercise might be best done using anthropological techniques to observe an organization's *durée*. Perhaps Actor Network Theory can validate and map an organization's Business-IT Dialogue.

Routines as the *microfoundations* of success seem a logical focus for research on two fronts. A longitudinal case study of architects' *routines* could examine the individual architect's drivers of adaptation. Here the research might venture into the realm of psychology or reignite the sociological structure versus agency question. However, by understanding the *performative* modification of *routines* we would gain a deeper understanding of what constitutes an *appropriate methodology*. Secondly, there needs to be an epistemological testing of the activities concept.

The fusion of the ideas of *appropriate methodology* and the *evolution of architecture* creates an aside of particular interest to methodologists. It calls into question a basic assumption of many methodologies, frameworks and maturity assessment models of continued utility. Plainly, *appropriateness* is a point-in-time quality. So, any artefact or technique must be adaptable to the evolutionary stage of the architecture. It seems that methodological *routines* should be continually tested for utility.

There are clearly opportunities to develop new "sociologically aware" *practice* based approaches to architecture in particular, and possibly the management of technical *communities of practice* in general. Here the word approach is used advisedly, as something greater than, but inclusive of methodology. Until architecture can break out of its current discourse, it seems unlikely to achieve more than the limited refinement, by methodological iteration, of a not particularly successful paradigm.

The core output of this research, PDAP is theoretical and as such, is in itself, a research opportunity. Some aspects of PDAP are currently being trialled in a government organization that previously has no experience of architecture. But, it will be some time before there are any assessable outcomes.

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10 APPENDIX A - CLASSIFICATION TOOL

Architectural Classification Model

Introduction

This classification models seeks to identify and classify success and failure factors identified in the literature in a consistent matter.

Its purpose is to provide consistent classification as an aid to the analysis of the literature.

Background

This model is based on the DYA Quadrant Model presented by van den Berg and van Steenbergen who identified 18 key areas of Enterprise Architecture (EA) practice. The DYA Quadrant Model gives two clear sets of classifications

The DYA Quadrant Model assesses the effectiveness of an EA practice against two axes. The first is the level of architectural thinking; which is a measure of the sophistication of thinking and its penetration into the organization. The second axis is the degree of integration into the business. This is a measure of engagement.

Their proposition is that EA practices fall into four categories. Those that score lowly on both architectural thinking and integration have no effect on their organizations and are "Losing".

Those that score high on thinking, but are not integrated are considered "Isolated". Those that score lowly on thinking and highly on integration are considered "Barriers". The last group; those who think well and are integrated are labelled "Enabling".

Classification

This classification model is none judgmental, there is no attempt to determine if a factor is good or bad, desirable or not. This is simply a methodology for classifying factors that have been identified by other authors.

There is no attempt to assess the practices examined by the literature.

Nor, is it intended that this methodology be used to determine the extent of to which any of these key areas is employed by or influences the practice of EA as related by the authors.

Instructions

Read this document completely, taking note of the definitions of the "Key Areas" these definitions are presented as two sets. The first set is labelled "Level of Architectural Thinking" the other "Integration in the Organization."

Having read those descriptions completely, return to the section "Assessing the Article" applying that technique to each paper.

Structure of Key Areas

The "Key Areas" are divided into two sets. As described above. These sets reflect the axis of the DYA Quadrant Model.

The Level of architectural thinking set is concerned with WHAT assets an EA practice needs to function. These assets may be physical or theoretical. They may be tools, techniques, processes or physical assets. The elements of this set are typically, but not always identified by nouns, or a state of being.

The Integration in the organization set is typically concerned with HOW things are done. It is about organization, governance, and interaction in short its Key Areas typically characterize behaviour. It is about how well EA processes are imbedded in the organization. The elements of this set are often identified by verbs or actions, by "doing", monitoring for example.

While the points above are generally true they are not without exception and are for guidance only. There are exceptions to all cases. That is why this classification model is probably only suitable for use by those familiar with the domain.

Accessing an Article

This is a set of instructions that lay out the basic classification technique. This technique should only be attempted after reading the complete document and then returning to this section as per the instructions.

1. Read the article high lighting and numbering factors that the author considers impact the effectiveness of Enterprise Architecture.
2. Having completed the article, return to each factor in turn and consider it.
 - a. Only consider the factors raised by the author; note that some may be explicit while others may be implicit. For example an article about a technique implies that technique is important. While an article about the background of architects implies that this is important.

Beware of assigning attributes to EA that EA is being used to implement in other disciplines. For example if an EA technique is being used to develop a plan for monitoring risk, in this case monitoring is not an EA success factor.
 - b. It does not matter if the factor is considered good or bad or simply significant it is acceptable.
3. Consider if the factor falls within the domain of the "Thinking" set or the "Integration" set.
 - a. If neither then mark the factor "No Domain" or
 - b. Select the appropriate set.
4. Compare the factor to the Key Areas defined in that set.
 - a. Record the factors number and the Key Area

Set 1: Level of Architectural Thinking

The level of architectural thinking indicates the degree to which the upper strata of the organization's business and IT domains share an architectural vision and appreciate the importance of architectural practices.

This set of Key Areas is concerned with the degree of sophistication in the organizational practice of EA; it is not limited to the architects.

These Key Areas are often concerned with WHAT assets an EA practice needs to function. At the lower level these assets may be physical or theoretical. They may be tools, techniques, processes or physical assets. At the more sophisticated end of the scale it might include governance arrangements.

The elements of this set are typically, but not always identified by nouns, or a state of being.

Key Area 1.1: Strategy for the Development of Architecture

The development of architecture can be undertaken in various ways, varying from isolated, autonomous projects to an interactive process of continuous facilitation. In the first case, the emphasis is placed on architecture as a product, in the second, on architecture as a process.

The more that architectural design is incorporated as a continuous process within an organization's trajectory of change, the greater is the chance that real value will be added.

Any process, technique, methodology, activity, organization or artefact that directs or influences the way that architects operate might be considered strategic.

This Key Area covers vision, scope and the strategic planning of the EA process.

Key Area 1.2: Alignment with Business

Architecture is justified insofar as it supports and facilitates business goals. Alignment with business (the degree to which the process is in tune with what the business needs and is capable of) is therefore very important.

Key Area 1.3: Coordination of Developments

In an organization, a large number of developments take place in all sorts of areas at more or less the same time. Some of those developments are interrelated. Architecture is the control instrument to make sure that the content of such developments is coordinated. Of course, architecture must then be employed for this purpose.

Key Area 1.4: Quality Management

Obviously, the successful employment of the architecture depends upon its quality. The goal of quality management (QM) is to ensure such quality. Artefacts and outputs must be fit for purpose and appropriate for their audience and delivered in a timely fashion. Ultimately QM is about the usability of the outputs of the EA practice.

Key Area 1.5: Maintenance of the Architectural Process and Artefacts

Like every other asset, the architectural process and its artefacts need to be maintained. This is the only way to safeguard the effectiveness and efficiency of architecture. Maintenance of the architecture means that a cycle of evaluation, development, improvement and implementation is periodically rerun and that artefacts are assessed for currency.

Key Area 1.6: (Discarded included in 1.5) DO NOT USE, see above 1.5

Key Area 1.7: Use of Architectural Method

Architecture is developed in a methodical procedure made up of activities, techniques, tools and artefacts. This method must be sufficiently versatile and

generic that it can be reused, but it also must be sufficiently specific to be effective. If this method is made so generic that many components must be redeveloped each time it is employed, or if it is so detailed that it cannot be adapted for use in other situations, the architectural method is inefficient. Organizations should take care to maintain a balance in their method between specific and generic applicability. The detail of the method is not important, what is important is that the method is formal.

Key Area 1.8: Architectural Tools

Working with architecture can be aided by architectural tools. They should be well suited to the task. Using tools in an integrated manner, preferably with the support of a repository, maximizes their efficiency and effectiveness.

Key Area 1.9: Budgeting and Planning

The development of architecture can be budgeted and planned. Careful budgeting and planning helps demystify architecture. It also shows the organization what it can expect. Budgeting and planning can range from drafting occasional plans to collecting past experiences with architecture.

Set 2: Integration in the Organization

The degree of integration within the organization reveals the extent to which the architectural process engages with the organization's daily processes. Architecture lives to the extent that there is an awareness of it on the work floor and it is incorporated into daily practice.

This set is often concerned with HOW things are done. It is about organization, governance, and interaction in short its Key Areas typically characterize behaviour.

It is about how well EA processes are imbedded in the organization. The elements of this set are often identified by verbs or actions, by execution and interaction.

Key Area 2.1: The Purpose of Architecture

Developing architecture is not an end in itself. Architecture has a goal: it must accomplish something; it needs to detail the means of execution.

In practice, the uses of architecture can vary. It may merely be a conduit for information, or it may be a means of governing individual projects or even a tool for managing the entire organization.

Key Area 2.2: Alignment with Development Process

Architecture needs to channel changes in such a way that the business goals are achieved in the most effective manner. Alignment with the development process – the relationship between the architectural process and the development process – is therefore extremely important, no matter whether it involves process, organization or IT development. How is the development process synchronized with the overarching architectural process?

Key Area 2.3: Alignment with Operations

Architecture is not only important for development – the alignment with operations and maintenance is also important. These elements work reciprocally: principles and guidelines that are important from an operations perspective have to be included in the architecture, and based on that architecture parameters must be imposed on operations and maintenance activities.

Key Area 2.4: Relationship to the AS-IS State

Architecture is frequently associated with a desired state of affairs: the so called TO-BE state. Most organizations also have to deal with an existing situation based on historical growth (frequently without architecture). In assessing the suitability of the architecture, it is important to realize that a set of circumstances already exists, which has its own range of possibilities and impossibilities. If this relationship to the AS-IS state is ignored, there is a danger that the organization will be able to do little with its elegantly drafted scenarios for future architecture.

Key Area 2.5: Roles and Responsibilities

If the roles and responsibilities concerning architectural thinking and taking actions are clearly defined and unambiguously outlined to everyone, discussions and differences of opinion about architecture are prevented from falling into limbo. Moreover, parties can then be questioned about their own specific contribution to architecture.

This Key Area is about the behaviour of those charged with the execution of the plan.

Key Area 2.6: Monitoring and Compliance

It is generally insufficient to just state that projects must comply with the architecture. Without a control mechanism, the temptation will be too great to choose the path of least resistance and to ignore the architecture at certain points. These practices also include the management of exceptions and EA projects.

This Key Area is concerned with review processes and metrics. It is about enforcement and measurement.

Key Area 2.7: Commitment and Motivation

Commitment and motivation by the architecture stakeholders is critical in bring architecture up to speed and making it successful. These stakeholders include not only the architects but also, and especially, senior business and IT management, plus project management. Business and IT managers are primarily responsible for creating a favourable atmosphere. This ensures that the architectural process is given sufficient time, money and resources. Ideally, there is support for the architectural artefacts (architectural principles and models) at all levels of management.

This Key Area is about sponsorship and cultural acceptance of the need to plan and change.

Key Area 2.8: Architectural Roles and Training

Being an architect is demanding/. Architects not only need to possess the skills to develop architectures, they also need to have the knowledge and understanding for a process development, systems development and technical infrastructures. As if that was not enough, high demands are made of their social and management skills. Acquiring this skill set takes training. Hence defining the architect's role and providing the necessary training is an important concern.

Key Area 2.9: Consultation and Communication

A great deal of consultation with various stakeholders is required in developing architecture. Stakeholders like business managers, process owners, information managers, project managers and IT specialists are involved. These consultations are very important in making the architectural process function well. They make the architectural requirements clear and they create an opportunity to share the results of the architectural process with the users of the architecture (such as projects and operations).

This Key Area is concerned with communication, formal or informal, structured or unstructured.

11 APPENDIX B – REFERENCED OBSERVATION SOURCES

This appendix lists in numerical order the references used in Chapter 3.10 to explain the construction of the Organizational Dimensions / Architectonic Activities Tables.

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12 APPENDIX C - SURVEY DATA

A copy of the base survey output follows. Minor changes have been made for brevity and to improve presentation.

Total number of survey responses:	206
AD1 Are you male or female?	Tally
Female (F)	13
Male (M)	186
No answer	7
AD3 How long have you worked in IT?	
Less than a year (1)	2
Less than 5 years (2)	5
6 to 10 years (3)	21
10 to 15 years (4)	54
15 to 20 years (5)	46
More than 20 years (6)	63
No answer	15
AD4 How long have you been an architect?	
Less than a year (1)	17
Less than 5 years (2)	65
6 to 10 years (3)	54
10 to 15 years (4)	38
15 to 20 years (5)	8
More than 20 years (6)	7
No answer	1
AD5 Which of these closest fits your job title?	
Enterprise Architect (01)	43
Enterprise Business Architect (02)	3
Enterprise IT Architect (03)	25
Business Architect (04)	2
IT Architect (05)	19
Domain Architect (06)	4
Solution Architect (07)	42
Security Architect (08)	3
Integration Architect (09)	5
Data / Information Architect (10)	5
Infrastructure Architect (11)	3
SOA Architect (12)	7
Pre Sales Architect (13)	3

Other	18
No answer	4

AD6 Which of these best describes the scope of your current role?

Enterprise wide both IT and business (1)	51
Enterprise wide IT only (2)	51
Enterprise wide business only (3)	2
Domain - defined by technology (4)	4
Domain - defined by function (5)	6
Domain - defined by business function (6)	13
Line of Business - defined by business organization (7)	9
Consultancy - multiple organizations (8)	35
Other	4

AD7 Which of these best describes your professional background before you became an architect?

Business Analyst (1)	13
Project Manager (2)	18
Applications Programmer (3)	89
Systems Administrator / Systems Programmer (4)	22
Graduate (5)	6
Business - Accounting (6)	1
Business - Operations (7)	4
Other	16

AD8 Do you hold any architectural certification?

Zachman (1)	5
IASA (2)	2
TOGAF (3)	35
IFEAD (6)	1
EACOE (7)	0
Vendor certified (4)	21
Certified by my own organization (5)	13
Other	21

AD9 What is the highest level of formal education that you achieved?

High School Certificate (01)	9
Tertiary Certificate (02)	2
Tertiary Diploma (03)	4
Bachelor's Degree (04)	61
Postgraduate Certificate (05)	6
Postgraduate Diploma (06)	3
Master's Degree (07)	71
Doctorate (08)	12

Other 2

AD10(1)

Have you ever received formal training in the following topics and how do you rate that training?[Project Management]

None (1)	29
Poor or Ad Hoc (2)	18
Competent (3)	59
Good (4)	40
Excellent (5)	12

AD10(2)

Have you ever received formal training in the following topics and how do you rate that training?[Requirements Gathering / Engineering]

None (1)	51
Poor or Ad Hoc (2)	28
Competent (3)	38
Good (4)	28
Excellent (5)	10

AD10(3)

Have you ever received formal training in the following topics and how do you rate that training?[Software Development Methodology]

None (1)	18
Poor or Ad Hoc (2)	23
Competent (3)	34
Good (4)	58
Excellent (5)	23

AD10(4)

Have you ever received formal training in the following topics and how do you rate that training?[Software / Solution Testing]

None (1)	53
Poor or Ad Hoc (2)	31
Competent (3)	47
Good (4)	22
Excellent (5)	3

AD10(5)

Have you ever received formal training in the following topics and how do you rate that training? [Data Analysis]

None (1)	61
Poor or Ad Hoc (2)	29
Competent (3)	32
Good (4)	29
Excellent (5)	4

AD10(6)

Have you ever received formal training in the following topics and how do you rate that training? [Architectural Methodology]

None (1)	26
Poor or Ad Hoc (2)	31
Competent (3)	31
Good (4)	42
Excellent (5)	26

AD10(7)

Have you ever received formal training in the following topics and how do you rate that training? [Problem Solving]

None (1)	52
Poor or Ad Hoc (2)	18
Competent (3)	22
Good (4)	38
Excellent (5)	25

AD10(8) Have you ever received formal training in the following topics and how do you rate that training?[Business Theory / Practice]

None (1)	51
Poor or Ad Hoc (2)	27
Competent (3)	33
Good (4)	33
Excellent (5)	11

AD10(9)

Have you ever received formal training in the following topics and how do you rate that training?[Technical Writing]

None (1)	60
Poor or Ad Hoc (2)	27
Competent (3)	37
Good (4)	28
Excellent (5)	3

AD10(10) Have you ever received formal training in the following topics and how do you rate that training? [Interpersonal Communication]

None (1)	24
Poor or Ad Hoc (2)	14
Competent (3)	51
Good (4)	50
Excellent (5)	16

AD10(11) Have you ever received formal training in the following topics and how do you rate that training? [Systems Engineering]

None (1)	43
Poor or Ad Hoc (2)	17
Competent (3)	37
Good (4)	51
Excellent (5)	7

AD11 Do you have a paid subscription to any architecture organizations, associations or forums?

IASA (1)	39
Association of Enterprise Architects (2)	17
TOGAF (3)	24
IFEAD (4)	1
EACOE (5)	0
Other	16

CS1[1][1] On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed? [Formal methodology] [IMPORTANCE]

1 (1)	7
2 (2)	18
3 (3)	23
4 (4)	39
5 (5)	17

CS1[1][2]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[Formal methodology] [EXECUTION]

1 (1)	28
2 (2)	40
3 (3)	24
4 (4)	9
5 (5)	3

CS1[2][1]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[Specialist tools like repositories] [IMPORTANCE]

1 (1)	10
2 (2)	15
3 (3)	32
4 (4)	33
5 (5)	14

CS1 [2] [2]

On a scale of 1 - 5 (1 being not) your EXPERIENCE how important are the following factors and how well are they typically executed?

[Specialist tools like repositories] [EXECUTION]

1 (1)	25
2 (2)	44
3 (3)	23
4 (4)	7
5 (5)	5

CS1 [3] [1]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[Consultation with stakeholders] [IMPORTANCE]

1 (1)	3
2 (2)	2
3 (3)	2
4 (4)	21
5 (5)	75

CS1 [3] [2]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[Consultation with stakeholders] [EXECUTION]

1 (1)	9
2 (2)	32
3 (3)	40
4 (4)	14
5 (5)	8

CS1 [4] [1]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[Monitoring for architectural compliance] [IMPORTANCE]

1 (1)	5
2 (2)	8
3 (3)	16
4 (4)	41
5 (5)	32

CS1 [4] [2]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[Monitoring for architectural compliance] [EXECUTION]

1 (1)	33
2 (2)	29
3 (3)	27
4 (4)	10
5 (5)	3
	7

CS1 [5] [1]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[The management of none compliant architectures] [IMPORTANCE]

1 (1)	12
2 (2)	3
3 (3)	32
4 (4)	36
5 (5)	20

CS1 [5] [2]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[The management of none compliant architectures] [EXECUTION]

1 (1)	38
2 (2)	35
3 (3)	16
4 (4)	6
5 (5)	5

CS1 [6] [1]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[A commitment to the use of architecture] [IMPORTANCE]

1 (1)	3
2 (2)	5
3 (3)	6
4 (4)	38
5 (5)	50

CS1 [6] [2]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[A commitment to the use of architecture] [EXECUTION]

1 (1)	23
2 (2)	38
3 (3)	23
4 (4)	11
5 (5)	6

CS1 [7] [1]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[Aligning the architectural effort with business objectives] [IMPORTANCE]

1 (1)	2
2 (2)	2
3 (3)	6
4 (4)	23
5 (5)	68

CS1 [7] [2]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[Aligning the architectural effort with business objectives] [EXECUTION]

1 (1)	19
2 (2)	32
3 (3)	32
4 (4)	7
5 (5)	11

CS1 [8] [1]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[The architects' coordination with developers] [IMPORTANCE]

1 (1)	2
2 (2)	5
3 (3)	17
4 (4)	41
5 (5)	37

CS1 [8] [2]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[The architects' coordination with developers] [EXECUTION]

1 (1)	9
2 (2)	24
3 (3)	42
4 (4)	18
5 (5)	8

CS1 [9] [1]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[Aligning architectural efforts with its operational functions] [IMPORTANCE]

1 (1)	3
2 (2)	4
3 (3)	29
4 (4)	36
5 (5)	28

CS1 [9] [2]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[Aligning architectural efforts with its operational functions] [EXECUTION]

1 (1)	13
2 (2)	31
3 (3)	34
4 (4)	16
5 (5)	6

CS1 [10] [1]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[Understanding the current state] [IMPORTANCE]

1 (1)	3
2 (2)	3
3 (3)	25
4 (4)	36
5 (5)	34

CS1 [10] [2]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[Understanding the current state] [EXECUTION]

1 (1)	6
2 (2)	21
3 (3)	34
4 (4)	30
5 (5)	10

CS1 [11] [1]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[Aligning the architecture effort with the system development function]
[IMPORTANCE]

1 (1)	4
2 (2)	1
3 (3)	24
4 (4)	42
5 (5)	29

CS1 [11] [2]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[Aligning the architecture effort with the system development function]

[EXECUTION]

1 (1)	10
2 (2)	29
3 (3)	42
4 (4)	17
5 (5)	3

CS1 [12] [1]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[Architects' education] [IMPORTANCE]

1 (1)	5
2 (2)	8
3 (3)	30
4 (4)	35
5 (5)	21

CS1 [12] [2]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[Architects' education] [EXECUTION]

1 (1)	25
2 (2)	24
3 (3)	34
4 (4)	16
5 (5)	1

CS1 [13] [1]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[The use of architecture in IT planning] [IMPORTANCE]

1 (1)	4
2 (2)	2
3 (3)	17
4 (4)	36
5 (5)	41

CS1 [13] [2]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[The use of architecture in IT planning] [EXECUTION]

1 (1)	14
2 (2)	34
3 (3)	31
4 (4)	18
5 (5)	3

CS1 [14] [1]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[Architects' roles and responsibilities being understood by all] [IMPORTANCE]

1 (1)	7
2 (2)	5
3 (3)	25
4 (4)	34
5 (5)	29

CS1 [14] [2]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[Architects' roles and responsibilities being understood by all] [EXECUTION]

1 (1)	35
2 (2)	38
3 (3)	17
4 (4)	9
5 (5)	2

CS1 [15] [1]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[An IT commitment to the use of architecture] [IMPORTANCE]

1 (1)	2
2 (2)	5
3 (3)	18
4 (4)	38
5 (5)	36

CS1 [15] [2]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[An IT commitment to the use of architecture] [EXECUTION]

1 (1)	12
2 (2)	38
3 (3)	31
4 (4)	13
5 (5)	6

CS1 [16] [1]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[A maintenance process for the architectural methodology itself] [IMPORTANCE]

1 (1)	11
2 (2)	10
3 (3)	33
4 (4)	31
5 (5)	15

CS1 [16] [2]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[A maintenance process for the architectural methodology itself] [EXECUTION]

1 (1)	40
2 (2)	31
3 (3)	20
4 (4)	7
5 (5)	2

CS1 [17] [1]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[The regular maintenance of architectural artefacts] [IMPORTANCE]

1 (1)	7
2 (2)	5
3 (3)	25
4 (4)	38
5 (5)	25

CS1 [17] [2]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[The regular maintenance of architectural artefacts] [EXECUTION]

1 (1)	32
2 (2)	29
3 (3)	28
4 (4)	10
5 (5)	1

CS1 [18] [1]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[A clear idea of the purpose of architecture] [IMPORTANCE]

1 (1)	4
2 (2)	4
3 (3)	14
4 (4)	32
5 (5)	47

CS1 [18] [2]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[A clear idea of the purpose of architecture] [EXECUTION]

1 (1)	28
2 (2)	33
3 (3)	25
4 (4)	13
5 (5)	2

CS1 [19] [1]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[The selection of architects] [IMPORTANCE]

1 (1)	3
2 (2)	2
3 (3)	12
4 (4)	38
5 (5)	44

CS1 [19] [2]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[The selection of architects] [EXECUTION]

1 (1)	23
2 (2)	24
3 (3)	33
4 (4)	16
5 (5)	4

CS1 [20] [1]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[A quality management programme] [IMPORTANCE]

1 (1)	6
2 (2)	16
3 (3)	41
4 (4)	20
5 (5)	18

CS1 [20] [2]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[A quality management programme] [EXECUTION]

1 (1)	18
2 (2)	37
3 (3)	32
4 (4)	8
5 (5)	5

CS1 [21] [1]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[A strategy for the development of architecture] [IMPORTANCE]

1 (1)	2
2 (2)	9
3 (3)	27
4 (4)	35
5 (5)	26

CS1 [21] [2]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[A strategy for the development of architecture] [EXECUTION]

1 (1)	19
2 (2)	31
3 (3)	36
4 (4)	8
5 (5)	6

CS1 [22] [1]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[Formal methodologies for creating artefacts] [IMPORTANCE]

1 (1)	12
2 (2)	17
3 (3)	34
4 (4)	29
5 (5)	8

CS1 [22] [2]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[Formal methodologies for creating artefacts] [EXECUTION]

1 (1)	23
2 (2)	38
3 (3)	33
4 (4)	5
5 (5)	1

CS1 [23] [1]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[A business commitment to the use of architecture] [IMPORTANCE]

1 (1)	4
2 (2)	8
3 (3)	15
4 (4)	25
5 (5)	48

CS1 [23] [2]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[A business commitment to the use of architecture] [EXECUTION]

1 (1)	33
2 (2)	30
3 (3)	26
4 (4)	8
5 (5)	3

CS1 [24] [1]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[Formal methodologies for conducting analysis] [IMPORTANCE]

1 (1)	7
2 (2)	22
3 (3)	33
4 (4)	29
5 (5)	8

CS1 [24] [2]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[Formal methodologies for conducting analysis] [EXECUTION]

1 (1)	32
2 (2)	36
3 (3)	24
4 (4)	6
5 (5)	2

CS1 [25] [1]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[The use of architecture in budgeting] [IMPORTANCE]

1 (1)	6
2 (2)	8
3 (3)	35
4 (4)	34
5 (5)	17

CS1 [25] [2]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[The use of architecture in budgeting] [EXECUTION]

1 (1)	35
2 (2)	36
3 (3)	21
4 (4)	7
5 (5)	1

CS1 [26] [1]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[Comprehensive documentation] [IMPORTANCE]

1 (1)	11
2 (2)	10
3 (3)	36
4 (4)	27
5 (5)	16

CS1 [26] [2]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[Comprehensive documentation] [EXECUTION]

1 (1)	25
2 (2)	37
3 (3)	21
4 (4)	13
5 (5)	4

CS1 [27] [1]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[Accommodating architectural exceptions] [IMPORTANCE]

1 (1)	4
2 (2)	6
3 (3)	23
4 (4)	44
5 (5)	23

CS1 [27] [2]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[Accommodating architectural exceptions] [EXECUTION]

1 (1)	19
2 (2)	24
3 (3)	35
4 (4)	16
5 (5)	6

CS1 [28] [1]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[The use of architecture in business planning] [IMPORTANCE]

1 (1)	6
2 (2)	6
3 (3)	25
4 (4)	30
5 (5)	34

CS1 [28] [2]

On a scale of 1 - 5 (1 being not) in your EXPERIENCE how important are the following factors and how well are they typically executed?

[The use of architecture in business planning] [EXECUTION]

1 (1)	48
2 (2)	25
3 (3)	21
4 (4)	5
5 (5)	2

AK1 (01)

How often do architects [Harvest experiential knowledge]

Never (1)	3
Rarely (2)	15
Sometimes (3)	31
Usually (4)	25
Always (5)	19
Can't say (6)	1

AK1 (02)

How often do architects [Know which artefacts are appropriate]

Never (1)	0
Rarely (2)	12
Sometimes (3)	34
Usually (4)	45
Always (5)	3
Can't say (6)	0

AK1 (03)

How often do architects [Take an holistic approach]

Never (1)	3
Rarely (2)	11
Sometimes (3)	25
Usually (4)	40
Always (5)	14
Can't say (6)	1

AK1 (04)

How often do architects [Spend the time to really understand the complexity of a problem]

Never (1)	3
Rarely (2)	11
Sometimes (3)	29
Usually (4)	39
Always (5)	12
Can't say (6)	0

AK1 (05)

How often do architects [Understand the relationships between domains (Business, Information, Applications, Technology)]

Never (1)	3
Rarely (2)	10
Sometimes (3)	32
Usually (4)	30
Always (5)	19
Can't say (6)	0

AP1 (1)

In your organization how often [Are IT architectures derived from strategic design]

Never (1)	8
Rarely (2)	23
Sometimes (3)	27
Usually (4)	23
Always (5)	2
Can't say (6)	2

AP1 (2)

In your organization how often [Does the architecture outline the solution design strategy]

Never (1)	4
Rarely (2)	21
Sometimes (3)	30
Usually (4)	26
Always (5)	4
Can't say (6)	0

AP1 (3)

In your organization how often

[Does the architecture manage a system after the development phase?]

Never (1)	17
Rarely (2)	34
Sometimes (3)	18
Usually (4)	12
Always (5)	3
Can't say (6)	1

AP1 (4)

In your organization how often

[Is architecture used to collect data and record problems]

Never (1)	17
Rarely (2)	37
Sometimes (3)	20
Usually (4)	8
Always (5)	3
Can't say (6)	0

AP1 (5)

In your organization how often
[Is architectural progress measured using metrics]

Never (1)	25
Rarely (2)	31
Sometimes (3)	22
Usually (4)	3
Always (5)	4
Can't say (6)	0

AP1 (6)

In your organization how often
[Are premature implementations prevented?]

Never (1)	8
Rarely (2)	31
Sometimes (3)	28
Usually (4)	18
Always (5)	0
Can't say (6)	0

AP1 (7)

In your organization how often
[Are standards set prior to project commencement?]

Never (1)	7
Rarely (2)	23
Sometimes (3)	21
Usually (4)	29
Always (5)	4
Can't say (6)	1

AP1 (8)

In your organization how often
[Are standards enforced?]

Never (1)	5
Rarely (2)	30
Sometimes (3)	20
Usually (4)	25
Always (5)	4
Can't say (6)	1

AP1 (9)

In your organization how often
[Are standards compliance criteria established?]

Never (1)	13
Rarely (2)	26
Sometimes (3)	22
Usually (4)	15
Always (5)	8
Can't say (6)	1

AP1 (10)

In your organization how often
[Do architects peer review their work]

Never (1)	12
Rarely (2)	23
Sometimes (3)	21
Usually (4)	20
Always (5)	8
Can't say (6)	1

AP1 (11)

In your organization how often
[Do architects work as pairs?]

Never (1)	26
Rarely (2)	27
Sometimes (3)	25
Usually (4)	6
Always (5)	0
Can't say (6)	1

AP1 (12)

In your organization how often
[Is a vision created as part of the architecture?]

Never (1)	11
Rarely (2)	24
Sometimes (3)	20
Usually (4)	20
Always (5)	9
Can't say (6)	1

AP1 (13)

In your organization how often
[Is a framework used to develop architecture?]

Never (1)	13
Rarely (2)	15
Sometimes (3)	27
Usually (4)	19
Always (5)	11
Can't say (6)	0

AP1 (14)

In your organization how often
[Is a formal architectural methodology used?]

Never (1)	14
Rarely (2)	19
Sometimes (3)	27
Usually (4)	13
Always (5)	10
Can't say (6)	2

AP1 (15)

In your organization how often
[Does the methodology result in the "one size fits all" pattern?]

Never (1)	17
Rarely (2)	22
Sometimes (3)	22
Usually (4)	12
Always (5)	3
Can't say (6)	9

AP1 (16)

In your organization how often
[Are models analysed using metrics]

Never (1)	30
Rarely (2)	30
Sometimes (3)	16
Usually (4)	6
Always (5)	1
Can't say (6)	2

AP1 (17)

In your organization how often
[Are models analysed using automation]

Never (1)	44
Rarely (2)	23
Sometimes (3)	13
Usually (4)	3
Always (5)	0
Can't say (6)	2

AP1 (18)

In your organization how often
[Does the architecture assign responsibilities?]

Never (1)	12
Rarely (2)	24
Sometimes (3)	28
Usually (4)	13
Always (5)	6
Can't say (6)	2

AP1 (19)

In your organization how often
[Is a formal Architectural Description Language Used?]

Never (1)	37
Rarely (2)	19
Sometimes (3)	15
Usually (4)	6
Always (5)	2
Can't say (6)	5

AP3 (1)

Speaking from an enterprise architecture viewpoint. How often can it be said that in your organization
[Architectures provide solutions for every step of a transformation]

Never (1)	13
Rarely (2)	21
Sometimes (3)	27
Usually (4)	14
Always (5)	5
Can't say (6)	3

AP3 (2)

Speaking from an enterprise architecture viewpoint. How often can it be said that in your organization
[Control steadily tightens as transformations progress]

Never (1)	16
Rarely (2)	34
Sometimes (3)	19
Usually (4)	9
Always (5)	4
Can't say (6)	1

AP4 (1)

To what extent do you agree with the following statements?
[Architects need to understand the limits of EA]

Strongly disagree (1)	1
Disagree (2)	2
Neither agree nor disagree (3)	8
Agree (4)	52
Strongly agree (5)	19

AP4 (2)

To what extent do you agree with the following statements?
[Artefacts should only be created as needed]

Strongly disagree (1)	1
Disagree (2)	10
Neither agree nor disagree (3)	8
Agree (4)	26
Strongly agree (5)	37

AP4 (3)

To what extent do you agree with the following statements?
[Architecture must allow and manage exceptions]

Strongly disagree (1)	2
Disagree (2)	2
Neither agree nor disagree (3)	4
Agree (4)	39
Strongly agree (5)	35

AP4 (4)

To what extent do you agree with the following statements?
[Initial architecture projects must be short]

Strongly disagree (1)	2
Disagree (2)	8
Neither agree nor disagree (3)	27
Agree (4)	30
Strongly agree (5)	15

AP4 (5)

To what extent do you agree with the following statements?
[Some deliverables should be immediate]

Strongly disagree (1)	1
Disagree (2)	4
Neither agree nor disagree (3)	25
Agree (4)	39
Strongly agree (5)	13

AP4 (6)

To what extent do you agree with the following statements?
[ROI should be used to establish objectives]

Strongly disagree (1)	1
Disagree (2)	6
Neither agree nor disagree (3)	34
Agree (4)	32
Strongly agree (5)	9

AP4 (7)

To what extent do you agree with the following statements?
[Architecture must be complete before the project can begin]

Strongly disagree (1)	25
Disagree (2)	26
Neither agree nor disagree (3)	19
Agree (4)	9
Strongly agree (5)	3

AP4 (8)

To what extent do you agree with the following statements?
[All artefacts must be completed]

Strongly disagree (1)	20
Disagree (2)	31
Neither agree nor disagree (3)	19
Agree (4)	11

Strongly agree (5)	1
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AP4 (9)

To what extent do you agree with the following statements?
[There must be no exceptions to standards]

Strongly disagree (1)	31
Disagree (2)	35
Neither agree nor disagree (3)	9
Agree (4)	2
Strongly agree (5)	5

AS1 (1)

It can be said that your architecture group
[Is responsible for data governance]

Yes (Y)	23
No (N)	40
Uncertain (U)	19

AS1 (2)

It can be said that your architecture group
[Assigns responsibility for domains to particular architects]

Yes (Y)	51
No (N)	20
Uncertain (U)	11

AS1 (3)

It can be said that your architecture group
[Is responsible for project execution]

Yes (Y)	14
No (N)	56
Uncertain (U)	12

AS1 (4)

It can be said that your architecture group
[Is expected to be pro active]

Yes (Y)	59
No (N)	10
Uncertain (U)	13

AS1 (5)

It can be said that your architecture group
[Operates only as a consultancy]

Yes (Y)	25
No (N)	41
Uncertain (U)	16

AM1 (1)

In your EXPERIENCE how often is architectural development guided by
[A framework]

Never (1)	8
Rarely (2)	15
Sometimes (3)	30
Usually (4)	24
Always (5)	4
Can't say (6)	0

AM1 (2)

In your EXPERIENCE how often is architectural development guided by
[A roadmap]

Never (1)	1
Rarely (2)	10
Sometimes (3)	37
Usually (4)	30
Always (5)	3
Can't say (6)	0

AM1 (3)

In your EXPERIENCE how often is architectural development guided by
[Business value]

Never (1)	4
Rarely (2)	14
Sometimes (3)	22
Usually (4)	31
Always (5)	9
Can't say (6)	1

AM1 (4)

In your EXPERIENCE how often is architectural development guided by
[Execution considerations]

Never (1)	3
Rarely (2)	13
Sometimes (3)	27
Usually (4)	32
Always (5)	5
Can't say (6)	1

AM1 (5)

In your EXPERIENCE how often is architectural development guided by
[A need to reduce of complexity]

Never (1)	4
Rarely (2)	11
Sometimes (3)	27
Usually (4)	32
Always (5)	7
Can't say (6)	0

AM1 (6)

In your EXPERIENCE how often is architectural development guided by
[A need to maintain momentum]

Never (1)	5
Rarely (2)	13
Sometimes (3)	33
Usually (4)	19
Always (5)	7
Can't say (6)	4

AM1 (7)

In your EXPERIENCE how often is architectural development guided by
[A need to build holistic capabilities]

Never (1)	5
Rarely (2)	15
Sometimes (3)	31
Usually (4)	18
Always (5)	9
Can't say (6)	3

AM1 (8)

In your EXPERIENCE how often is architectural development guided by
[A need to consider an enterprise wide scope]

Never (1)	4
Rarely (2)	14
Sometimes (3)	25
Usually (4)	25
Always (5)	13
Can't say (6)	0

AM1 (9)

In your EXPERIENCE how often is architectural development guided by
[A need to avoid introducing complexity]

Never (1)	2
Rarely (2)	16
Sometimes (3)	30
Usually (4)	28
Always (5)	5
Can't say (6)	0

AM1 (10)

In your EXPERIENCE how often is architectural development guided by
[A data centric view of the enterprise]

Never (1)	8
Rarely (2)	24
Sometimes (3)	26
Usually (4)	17
Always (5)	4
Can't say (6)	2

AM1 (11)

In your EXPERIENCE how often is architectural development guided by
[The use of standardized solutions]

Never (1)	8
Rarely (2)	11
Sometimes (3)	34
Usually (4)	24
Always (5)	4
Can't say (6)	0

AM2 (1)

In your EXPERIENCE how often does the architectural process formally
[Balance scope, objectives and resources]

Never (1)	8
Rarely (2)	23
Sometimes (3)	24
Usually (4)	25
Always (5)	1
Can't say (6)	0

AM2 (2)

In your EXPERIENCE how often does the architectural process formally
[Monitor architectures for compliance with standards]

Never (1)	7
Rarely (2)	27
Sometimes (3)	28
Usually (4)	16
Always (5)	3
Can't say (6)	0

AM2 (3)

In your EXPERIENCE how often does the architectural process formally
[Supply ongoing business metrics like TCO and ROI]

Never (1)	17
Rarely (2)	29
Sometimes (3)	26
Usually (4)	8
Always (5)	0
Can't say (6)	1

AM3 (1)

Does your organization's architecture programme?
[Include a formal governance model]

Yes (Y)	39
No (N)	30
Uncertain (U)	11

AM3 (2)

Does your organization's architecture programme?
[Manage the control criteria of the governance process]

Yes (Y)	20
No (N)	35
Uncertain (U)	25

AM3 (3)

Does your organization's architecture programme?
[Promote metrics at the expense of communication]

Yes (Y)	6
No (N)	51
Uncertain (U)	23

AG1 (1)

In relation to architectural issues, it can be said that the business understands [The need to balance agility with cohesion]

Strongly disagree (1)	11
Disagree (2)	25
Neither agree nor disagree (3)	18
Agree (4)	22
Strongly agree (5)	0

AG1 (2)

In relation to architectural issues, it can be said that the business understands
[The business case for Enterprise Architecture]

Strongly disagree (1)	12
Disagree (2)	24
Neither agree nor disagree (3)	21
Agree (4)	17
Strongly agree (5)	2

AG1 (3)

In relation to architectural issues, it can be said that the business understands [That complex problems require strategies to tackle them]

Strongly disagree (1)	5
Disagree (2)	18
Neither agree nor disagree (3)	13
Agree (4)	33
Strongly agree (5)	7

AG1 (4)

In relation to architectural issues, it can be said that the business understands [That the Enterprise Architecture must reflect the business strategy]

Strongly disagree (1)	7
Disagree (2)	10
Neither agree nor disagree (3)	26
Agree (4)	25
Strongly agree (5)	8

AG1 (5)

In relation to architectural issues, it can be said that the business understands [The scope of architecture]

Strongly disagree (1)	13
Disagree (2)	31
Neither agree nor disagree (3)	14
Agree (4)	16
Strongly agree (5)	2

AG1 (6)

In relation to architectural issues, it can be said that the business understands [The meaning and purpose of efficiency]

Strongly disagree (1)	8
Disagree (2)	17
Neither agree nor disagree (3)	18
Agree (4)	28
Strongly agree (5)	5

AG1 (7)

In relation to architectural issues, it can be said that the business understands [That the business must specify the EA strategy]

Strongly disagree (1)	14
Disagree (2)	34
Neither agree nor disagree (3)	16
Agree (4)	9
Strongly agree (5)	3

AG2 (1)

In your OPINION how important does your organization consider the following as aspects of an Enterprise Architecture Strategy?

[Being technology agnostic]

Not (1)	22
Reasonably (2)	16
Important (3)	14
Very (4)	14
Critical (5)	5
Can't say (6)	5

AG2 (2)

In your OPINION how important does your organization consider the following as aspects of an Enterprise Architecture Strategy?

[Having metrics that can be traced to the business strategy]

Not (1)	21
Reasonably (2)	23
Important (3)	16
Very (4)	11
Critical (5)	3
Can't say (6)	2

AG2 (3)

In your OPINION how important does your organization consider the following as aspects of an Enterprise Architecture Strategy?

[Risk management]

Not (1)	10
Reasonably (2)	23
Important (3)	21
Very (4)	9
Critical (5)	11
Can't say (6)	2

AG2 (4)

In your OPINION how important does your organization consider the following as aspects of an Enterprise Architecture Strategy?

[The breaking down of silos]

Not (1)	11
Reasonably (2)	20
Important (3)	17
Very (4)	19
Critical (5)	7
Can't say (6)	2

AG2 (5)

In your OPINION how important does your organization consider the following as aspects of an Enterprise Architecture Strategy?

[The enforcement of architecture compliance]

Not (1)	13
Reasonably (2)	21
Important (3)	17
Very (4)	19
Critical (5)	2
Can't say (6)	3

AG2 (6)

In your OPINION how important does your organization consider the following as aspects of an Enterprise Architecture Strategy?

[The incremental development of architectural capability]

Not (1)	14
Reasonably (2)	23
Important (3)	16
Very (4)	16
Critical (5)	4
Can't say (6)	3

AG2 (7)

In your OPINION how important does your organization consider the following as aspects of an Enterprise Architecture Strategy?

[Reduction of complexity]

Not (1)	8
Reasonably (2)	18
Important (3)	22
Very (4)	20
Critical (5)	6
Can't say (6)	2

AG2 (8)

In your OPINION how important does your organization consider the following as aspects of an Enterprise Architecture Strategy?

[The building of agility]

Not (1)	8
Reasonably (2)	17
Important (3)	18

Very (4)	16
Critical (5)	15
Can't say (6)	2

AG2 (9)

In your OPINION how important does your organization consider the following as aspects of an Enterprise Architecture Strategy?
[Linkages with external partners]

Not (1)	13
Reasonably (2)	23
Important (3)	12
Very (4)	17
Critical (5)	7
Can't say (6)	4

AD1 (1)

How important are the following considered to architectural practice
[The consideration of ALL stakeholders]

Not (1)	1
Reasonably (2)	11
Important (3)	20
Very (4)	26
Critical (5)	16
Can't say (6)	0

AD1 (2)

How important are the following considered to architectural practice
[The melding of stakeholder behaviour]

Not (1)	9
Reasonably (2)	15
Important (3)	23
Very (4)	21
Critical (5)	4
Can't say (6)	2

AD1 (3)

How important are the following considered to architectural practice
[The creation of a vision]

Not (1)	10
Reasonably (2)	7

Important (3)	15
Very (4)	20
Critical (5)	21
Can't say (6)	1

AD1 (4)

How important are the following considered to architectural practice
[The use of a framework]

Not (1)	17
Reasonably (2)	14
Important (3)	27
Very (4)	12
Critical (5)	3
Can't say (6)	1

AD1 (5)

How important are the following considered to architectural practice
[Framework place holders for undeveloped artefacts]

Not (1)	21
Reasonably (2)	16
Important (3)	20
Very (4)	10
Critical (5)	2
Can't say (6)	5

AD1 (6)

How important are the following considered to architectural practice
[A framework that includes business architecture]

Not (1)	13
Reasonably (2)	11
Important (3)	17
Very (4)	16
Critical (5)	13
Can't say (6)	4

AD1 (7)

How important are the following considered to architectural practice
[The inclusion of people, processes and organization]

Not (1)	3
---------	---

Reasonably (2)	11
Important (3)	21
Very (4)	20
Critical (5)	17
Can't say (6)	2

AD1 (8)

How important are the following considered to architectural practice
[A set of principles]

Not (1)	9
Reasonably (2)	8
Important (3)	21
Very (4)	20
Critical (5)	15
Can't say (6)	1

AD1 (9)

How important are the following considered to architectural practice
[A set of standards]

Not (1)	2
Reasonably (2)	12
Important (3)	28
Very (4)	21
Critical (5)	10
Can't say (6)	1

AD1 (10)

How important are the following considered to architectural practice
[The enterprise data model]

Not (1)	7
Reasonably (2)	17
Important (3)	21
Very (4)	17
Critical (5)	12
Can't say (6)	0

CP2 (1)

How important are the following aspects of architectural method considered
[Specific, rigorous methods and techniques]

Not (1)	15
---------	----

Reasonably (2)	22
Important (3)	25
Very (4)	8
Critical (5)	1
Can't say (6)	0

CP2 (2)

How important are the following aspects of architectural method considered
[Techniques for analysing models]

Not (1)	16
Reasonably (2)	20
Important (3)	25
Very (4)	10
Critical (5)	0
Can't say (6)	0

CP2 (4)

How important are the following aspects of architectural method considered
[Peer review]

Not (1)	7
Reasonably (2)	7
Important (3)	18
Very (4)	20
Critical (5)	15
Can't say (6)	2

CP2 (3)

How important are the following aspects of architectural method considered
[The use of industry developed techniques - not home grown]

Not (1)	9
Reasonably (2)	15
Important (3)	25
Very (4)	17
Critical (5)	3
Can't say (6)	2

CP2 (5)

How important are the following aspects of architectural method considered
[That the AS-IS state is drawn from configurations]

Not (1)	11
---------	----

Reasonably (2)	14
Important (3)	23
Very (4)	13
Critical (5)	3
Can't say (6)	7

CP2 (6)

How important are the following aspects of architectural method considered
[That the process provides a TO-BE state]

Not (1)	5
Reasonably (2)	10
Important (3)	18
Very (4)	22
Critical (5)	15
Can't say (6)	1

CP2 (7)

How important are the following aspects of architectural method considered
[The use of gap analysis]

Not (1)	3
Reasonably (2)	14
Important (3)	19
Very (4)	28
Critical (5)	7
Can't say (6)	0

CP2 (8)

How important are the following aspects of architectural method considered
[The collection of metrics]

Not (1)	14
Reasonably (2)	15
Important (3)	23
Very (4)	14
Critical (5)	5
Can't say (6)	0

CP2 (9)

How important are the following aspects of architectural method considered
[The recording of problems]

Not (1)	7
---------	---

Reasonably (2)	18
Important (3)	16
Very (4)	19
Critical (5)	11
Can't say (6)	0

CP2 (10)

How important are the following aspects of architectural method considered
[The identification of inaccurate data]

Not (1)	9
Reasonably (2)	17
Important (3)	16
Very (4)	21
Critical (5)	7
Can't say (6)	1

CP2 (11)

How important are the following aspects of architectural method considered
[A good method that fosters commitment to architecture]

Not (1)	11
Reasonably (2)	11
Important (3)	15
Very (4)	20
Critical (5)	13
Can't say (6)	1

CM1 (1)

How important are the following aspects of architectural management and
Strategy considered [An integrated lifecycle]

Not (1)	9
Reasonably (2)	16
Important (3)	25
Very (4)	13
Critical (5)	5
Can't say (6)	0

CM1 (2)

How important are the following aspects of architectural management and
Strategy considered [Portfolio management]

Not (1)	6
---------	---

Reasonably (2)	16
Important (3)	26
Very (4)	15
Critical (5)	4
Can't say (6)	1

CM1 (3)

How important are the following aspects of architectural management and Strategy considered [A carefully planned target state]

Not (1)	7
Reasonably (2)	13
Important (3)	25
Very (4)	15
Critical (5)	7
Can't say (6)	1

CM1 (4)

How important are the following aspects of architectural management and Strategy considered [The formal harvesting of assets]

Not (1)	14
Reasonably (2)	20
Important (3)	18
Very (4)	11
Critical (5)	4
Can't say (6)	1

CM1 (5)

How important are the following aspects of architectural management and Strategy considered [Collaboration - that reduces formal reviews]

Not (1)	12
Reasonably (2)	11
Important (3)	22
Very (4)	18
Critical (5)	5
Can't say (6)	0

CM1 (6)

How important are the following aspects of architectural management and Strategy considered [Formal reviews]

Not (1)	5
---------	---

Reasonably (2)	15
Important (3)	28
Very (4)	17
Critical (5)	3
Can't say (6)	0

CM1 (7)

How important are the following aspects of architectural management and Strategy considered [That reviews be a win/win process]

Not (1)	6
Reasonably (2)	11
Important (3)	20
Very (4)	19
Critical (5)	10
Can't say (6)	2

CM1 (8)

How important are the following aspects of architectural management and Strategy considered [That architects NOT hold a technocratic world view]

Not (1)	11
Reasonably (2)	5
Important (3)	13
Very (4)	15
Critical (5)	22
Can't say (6)	2

CM1 (9)

How important are the following aspects of architectural management and Strategy considered [A governance process that decides what will be done and how]

Not (1)	8
Reasonably (2)	13
Important (3)	24
Very (4)	16
Critical (5)	6
Can't say (6)	1

CM1 (10)

How important are the following aspects of architectural management and Strategy considered [Architects who lead]

Not (1)	10
---------	----

Reasonably (2)	7
Important (3)	9
Very (4)	22
Critical (5)	19
Can't say (6)	1

CM1 (11)

How important are the following aspects of architectural management and strategy considered [The use of exceptions to improve the governance process]

Not (1)	10
Reasonably (2)	13
Important (3)	25
Very (4)	14
Critical (5)	6
Can't say (6)	0

CM1(12)

How important are the following aspects of architectural management and strategy considered [Architects that prepare the organization for change]

Not (1)	8
Reasonably (2)	11
Important (3)	18
Very (4)	18
Critical (5)	12
Can't say (6)	1

CM1(13)

How important are the following aspects of architectural management and strategy considered [A strategic capabilities architecture]

Not (1)	9
Reasonably (2)	9
Important (3)	12
Very (4)	22
Critical (5)	13
Can't say (6)	3

CM1(14)

How important are the following aspects of architectural management and strategy considered [A strategic framework]

Not (1)	11
---------	----

Reasonably (2)	10
Important (3)	22
Very (4)	16
Critical (5)	5
Can't say (6)	4

CM1 (15)

How important are the following aspects of architectural management and strategy considered [The identification of domain overlaps]

Not (1)	9
Reasonably (2)	14
Important (3)	23
Very (4)	15
Critical (5)	7
Can't say (6)	0

CM1 (16)

How important are the following aspects of architectural management and strategy considered [Making the validation of IT architectures easy]

Not (1)	7
Reasonably (2)	11
Important (3)	21
Very (4)	22
Critical (5)	6
Can't say (6)	1

BK1 (1)

To what extent do you agree / disagreed with the following statements [Enterprise Architecture is not simple]

Strongly disagree (1)	5
Disagree (2)	2
Neither agree nor disagree (3)	10
Agree (4)	25
Strongly agree (5)	26

BK1 (2)

To what extent do you agree / disagreed with the following statements [Business people cannot do Enterprise Architecture]

Strongly disagree (1)	8
Disagree (2)	17

Neither agree nor disagree (3)	27
Agree (4)	11
Strongly agree (5)	5

BK1 (3)

To what extent do you agree / disagreed with the following statements
[The benefits of Enterprise Architecture are obvious]

Strongly disagree (1)	4
Disagree (2)	31
Neither agree nor disagree (3)	15
Agree (4)	17
Strongly agree (5)	0

BK1 (4)

To what extent do you agree / disagreed with the following statements
[Any business involvement is better than none]

Strongly disagree (1)	5
Disagree (2)	9
Neither agree nor disagree (3)	6
Agree (4)	34
Strongly agree (5)	14

BK1 (5)

To what extent do you agree / disagreed with the following statements
[An Information Systems plan alone will do]

Strongly disagree (1)	17
Disagree (2)	41
Neither agree nor disagree (3)	7
Agree (4)	2
Strongly agree (5)	1

BK1 (6)

To what extent do you agree / disagreed with the following statements
[Inexperience is a major inhibitor to Enterprise Architecture]

Strongly disagree (1)	2
Disagree (2)	5
Neither agree nor disagree (3)	11
Agree (4)	32
Strongly agree (5)	18

BK1 (7)

To what extent do you agree / disagreed with the following statements
[It is important that organizational leaders understand Enterprise Architecture]

Strongly disagree (1)	1
Disagree (2)	3
Neither agree nor disagree (3)	7
Agree (4)	34
Strongly agree (5)	23

BP1 (1)

In your organization how often is Enterprise Architecture used to
[Inform the management process]

Never (1)	9
Rarely (2)	18
Sometimes (3)	17
Usually (4)	17
Always (5)	2
Can't say (6)	5

BP1 (2)

In your organization how often is Enterprise Architecture used to
[Define the business architecture to clarify strategy or structure]

Never (1)	15
Rarely (2)	17
Sometimes (3)	16
Usually (4)	10
Always (5)	6
Can't say (6)	4

BP1 (3)

In your organization how often is Enterprise Architecture used to
[Determine the data intensity of a product]

Never (1)	17
Rarely (2)	17
Sometimes (3)	19
Usually (4)	10
Always (5)	2
Can't say (6)	3

BP1 (4)

In your organization how often is Enterprise Architecture used to
[Develop communications plans]

Never (1)	16
Rarely (2)	20
Sometimes (3)	20
Usually (4)	9
Always (5)	1
Can't say (6)	2

BP1 (5)

In your organization how often is Enterprise Architecture used to
[Communicate with developers]

Never (1)	4
Rarely (2)	9
Sometimes (3)	23
Usually (4)	21
Always (5)	9
Can't say (6)	2

BP1 (6)

In your organization how often is Enterprise Architecture used to
[Align requirements, design and code]

Never (1)	4
Rarely (2)	20
Sometimes (3)	15
Usually (4)	20
Always (5)	7
Can't say (6)	2

BP1 (7)

In your organization how often is Enterprise Architecture used to
[Develop a business vocabulary]

Never (1)	12
Rarely (2)	13
Sometimes (3)	23
Usually (4)	12
Always (5)	6
Can't say (6)	2

BP1 (8)

In your organization how often is Enterprise Architecture used to
[Identify stakeholders]

Never (1)	12
Rarely (2)	11
Sometimes (3)	20
Usually (4)	10
Always (5)	12
Can't say (6)	3

BS1 (1)

How important do you PERSONALLY consider the following
[An authoritative governance team]

Not (1)	4
Reasonably (2)	13
Important (3)	20
Very (4)	21
Critical (5)	10
Can't say (6)	0

BS1 (2)

How important do you PERSONALLY consider the following
[A cross organizational architecture board]

Not (1)	2
Reasonably (2)	7
Important (3)	19
Very (4)	23
Critical (5)	17
Can't say (6)	0

BS1 (3)

How important do you PERSONALLY consider the following
[The chief architect reporting to the CEO]

Not (1)	16
Reasonably (2)	10
Important (3)	13
Very (4)	16
Critical (5)	11
Can't say (6)	2

BS1 (4)

How important do you PERSONALLY consider the following
[The chief architect reporting to the CIO]

Not (1)	7
Reasonably (2)	6
Important (3)	10
Very (4)	22
Critical (5)	22
Can't say (6)	1

BS1 (5)

How important do you PERSONALLY consider the following
[Sponsors throughout the organization]

Not (1)	2
Reasonably (2)	5
Important (3)	15
Very (4)	20
Critical (5)	25
Can't say (6)	1

BS1 (6)

How important do you PERSONALLY consider the following
[Architects positioned in the business]

Not (1)	2
Reasonably (2)	7
Important (3)	18
Very (4)	22
Critical (5)	18
Can't say (6)	1

BS1 (7)

How important do you PERSONALLY consider the following
[The engagement of developers and stakeholders]

Not (1)	1
Reasonably (2)	4
Important (3)	5
Very (4)	21
Critical (5)	37
Can't say (6)	0

BM1 (1)

How important do you PERSONALLY consider the following
[A credible architectural leader]

Not (1)	1
Reasonably (2)	2
Important (3)	10
Very (4)	20
Critical (5)	33
Can't say (6)	1

BM1 (2)

How important do you PERSONALLY consider the following
[That conflicting organizational goals be surfaced]

Not (1)	0
Reasonably (2)	3
Important (3)	18
Very (4)	33
Critical (5)	13
Can't say (6)	0

BM1 (3)

How important do you PERSONALLY consider the following
[That architecture is congruent with organizational maturity]

Not (1)	0
Reasonably (2)	4
Important (3)	17
Very (4)	22
Critical (5)	22
Can't say (6)	2

BM1 (4)

How important do you PERSONALLY consider the following
[The communication of the architecture]

Not (1)	1
Reasonably (2)	2
Important (3)	6
Very (4)	25
Critical (5)	33
Can't say (6)	0

BM1 (5)

How important do you PERSONALLY consider the following
[That EA manage organizational change]

Not (1)	6
Reasonably (2)	13
Important (3)	25
Very (4)	19
Critical (5)	2
Can't say (6)	2

BM1 (6)

How important do you PERSONALLY consider the following
[The management of architectural exceptions]

Not (1)	1
Reasonably (2)	6
Important (3)	25
Very (4)	26
Critical (5)	9
Can't say (6)	0

BM1 (7)

How important do you PERSONALLY consider the following
[That architectural principles be accepted by the business]

Not (1)	3
Reasonably (2)	4
Important (3)	17
Very (4)	21
Critical (5)	21
Can't say (6)	1

BM1 (8)

How important do you PERSONALLY consider the following
[That the architects develop links with the business]

Not (1)	0
Reasonably (2)	3
Important (3)	6
Very (4)	20
Critical (5)	37
Can't say (6)	1

BM1 (9)

How important do you PERSONALLY consider the following
[That architecture is considered an investment]

Not (1)	1
Reasonably (2)	2
Important (3)	8
Very (4)	25
Critical (5)	31
Can't say (6)	0

BM1 (10)

How important do you PERSONALLY consider the following
[That the executive buy into governance]

Not (1)	1
Reasonably (2)	1
Important (3)	13
Very (4)	23
Critical (5)	27
Can't say (6)	2

BM1 (11)

How important do you PERSONALLY consider the following
[That governance is proactively designed]

Not (1)	1
Reasonably (2)	2
Important (3)	15
Very (4)	28
Critical (5)	12
Can't say (6)	7

BM1 (12)

How important do you PERSONALLY consider the following
[That business adheres to the enterprise architecture]

Not (1)	2
Reasonably (2)	4
Important (3)	16
Very (4)	23
Critical (5)	15
Can't say (6)	5

BG1 (1)

How important are the following considered
[Business involvement in IT planning]

Not (1)	3
Reasonably (2)	7
Important (3)	12
Very (4)	24
Critical (5)	7
Can't say (6)	4

BG1 (2)

How important are the following considered
[The balancing of short and long-term objectives]

Not (1)	4
Reasonably (2)	5
Important (3)	7
Very (4)	28
Critical (5)	9
Can't say (6)	4

BG1 (3)

How important are the following considered
[Business support for EA]

Not (1)	5
Reasonably (2)	6
Important (3)	10
Very (4)	20
Critical (5)	11
Can't say (6)	5

BG1 (4)

How important are the following considered
[IT support for EA]

Not (1)	4
Reasonably (2)	2
Important (3)	14
Very (4)	20
Critical (5)	12
Can't say (6)	5

BG1 (5)

How important are the following considered

[An executive sponsor for EA]

Not (1)	3
Reasonably (2)	4
Important (3)	6
Very (4)	15
Critical (5)	22
Can't say (6)	7

BG1 (6)

How important are the following considered

[That EA is established at the enterprise level not at an IT level]

Not (1)	5
Reasonably (2)	4
Important (3)	8
Very (4)	16
Critical (5)	15
Can't say (6)	9

BG1 (7)

How important are the following considered

[That the CIO & CFO understand that EA is about organizational change]

Not (1)	6
Reasonably (2)	6
Important (3)	7
Very (4)	17
Critical (5)	14
Can't say (6)	7

BG1 (8)

How important are the following considered

[That the move from silos to enterprise is understood by the business]

Not (1)	2
Reasonably (2)	4
Important (3)	7
Very (4)	22
Critical (5)	15
Can't say (6)	7

BG1 (9)

How important are the following considered
[That EA is not seen as money taken away from business or IT]

Not (1)	2
Reasonably (2)	6
Important (3)	8
Very (4)	14
Critical (5)	19
Can't say (6)	8

BD1 (1)

How important are the following considered
[That architecture be user centric]

Not (1)	6
Reasonably (2)	9
Important (3)	9
Very (4)	24
Critical (5)	3
Can't say (6)	6

BD1 (2)

How important are the following considered
[That architects engage the development teams]

Not (1)	1
Reasonably (2)	6
Important (3)	17
Very (4)	17
Critical (5)	13
Can't say (6)	4

BD1 (3)

How important are the following considered
[That architects engage the business]

Not (1)	1
Reasonably (2)	3
Important (3)	5
Very (4)	24
Critical (5)	21
Can't say (6)	4

BD1 (4)

How important are the following considered
[That executives understand data]

Not (1)	6
Reasonably (2)	13
Important (3)	14
Very (4)	14
Critical (5)	5
Can't say (6)	6

BD1 (5)

How important are the following considered
[That the architects consult widely]

Not (1)	2
Reasonably (2)	6
Important (3)	9
Very (4)	19
Critical (5)	17
Can't say (6)	5

BD1 (6)

How important are the following considered
[That architects sell the purpose and value of architecture]

Not (1)	4
Reasonably (2)	4
Important (3)	11
Very (4)	17
Critical (5)	16
Can't say (6)	5

BD1 (7)

How important are the following considered
[That opinion leaders be architecturally educated]

Not (1)	6
Reasonably (2)	6
Important (3)	11
Very (4)	22
Critical (5)	5
Can't say (6)	7

BD1 (8)

How important are the following considered
[That managers be educated about architecture]

Not (1)	7
Reasonably (2)	5
Important (3)	17
Very (4)	19
Critical (5)	5
Can't say (6)	4

BD1 (9)

How important are the following considered
[The idea that EA and business strategy are one and the same]

Not (1)	10
Reasonably (2)	6
Important (3)	9
Very (4)	11
Critical (5)	12
Can't say (6)	9

BD1 (10)

How important are the following considered
[That the architects know how to get buy in]

Not (1)	4
Reasonably (2)	3
Important (3)	6
Very (4)	20
Critical (5)	16
Can't say (6)	8

BD1 (11)

How important are the following considered
[That the seeds of ideas are planted early]

Not (1)	4
Reasonably (2)	4
Important (3)	13
Very (4)	19
Critical (5)	9
Can't say (6)	8

BD1 (12)

How important are the following considered
[That only the important battles are fought]

Not (1)	3
Reasonably (2)	7
Important (3)	10
Very (4)	19
Critical (5)	13
Can't say (6)	5

BD1 (13)

How important are the following considered
[That suppliers are part of the architectural process]

Not (1)	8
Reasonably (2)	14
Important (3)	10
Very (4)	17
Critical (5)	3
Can't say (6)	5

BD1 (14)

How important are the following considered
[That architects are careful not to bore the business to death]

Not (1)	4
Reasonably (2)	6
Important (3)	17
Very (4)	10
Critical (5)	15
Can't say (6)	5

BD1 (15)

How important are the following considered
[That architecture operates in an open environment]

Not (1)	5
Reasonably (2)	3
Important (3)	11
Very (4)	17
Critical (5)	15
Can't say (6)	6

BD1 (16)

How important are the following considered
[That resistance to central planning is overcome]

Not (1)	6
Reasonably (2)	7
Important (3)	16
Very (4)	15
Critical (5)	6
Can't say (6)	7

BD1 (17)

How important are the following considered
[An awareness of political divisions]

Not (1)	1
Reasonably (2)	2
Important (3)	7
Very (4)	26
Critical (5)	15
Can't say (6)	6

BD1 (18)

How important are the following considered
[An awareness of executive resistance]

Not (1)	2
Reasonably (2)	3
Important (3)	9
Very (4)	23
Critical (5)	14
Can't say (6)	6

BD1 (19)

How important are the following considered
[An awareness of resistance to new ideas / change]

Not (1)	2
Reasonably (2)	2
Important (3)	9
Very (4)	23
Critical (5)	14
Can't say (6)	7

BD1 (20)

How important are the following considered

[An awareness of asking people to make changes that are not to their advantage]

Not (1)	3
Reasonably (2)	4
Important (3)	10
Very (4)	23
Critical (5)	10
Can't say (6)	7

BD1 (21)

How important are the following considered

[An awareness of a fear of loss of control or ownership]

Not (1)	3
Reasonably (2)	4
Important (3)	13
Very (4)	22
Critical (5)	8
Can't say (6)	7

BD1 (22)

How important are the following considered

[An awareness of resistance to analytical approaches]

Not (1)	2
Reasonably (2)	9
Important (3)	12
Very (4)	19
Critical (5)	8
Can't say (6)	7

BD1 (23)

How important are the following considered

[An awareness of the appearance that architecture is a grab for power]

Not (1)	7
Reasonably (2)	6
Important (3)	11
Very (4)	18
Critical (5)	5
Can't say (6)	10

BD1 (24)

How important are the following considered

[An awareness of architecture being considered an IT problem only]

Not (1)	4
Reasonably (2)	4
Important (3)	12
Very (4)	15
Critical (5)	15
Can't say (6)	7

BD1 (25)

How important are the following considered

[Architecture being considered an investment not a cost]

Not (1)	4
Reasonably (2)	3
Important (3)	9
Very (4)	21
Critical (5)	15
Can't say (6)	5

BD1 (26)

How important are the following considered

[The organization's culture be compatible with architecture]

Not (1)	4
Reasonably (2)	10
Important (3)	10
Very (4)	18
Critical (5)	11
Can't say (6)	4

BD1 (27)

How important are the following considered

[That EA and change are profoundly interconnected]

Not (1)	3
Reasonably (2)	5
Important (3)	12
Very (4)	22
Critical (5)	8
Can't say (6)	7

BD1 (28)

How important are the following considered
[That business considers architectural issues as important]

Not (1)	5
Reasonably (2)	3
Important (3)	13
Very (4)	24
Critical (5)	7
Can't say (6)	5

OD1 Which of these best describes your organization's principal business?

National / Federal Government (01)	1
Regional / State Government (02)	1
Local Government (03)	0
Defence / Aerospace (04)	1
Health (06)	6
Education (07)	1
Banking (08)	5
Insurance (09)	3
Financial Services (10)	5
Industrial / Manufacturing (11)	3
Utilities (12)	3
Retail (13)	1
Transportation / Travel (14)	3
Pharmaceutical (15)	2
Telecommunications (16)	2
IT Vendor / Outsourcer (17)	12
IT Consulting (18)	18
Other 5	

OD2 Approximately how many people work in your organization?

Calculation Result

Count	70
Sum	1362340
Standard deviation	40421.02
Average	19462
Minimum	1
1st quartile (Q1)	487.5
2nd quartile (Median)	650
3rd quartile (Q3)	14750
Maximum	300000

OD3 Approximately how many of those people have IT roles?

Calculation Result

Count	70
Sum	259478
Standard deviation	12891.06
Average	3706.83
Minimum	0
1st quartile (Q1)	185.75
2nd quartile (Median)	187.5
3rd quartile (Q3)	1250
Maximum	100000

OD4 Approximately how many are architects?

Calculation Result

Count	70
Sum	5980
Standard deviation	266.95
Average	85.43
Minimum	1
1st quartile (Q1)	16.25
2nd quartile (Median)	7.5
3rd quartile (Q3)	50
Maximum	2000

OD5 Your organization has its headquarters in?

Australia (1)	19
Canada (2)	2
Finland (4)	1
India (6)	2
Malaysia (9)	1
Netherlands (10)	2
Russia (11)	2
Sweden (12)	3
United Kingdom (13)	5
United States (14)	19
Other	14

OD6 which of these best describes your organization's business strategy?

Global - There is a consistent strategy for all countries (1)	12
Multinational - Strategy varies across countries (2)	21
National - The organization operates in a single country (3)	19
Regional - The organization only operates in one or	

more regions of a single country (4)	12
Local - The organization operates in a single centre (5)	6
Other	0

OD7 which of these best describes your organization's business model?

A single business enterprise (1)	41
A conglomerate operating multiple businesses (2)	26
A franchise operation (3)	2
Other	1

OD8 which of these best describes your organization's IT function?

Centralized control and execution (1)	30
Decentralized control and execution (2)	14
Centralized control and decentralized execution (3)	21
Decentralized control and centralized execution (4)	4
Other	1

13 APPENDIX D – INTERVIEW METHOD

The interviews were conducted in unstructured format, (Ritchie and Lewis 2010: 144 -146).

The interviews were preceded by the posing van den Berg and van Steenbergen's (2006: 61) architectural review questions which positioned the interviewee's architectural programme on the Quadrant model (Wagter et al. 2005). These assessments confirmed previous assessments made by the researcher during the interviewee selection process.

The interviewees were not informed about these assessments, and to our knowledge were not familiar with the van den Berg and Van Steenbergen's questions, curiously none inquired about them.

- In our organization, architecture is a part of the management agenda
- A new version of our organization's architecture has been issued in recent years
- Architects and business representatives are in regular contact with each other
- I think that at least half of the architectural initiatives in our organization have a business sponsor
- I know which director is responsible for architecture
- Our architectural process is regularly evaluated
- I think that at least a quarter of the organization has immediate access to the most recent version of the architecture
- In our organization architecture plays an important role in decisions about projects
- An architect is involved in at least half of the projects at our organization
- Our architects have a customer-focused attitude
- Completion of a project is only acknowledged after an architecture review has been performed on the project
- Non-compliance with architecture results at least in being asked to justify the non-compliance.

14 APPENDIX E – TRANSCRIPTS AND INTERVIEW NOTES

This appendix contains the transcripts and notes on the interviews undertaken during this research. Typically the entire interview is transcribed; however in some instances irrelevant sections are not transcribed this is indicated thus (Truncated ... explanation). Those sections remain on the original recordings. The names of organizations and individuals have been changed in the transcripts but remain may remain on the recordings. One interview was recorded by manually by hand written notes. In addition there are notes from informal encounters with one interviewee over the cause of a real project.

Each transcript identifies the participant and the recording in as its title. The participants are identified by a unique randomly selected name. Recordings are uniquely labelled thus VN86#### for example VN860005. The names and labels have no significance.

Timestamps in minutes and seconds from the start of the recordings are indicated in the format <mm:ss> for example <25:15> occurs approximately 25 minutes and 15s second after the start of the recording. The words of the interviewer are in italics.

14.1 Participant: IAN - Recording: VN860005

<3:04> We need to think about what type of architecture we're talking about because it's become such a general and vague term that it now encompasses a fairly wide spectrum of the IT life-cycle IT world and depending on which part of talking about you'll get a different answer.

So there is enterprise architecture which is what we're sort of talking about is a more centralized and future focused activity, um, while having a current, um, inventory keeping aspect as well.

That's a very different thing from solution architecture which is more like what used to be called design and what and that again is different from what, agh network design and data modelling and those sorts of things which people also call architecture.

So depending on which of those were talking about, plus various other flavours which I have mentioned, agh, different things make them successful or make them fail.

So what was the question again?

Well perhaps you'd like to address it in those levels; I'm totally in agreement with you. The point is that architecture is very large term and exactly what it is is sometimes hard to say.

Yes, I went to a conference last year, and there was breakout session and the guy asked in this room of about 30 people who still writes code on a regular basis, on a daily basis and 29 hands went up I didn't I was the only person there who didn't write code on a daily basis.

So what we used to call programmer analysts are now calling themselves architects and so architecture has drifted down towards the program design end of IT activities.

So, um, we need to try to keep ourselves at the other end and when we talk about enterprise architecture and one of its elements which is solution architecture.

So, (pause), the more I do enterprise architecture the less I'm convinced of its value in most organizations, least in organizations the size of XXXX, which is modest.

Um, for an organization the size of a Westpac or the Commonwealth Bank is big enough to make it necessary to do enterprise architecture, big enough to support the activity on an ongoing basis.

Places like XXXX which is a modestly sized organization, is not big enough I don't think to support a full-time enterprise architecture function and not big enough to need a full-time enterprise architect, it's the sort of thing, as it did in the past that you could bring in a bunch of consultants to spend six months crawling over it, over it and producing for you a "to be" and a current architecture assessment and so forth and so on and then off they go again.

And you chew on that for five years until it's all mangled up and then you get another one.

There is um, I don't think agh, there is much value in having a continuous, um, activity for an organization as modestly sized as ours.

So you see it as distinct, um projects probably done by outsiders?

Agh, the enterprise architecture part of specifying your future architecture vision and the roadmap to get to it, your current architecture inventory is something that, that can be done periodically it doesn't need to be a continuous process.

Larger organizations would benefit from and would require a continuous process but don't think smaller organizations do.

Um, so what makes them successful was the question, would be, (pause) a match between what the organization, um would benefit from or need and what the organization can deliver in terms of enterprise architecture, because if it delivers way more than the organization needs then they are wasting their time and money and the architects are seen as being a useless and superfluous (pause) if they are not keeping up with what the organization's needs then the organization's going to become a bit rudderless and a bit haphazard and a bit arbitrary in how it does its architecting and how it builds its systems and how it meets its business needs.

So, it's a question of matching the scale of enterprise architecture initiative the scale of the architecture itself which is driven by the size of the organization.

So you need to make sure that the scale of both the organization and enterprise architecture are matched in order for it to be successful.

In that scenario where you bring outsiders in, consultants and they draw up this enterprise architecture to the roadmap and perhaps even the blueprints and off execution goes. Isn't there still a monitoring

function in that though?

Correct! And so that's something that one person might do two or three hours a week sort of thing.

So when something comes up its monitoring or needs approval or needs changing or needs maintenance then um, they can do that.

It's, I mean that can be done and as part of more broadly based or more broadly focused architecture initiative.

So the pure enterprise architect looking at future state and roadmaps and current state and all the rest of it agh, for those scales of organizations doesn't, while it is probably still, valuable and useful doesn't need to be a full-time activity or dedicated activity it's something somebody can do as part of the daily stuff.

When needed as and when needed

< 9:30> So, um, and that's also to some extent an extension of the next layer of architecture we talked about which is solution architecture while um the individual projects have their solution architects designing their solutions or building their solutions or whatever, agh, being overseen by a centralized if you like enterprise solution architect and make sure that those various sundry designs and activities remain aligned.

To the type of architecture and remain agh moving along the roadmap towards a target architecture that is really a solution architecture oversight agh, and that's, I've seen organizations where that's for example had a solution architecture unit that did exactly that separate from the enterprise architecture unit.

Who were looking after the future state roadmap and all the rest of it so the enterprise solution architects did that governance role, the enterprise architects never saw any of the solutions and solution architects, the central ones, the enterprise ones never did need to do the designs themselves so they're like the bridge if you like between the target and the actual.

Now in a small organization like ours that can be our main role with the occasional enterprise architecture maintenance thrown in.

Every now and then a new technology will come along that we need to assess and decide whether and how it is appropriate to use it.

For example, that's an enterprise architecture agh, activity you might say that we would perform from time to time.

We can't spend all our lives running around looking at technologies we might want to use in case and speaking to vendors just because we can, because ultimately 90% of them you look at and say well that's nice but we don't need it. So, go away, sort of thing.

Um, we spend a lot of time talking to vendors about technologies we don't care about um, disruptive or otherwise.

That's something we need to be careful about wasting time on, such organizations, um and the other thing I guess that makes them successful would be agh (long pause) making sure they provide value for the rest of the IT function.

Because, quite, a lot of the time IT people who are running around building computer systems don't need or care about architecture too much, there is a limit to how much they need and you can get quite excited about thrusting architecture upon people whether they like it or not, um, whether they need it or not and so we need to be careful that we aren't burdening people with an architecture they don't need or that we aren't wasting our time in ivory tower activities, pursuits that don't add value to what other people are doing working end to end at cross purposes to what the real value that might be added could do.

And that includes right up to the CIO agh, if the CIO doesn't understand what enterprise architecture is or does then they are not going to support what it is does and are not going to understand how it ought to be applied across the organization.

Um, (cough), and those two things are important for its success, I think.

The CIO understands it?

Um, and its remaining relevant to the needs of the IT organization and to the business as well, cause quite often, um a lot of the mismatch comes where agh, business has this great plans with what they do and where they want to send the organization but unless the enterprise architects or the um architects

in general know what that is agh, you can get some fairly exciting mismatches occurring.

Managing those mismatches is an issue?

Identifying them is not easy but when they're identified then it can become agh, interesting to try either to convince the business that what they are asking for is crazy talk or saying agh, gosh um, you know things have moved on since we did our last target roadmap X years ago whenever that was we need to make an adjustment to a in order to steer the ship somewhat towards where are direction might be agh, that might mean that perhaps the one off activity that I described agh, doing your enterprise architecture periodically might have to be done more often.

Or we might need to do a more major update to it from time to time um, it doesn't mean it has to become continuous but it does mean perhaps you need to monitor that it doesn't drift in the meantime agh.

For example we did our last agh, enterprise architecture activity we last defined the target and the roadmap in 2005 I did an assessment about two years ago of how much it had drifted and there were maybe five areas that were different since then.

Out of how many across?

agh there's 150 page document of which five (long pause) recommendations um, um either were the the, five things we were doing weren't in there or five things it says to do we weren't going to do anymore or didn't apply for example, um the document said um, we're going to keep our current finance system its perfectly fine there is nothing to worry about since then it's, it's broken and we need to replace it with a new finance system, okay so that's one area of drift in that, in that five years the um, the finance system has become obsolete and needs to be replaced.

So, that needs to be reflected in the architecture at the time they said once we've done all this our mainframe can be used as a database engine, keep it around for that or something, since then we've decided we're not really big enough to have a mainframe after all.

Once the migrations have occurred we aren't going to need it anymore, so while we could use it for a database engine if we wanted to it would be a lot easier just turn the thing off and throw it away or sell it to someone. Use it for firewood or something.

Um, so those kinds of of, drifts in technology and in um, mostly in technology, um need to be taken account.

For organizations despite what most people think don't change their fundamental function very much and XXXX still today does what it did five years ago um, it doesn't radically change.

A Telecom organization doesn't start manufacturing cars after five years those sort of changes that would influence the architecture really don't happen as much as people suggest um, really all that happened at XXXX is we have taken on agh um, XXXX's scope has grown as the government throws more responsibilities at us and so there are extra things we are doing now that we weren't doing before but they are the same type of things we did before anyway.

Agh, for example, XXXX maintains registers of various types of people and various types of entities involved in the Australian business scene we were asked recently to keep the registry and a license of credit providers we didn't do that before all right so we've written a few programs to maintain a credit licensing, a credit provider licensing system and a database of agh and that's all well and good but ultimately that's another instance of the sorts of things XXXX was already doing anyway we're already maintaining liquidators for example all registered agents for example all those sorts of things this is just another one of those, so so, it's most of the changes occur in organizations is more of the same rather than a different same.

And so agh, there isn't a lot of change to the business to business architecture that layer of it that really makes a big difference to us, so they may just decide that they want to do the same differently so what changes is the channels through which the business is done.

So in that effects effects, the technologies that are used to deliver that function whereas before agh, a call centre um, call centre um a processing centre would receive paper forms in the mail that a person, um, a room full of monkeys then sits down and types in the details in on the green screens there now trying to say well people should be able to do that same function agh through the interweb (Joke means internet) agh electronically which means you no longer need a room full of monkeys, that's fine um, but we need to provide an ability for people, a front-end for people to use to enter that same data that that they would have otherwise written on a form the backend function remains identical.

The business function around that remains identical all that's changed is the delivery and the technology

to um, support that delivery and so um those are the areas where we need to maintain agh focus on drift, but that's again a minor thing, not necessarily a big deal.

Keeping an eye on those sorts of things I guess can help with successful enterprise architecture.

So that's more a monitoring?

It's a monitoring well that's one of the areas where being in concert with the business is helpful.

Because it's the business who have ideas and get feedback from the customer that we don't get about you know what filling in these forms is tiresome why can't we have an electronic way of doing it, the business get the feedback we don't as businesses say agh you know what if we did that then we wouldn't need this roomful of monkeys um, so hey IT why don't you provide this function for us. And off we go.

Um, the other side of the coin we might say to the business you know business we can provide you with an electronic front end to this venture, want us to do that and they might say no I'm sorry um, it has to be on a paper form cause it's written in stone and in the legislation that it must be and what's more that paper has to be white and the writing has to be black. Um, in which case we'll go oh um we tried see you later.

So there is a bit of a resistance from both directions and that we have to make sure that we provide what the business wants but we don't provide for what the business doesn't want.

So it's all too easy for IT people to get carried away and provide a wonderful you beaut wizzo electric solution, solution to solve a problem that doesn't exist, [you] have to be careful about that, providing a great solution in search of a problem.

One of the growing agh, growing areas that we need to remain in contact with the business with is um, social computing in that the rise of things like, like twatter (Joke Twitter) and Facebook and all those sorts of things are getting [the visitor] excited we need to make sure we keep them all clear about what types of functions those really are and what disadvantages they carry if they want to head off down an electric direction that is just not right for what we want to do and so, but that's again becomes a channel that's again a type of providing more channels to support a function that we already have

It's kind of rare that even those kinds of new electric (Joke) functions are going to provide will give rise

to a whole new business function that you don't already have in oppose to being either way of delivering information that you already have anyway.

<22:19> For example XXXX currently might issue a brochure that people can either download as PDF and print go to an XXXX office and pick up a paper copy of or whatever you want to provide blogs for example all websites through which the same information could be delivered or Twitters to tell people they exist that's all and good but it doesn't change the underlying function of providing that kind of information to the public so again.

Say well that's nice um, you guys might be excited by it but from an IT perspective is just another channel why should we care either yes get on with it or you better not get on with it because it's dangerous or yes will help you in this way or knock yourself out it's got nothing to do with IT for example the business wants to go and set up their own Facebook page to put stuff on to a head.

< 23:11> IT can't help that exercise. And the business had decided against sending out updates and alerts and alarms (cough) information through twatter (Joke Twitter). And again, knock yourselves out; enjoy yourselves there is nothing that IT can do to help you do that.

Um, so we'll watch, applaud and maybe help you pick up the pieces when it all goes pear shaped. Ultimately, it's not something that we care about too much. But there are other things that we do care about.

For example, they want people to be sent SMS messages when it's time for them to renew their company subscription. Okay, we'll provide a channel that will take the message that might otherwise gone to an e-mail and send out through an SMS instead.

So that's something we can help with to stay aligned, but again that's a fairly small technology thing on any given architecture roadmap it might appear as one line in the corner and one little person figure saying here is a new channel we deliver information through, but the rest, the rest of the architecture won't be affected. So um, that's a fairly minor, but as long as we can do that then we are successful.

<24:29> What was the question again?

I'm not sure but it doesn't matter.

(Laughter) you can't remember either!

< 24:33> Yeah, you talk about it and we analyse it.

(Laughter) oh good oh!

The idea is that I can get, there are some questions that I can't ask because I don't know and hopefully they are revealed by these sorts of conversations.

Oh okay oh good oh okay.

< 24:53> I thought you might have a carefully crafted set of questions that you had to ask the same questions to everyone otherwise the people would get upset or something and it would somehow invalidate the results cause it's all a bit random.

I've already done that on line.

Oh okay,

In a huge survey and what I'm doing is qualitative studies is looking for holes in the things that people have said.

Oh okay, so people sort of talk about subject and you go "oh bloody hell I haven't asked about that yet then" okay.

Then we can draw that out.

Okay good oh okay.

< 25:21> It's an attempt to be holistic if I can use that word.

Oh! Okay (Laughter)

So talking down through um those layers, those layers what you talked about is mostly at the business level. The business relevance level

<25:40> I think that you hinted at the need to be able to deliver at a solution level.

Um hum

And?

That's the solution architecture element of the enterprise architecture we would often draw the enterprise architecture model as consisting of business architecture is the functions and support and data architecture which is the date of its forces business functions and application architecture which is the um applications that support that and the technical architecture which is the infrastructure that supports for that.

Where they all intercept is the solution architecture this applies or builds an application to support that business function and manage that business data on that technology is all these things come together in solution.

Agh and they usually um, as part of a project to build some function and that's what you used to call design now people are calling that architecture these days, okay, that's fine, but from an enterprise perspective our role is mainly to help with um, very large, design activities that effect the whole organization, or effect the whole architecture, and to make sure that, people who do, the designs could come up with, are aligned with our target architecture and key concern roadmap, agh and advise where things are just plain wrong from a commonsense perspective.

<27:11> and to um (pause), help people be aware of other things that they may not know about because because, most projects are delivered as siloed projects, we are sitting here doing this particular function agh supporting that method, process business process or building a database on this technology, um, agh, they specialize in doing that; they quite rightly don't know that over here is a function being built that might need to use the database and that over here another function is being built that replaces a system they thought they might talk to and so agh, one of the important roles in enterprise architecture, (cough), the function can do even if it's only enterprise solution architecture is to help be the glue between all of these activities that might not be aware of what each other are doing.

< 28:08> Agh of course there are dependencies between the applications that are not know about, that they might not be able to manage because it had the view from above. Or that they might not know that this is happening over there so we better tell them, the place for that to happen is a centralized enterprise architectural, centralized solution architecture function. Enterprise solution architecture function, umm.

And where do you think it should live? Is it like part of the PMO?

On the scale of the organization, agh, I think I mentioned the Commonwealth Bank for example had under its overall architectural umbrella had an enterprise architecture group and a solution architecture group and various other groups, but they were two of the groups. And the solution architecture group did exactly that and not much else.

Um, whereas the enterprise architecture group really didn't know what activities were occurring um and didn't get involved in helping them to understand as described.

So that can be a specialized group in a large organization in an organization small as XXXX enterprise architects of a general nature should probably the most the time um and and as I described earlier the enterprise architecture maintenance they can do half a day a week.

<29:29> Two hours a week or a day month or whatever, um, where needed, so that becomes in a small organization most of the architects, generic architects do would be that type of um, solution oversight role, um, they would only do the other things as they became necessary. So are its varies depending on the scale of the organization. It should all live beside or with the enterprise architect, future type role, that's where we're heading I think.

That's a structure or will be the structure here?

Something like that. I expect what we figured out, that they are starting realize that we have no need for enterprise architecture as an ongoing continuous activity, and they keep having to hire contractors to do solution architecture.

< 30:37> Because we don't have solution architects, just enterprise architects, they are going what's wrong with this picture? Why don't we get enterprise architects who don't have anything to do to do the solution architectures, then we don't need to hire all these solution architects.

It's taken them five years to realize that.

I think that's what they heading towards that's what they said they're heading towards is to have more broadly focused enterprise architects who do that solution oversight role as well as enterprise architecture role. agh, rather than, um, bringing in specialists that then go away and take that knowledge away with them as well, which is another problem. I think they are heading that way.

The knowledge management thing?

Yeah, that's right we need to make sure that we retain that intellectual capital because it's, agh, something that can be painful if you lose it.

So in that scenario where you cut down to the solutions part do, what are the key levers do you see? You talked about you have to outline with enterprise architecture roadmap. You have this monitoring and awareness of things going on so that you can guide people, perhaps not that way and at that level to use a formal methodology for the solution architecture?

Do you think that's important? Or you talk about bringing a lot of guys in to do this I suspect that it will come in different levels of...

Well, yes, see we have a solution development method that is supposed to incorporate architecture activities for the project is doing the solutions. So that part of its kinda covered, although the governance part of it is broken.

The governance part that says you aren't allowed to move on and start writing code until your architecture has been approved as being (unclear) and valid. That part has been broken, people you know, the first thing we find about some projects is that they are in production. And we go well, how did that get in production?

< 32:37> That's the first we've heard of it. They go, or, nobody said we couldn't. So, so there needs to be a tie in between the gatekeepers of the life cycle and the architecture activities that are part of that. At the moment they are not seen as being essential necessary, um.

Sorry, who's not essential?

Agh, the architectural oversight, is not being seen as essential necessary to the life cycle, the development life cycle even though it's in there, most people will go yeah, yeah we don't want to talk them we might (unclear).

And yet you talked about guiding.

Where we can, we do. But where they don't want to be guided, where we don't know the project exists. We can't guide them if we don't know that they are there. Um, it's an uphill struggle to guide them if

they don't want to be guided.

If guided (laughter). Um, so if they want to hide from us then they will, agh, often they would rather do their own thing than be told what to do. So they will explicitly go out of their way to bypass our involvement if they can.

< 33:43> So's, and that's part of the problem with that governance process. If no one forces them to um, engage our role to make sure, um we can put the kibosh on things going the wrong way.

So how can those projects exist? Are they shielded by the business? Is that what happens?

Na, well, um, what they do is, um, somebody must know that they exist and there is a central PMO that knows what all the projects agh, that we're all working and that's all well and good.

Um, but, agh, there is no point at which the project is told you cannot proceed to the next step because you haven't got the signoffs.

There's no point, there's supposed to be, there's no point at which people say wait a minute there is no sign off on architecture for example therefore your project stops until you do that.

They are all told, look we've got work to do, we've got a solution to deliver, just get on with, um, because the managers don't care either. So it's really, and that's part of a function of the managers themselves are all or mostly contractors.

< 34:57> So, they are brought in to do a particular role and that is to deliver Project X. Um, by the time Project X gets in and is quite underway they are going to be long gone, off to their next organization; they don't care.

<35:10> So, they can build whatever legacy they like because is not a problem and so those who are left to hang around are left with, lumbered with, this system that is not helping us move down our architectural roadmap.

Um, and then we have to sort of either change things to get around it or someone so have to go through and find funding to correct it. And nobody is ever going to do that so we end up basically with a random anything goes Rafferty's rules, development environment that we used to have anyway.

And so the whole architecture function becomes rather pointless and, (long pause), toothless, and so we, well, phhh, once again why bother having an architecture team if you're not going to use it? For purposes such as that if you are going to let everybody do anything they like then why are we here? You should just give us a nice fat golden handshake and let us go home.

Um, that's what we would rather do, um, so that's something that we need to get addressed and that's one of things that would make an architectural unit successful. But um, at the moment it's one of the things that is broken and it's the same in any organization really, even the Commonwealth Bank um arms and legs of the business that had their own little fiefdoms they did whatever they liked, um, without central architecture oversight. Not because there wasn't any but because they were simply just too many spinning plates for any central unit for people to know about all of them. And to watch them well it was just too large and too complex so there is a scale problem in that, any organization that is doing more than a certain number of things it starts to become unwieldy in terms of try to keep track of all the changes occurring and maintaining oversight and to keep it architecturally sound, it doesn't take very long, to reach that (unclear) um, beyond which it's just too hard and XXXX has something like 30 projects underway of which we know about, (long pause) five the others are either stalled or we've seen about them or heard about them but haven't been involved in the discussions or any of their um, deliverables or any of their architectural discussions so we go well we know that project exists but I have no idea as to what it's doing (cough) it could be completely wrong, but unless you know who is involved you can't just sort of walk up and get people in headlock and make them tell you, this so, um.

<38:04> Does the PMO know about these projects?

Well, you see, they're they're, counting the beans so the bean counting is very stringent and looked after, the schedules are all being carefully watched and all the rest of it but those people are too focused on counting beans, shuffling heads and watching calendars to be interested in the actual quality of the product or the architectural purity of it.

So they go, if you look at their business cases for the project plans, agh and a successful, they are all about, um, whether it's delivered on time and within budget and all these other good project manager things that are really indicators that the project manager has been successful.

But the project itself can be a complete failure. It's not on there as a, as a criteria, so it's really the operation was successful but the patient died kind of thing. Where agh, the project manager goes I got it

in on time and I got it in within budget what's the problem?

You say well the project doesn't bloody work, and he said, well I wasn't here to produce, for it to work I am here to get in on time and so as far as they're concerned as long as it gets in on time nothing else matters, and so that kind of thinking is very hard to fight against when all those people are contractors and that's limiting paid to do so um, and the and the program managers also a contractor and they're reporting to someone who has that same viewpoint and so um there is no point in the cycle that you can get someone who actually has skin in the game and make them understand that hey your nuts are on the line here agh, this thing fails you're going to have to wear it because they say "I won't be working here anyway" because they're contractors.

<39:42> And some projects have been going for two or three years and in that time they have had eight different managers. Um, none of whom know what the previous one did because there's been no handover. All of them start from scratch and make the same mistakes. Spin the wheels and don't know that there is an architecture oversight function that they need to involve. And so it becomes all very, agh, loose.

So these people avoid architecture oversight either by ignorance and they're outsiders that they don't know.

In those cases it is by ignorance in other cases it is quite deliberate stealth. We said to them at one time [when there was only two of us], we couldn't, be looking of everybody's shoulder at once; we'll drowned in the fire hose if we try and review everything that everyone's doing. Just tell us about, involve us in the oversight of projects that are introducing new technologies or introducing new functions. Anything that is like a maintenance activity or just more of the same or just uses the same old stuff spare us the details we'll trust you.

<41:59> So what they did was, agh, when a function came along that would obviously be an off-the-shelf product as a solution they would go and write their own system to deliver it, because then they wouldn't have to involve us because it's not new using new technology its using the technologies but in an inappropriate way. So people would find would find ways around any freedom that we gave them, (long pause), to avoid their responsibilities.

So if you set budget limits like \$1 million then suddenly everything is \$900,000.

Right, yeah. And so you say to them well we can't do everything here are some criterion by which you can filter the fire hose, suddenly amazingly, there's nothing. You think, hold on has everything stopped? Um, and suddenly you find that everything is an activity that doesn't involve new technologies and that that budget cut off you describe also meets the same problem in that we had procurement activities, procurement rules that said that over a certain amount you have to go through these many flaming hoops and above this much these flaming hoops and suddenly they find ways to divide their project up into 28 little stages each of which cost less than \$70,000 therefore they could do it completely without oversight because it didn't trigger any um, flaming hoops. Um, so that's, it happens, people go off and buy things that are cheap therefore they can buy them.

<42:29> So this, (long pause), evasion oversight is in procurement and the entire organization or is it just IT?

It's the whole organization, because we found recently that parts of the business are going and hiring solution architects themselves to produce their systems because they don't want to involve us.

They, there is an organization, there is another IT organization within XXXX called forensics support and they are the guys you know who when the guys go into an HIH and kick the doors down and walk out with bundles of PCs under the arms collecting as evidence, these are the guys who then take those disks apart and decrypt passwords and find data on arcane partitions and generally make all, get all the data off them and people sift through it looking for evidence of things.

Um, and they are actually part of the business not part of IT and the business ah well, these guys don't have to follow the rules of XXXX IT because they are our organization we'll get them to deliver something for us because it's quick and easy and it avoids oversight. So that the organization is growing and its role keeps growing um, and the people that use them are using XXXX IT less and less because they can avoid us by using these guys. Whose role is broadening to be not just scanning through hard disks looking for stuff but also delivering other things as well so um, and then there's another; if you go down to YYY there's a mob down there who um do the scheduling of the room full of monkeys who deal with paper forms so they write their own systems because they can.

<44:20> Um, to do that scheduling they got this monster Excel spreadsheet apparently that some graduate programmer in his spare time or his work experience project and off they go. They don't need to involve us because we are not there to watch them because it's in YYY you see, even under the IT

auspices this is an organization within IT that manages a particular system that is housed down there.

Cause they are in YYY and we are up here. We don't look over their shoulder and they can therefore do what they like and so they do all sorts of weird and wacky stuff to their system that we because we don't understand it and we have no oversight of it we can't say to them you can't do that because we don't know what they are doing; and so they know that and so they go, they do whatever they like, so it's a bit dangerous I think.

<45:13> So how has this come to be? How is this allowed to continue?

I think it's that way because of churn in senior management as well as the not so senior management because; at one point there there was nobody permanent between me and the chairman. My manager had left his manager the CIO had left.

The Star program (A strategic refresh program and probably the biggest project in XXXX history) director had left the chief operating officer [over the CIO] had left, the chairman had just ceased from being left (Joke) in that the chairman had left but a another one had been appointed just, so there is a brand-new chairman but everybody underneath them is either acting in their role or a temporary role and so at that point, things, people have got different focuses but also within IT we've had huum any number of Star program directors and for each project within that program they've changed hands about a dozen times so there's a huge amount of churn occurring within these projects and within IT in general that means that continuity is lost and nobody with any long-term skin in the game is around to keep things consistent and I used to go the, when there was a Star program and it was you know an enormous piece of work I would go along to these meetings with all different projects and I would be the only person in the room who was a permanent IT, permanent XXXX staff member. Everyone else was a contractor or a consultant. None of them is still here today. In fact every one of them has been replaced by at least two if not three times since then. So, agh, it's almost like a regular complete change of staff in all these projects every six months.

< 47:16> So it's impossible to maintain any social structure?

So any, any processes we try to put in place for governance purposes soon gets lost, nobody knows what they should be doing, nobody who can tell them what they should be doing also knows, and so can't tell them. I mean the project management office supposedly maintains governance has just appointed its

fourth manager in as many years. So, (pause), there's just a lot of churn.

I think that's what it's about.

<47:49> So the organization just forgets?

Um, yes, after a while you speak to someone, in fact, we have this TO BE architecture and roadmap for enterprise architecture I was speaking, there is now two managers in charge of the architecture area one of whom has been here six months if not more, twelve months. The other one's been here three months and neither of them has yet seen or tried to look at our TO BE architecture and roadmap. They didn't even know they existed, yet they are managing the architecture and they've been here for a year, didn't know we had a target architecture or a roadmap for it, had not asked whether we had one, so that's the depth of the churn, the depth of the discontinuity.

<48:44> That would also indicate a lack of depth of those managers knowledge?

Yes!

So they are managing architects but have no grasp of architecture?

True, that's true. And we don't know what they are doing or what they want to do. My manger he's been back again now for six or more months I've spoken to him twice, in that time. The new manager who's been here three months I've spoken to him once, no twice. So, um, something is going on and they're not telling us what. But, that doesn't help your research.

(Laughter) it's all part of the same story I think, I'm not sure what it is yes

My brain is full.

Your brain is full.

Laughter

Should I turn the machine off?

I think so unless you want to ask any more questions.

No, no. ENDS

14.2 Participant: DAVE - Recording: VN860006

< 3:01> Um, okay so what makes a good architect?

What makes architecture successful?

What exactly is a successful, okay so?

I think from the initial set of questions you'll see that the maturity level this organization, was, architecture is not that high. Um, however what I do find in the organization is that architecture is as successful as the architect is able to communicate. Um, what that means is that some architects are more successful than others, agh um, therefore some, some projects have some architecture or a fair level of architectural governance applied to it. Um, proper design process put in place um, that kind of, this kind of deliverables in place and agreed to other projects depending on the level management commitment of the management involved in that project may not want architecture involved and there is no clear mandate for architecture to be there or not it appears be an optional I think.

So, yeah, when I say it is as successful as the architect it means that, you know if, if you can come in and demonstrate value, communicate well, um, show that customer focus, um, and basically appear to be adding that value that the project team believe, um um, you know, is valuable to the project assisting the delivery and you'll probably do okay.

What do you mean by the project team?

The project team, projects here tend to come through the pipeline process but it turned into a project and they get kicked off. One of the first thing that occurs here is a project manager is assigned, now the maturity of the project managers here is very, um um, the maturity level varies from from 0 to 2 or 3 out of 5 as a majority basically, there's a couple of good project managers, um, but very few and far between.

Now, the level of those PMs then set up their teams and set up the project accordingly. If, for example, if they believe in architecture then they'll put an architect on the project. If they don't believe in it, there's no mandate to make them do it. That's one problem is that we, we have here in the architecture group.

< 6:30> and the sponsorship from the management isn't wasn't consistent, um, in setting that you know,

in making sure that those things were put in place to ensure it happened.

Um, following on from that, is the, the project team then consists of lots of Subject Matter Experts (SME). So, i.e. Cobol developers in the mainframe space, integration developers, you know in the integration space, Web developers in the web front end tier etc etc and a lot of the skill base there um tends to be not of the highest skill level, um, one of the problems I see coming from this organization but also from other organizations is level of the skill level is acquired within and without formal training without disciplines without going to market without having a mass-market, um, experience, um and therefore they only know what they know they don't know what they don't know.

<7:54> Are you talking about technical skills?

Technical skills or project related skills?

No I'm talking now about technical skills, um I started talking about the make-up of the project, um, so the technical skills, so, based on that the technical skills to be quite low don't know what they don't know so therefore they challenge they think the architect doesn't know what they know or knows less than they know. And, that becomes a challenge and depending on where the project manager comes from, um, they work with those developers and if they see tension quite often it's easy for them to say, to say okay will go with the people actually deliver the goods press the buttons etc.

So that's one of the obstacles I see from the architect here is that, um, that they are playing in a space where they, they are not understood by the people they're working with. Um, that comes through further with things like when you talk about some of the dimensions of architecture like non-functional requirements. A lot of the SMEs that I've mentioned do not even think of non-functional requirements when they do programming or building systems et cetera.

<9:22> So, you know, that's, there's there's many other areas within their their, skill set where they should be thinking but they don't. So, yeah, um, that sort of, that's one of the issues, the issues that we really have here.

Architecture is um, architecture just trying to cut into that base and then with the lack, the lack of um, enforceable and from above then it becomes, you know, agh, up to the architect whether they are successful here or not.

<10:01> So it, are you saying it's become an issue of the credibility of the individual architect with the team he's working with?

Yes, that's right, yeah, if if they can be seen to be adding value or solving some issues that some of the SMEs um, got them involved then that's great. Um, and they add value and that, they might get you know to do more and more but if you are SMEs don't give you the information you need they hide information from you, which comes back to a variation of the um the skill level you know sometimes they know that are not skilled so they hide information from people who are trying to be involved.

Um, oh, yeah, a good architect can then in this situation can start to use their level of knowledge to to quietly educate and start to ask certain questions within this space and trigger you know some action from these particular SME groups.

<11:26> So, um, for for example on the non-functionals they'll start asking like oh we never thought about that so, um, you know, you can start building credibility by offering is a problem that he some solutions had we can afford to do that.

So, yeah.

The architect is the key in your environment is that what you are saying?

Yeah, I mean to the architect has to make or break the space really not um, I have some architects here who are called into projects time and time again by um, one or many teams, who you know can hold their space and do their stuff and I have some architects you know people don't want them to come back to a project.

We have to deal with that

<12:25> And looking at the skills the work the attitude of those architects they will vary probably attitude has a bit to do with it as well.

Can you expand on that?

(Cough) Expand on the attitude bit um, so, at, you know some architects don't want to help themselves, you know they say it's too hard and they don't try or I've tried this and it didn't work so, will stop. And they went continue and they'll just you know complain and do that kind of stuff.

So they give up in the face of resistance is that we are saying?

<13:03> Yeah, whereas you know the other architects who are successful um, can, you know are quite brazen individuals can take comments but then turn them around and feed them back to the project team questions or or his advice on how to get through to various, you know elements so that's part of the communication style.

Used an interesting word there brazen do you want to sort of expand on that?

Um, brazen, um, you well in this environment you um, just trying to my thoughts here.

Yeah in your own time yeah.

Um, when I say brazen, you'll as you come across some of the agh, the low-level skill groups they'll quite often they'll be having a dig at you just ignore that and get on the job of the architecture and and do that, eventually of the time you do win those people over.

<14:16> You do start collaborate as a team, and stuff.

But, you you had to be brazen because you're making calls you're making in some cases you're putting people in an uncomfortable position, you know they've been doing the job for years and you come in and ask some hard questions.

So that exposes them a little.

So would you say communications or the management of that communications is a key strength of these good architects?

(Phone rings interview suspended.)

14.3 Participant: DAVE - Recording: VN860007

Okay so what was the question, um?

What makes good architects?

No no, the one we just paused on?

You were talking about communication, brazen communication.

Yeah, I mean you just have to be brazen, you you have to be prepared that your questions can um, can upset some people who have been doing certain things for a long time a certain way and you asked questions which might make them feel uncomfortable.

So, um, it's okay you've got to turn that around and got to be positive that communications got to show and educate them why you are presenting or asking those questions and that's um, you know, if you can do that then you'll, you know have a good chance of being a good architect I think.

Those questions are they ever directed towards the business or are we talking here solely about technical teams?

Well, well both um, there's business questions but more working within the team, you know um, here's a solution, um, we've got to deal with things and at times the SMEs will say. Agh we've done it that way before or or, we haven't actually do that before and you know, so it's just how you can take the solution you've come up with and apply it back to those particulars skills.

Now going the other way the architects got to be um, particularly strong in talking to the business in business in their own terms.

Um, you have to, you're almost the translator between the, you know the IT people at the who speak you know gobbledygook and the business who speak English right and that's um that's a primary skill that the architect must have.

< 1:59> one thing here in this organization we tend to have a lot of very SME based business people um, SME based, what a mean by that is that they will talk system mnemonics as part of their business language so they're actually very entrenched with their legacy systems. Um, you know, two-digit codes rather than talking about um the, some policy attribute in insurance terms, you know that would have a policy something to talk about you know a T40 or something like that.

So these people are well and truly wed to long-term existing systems. They are hardwired to these systems and that's another, that's another, um complicating factor here is the architect with such a knowledgeable legacy based knowledgeable customers. And quite often customers can't see over the horizon can't see that their system isn't delivering.

So, you know, an architect in that sense has got to um be able to show that system has the shortfalls show how the business requirement can be satisfied on that legacy system but maybe the legacy system can't stretch so that they have to alternate solutions.

<3:39> And looking to those of the solutions, um um can be you just have to be careful how you sell that to the business as well and translate that, communicate that back out to the business.

um,

Is it fair to describe communication as the key skill for an architect?

If you had to choose between being technically good and be a good communicator, you know you are hiring a new architect, which would you pick? Um, pause, well, ur um, I think, I think they come and in, they need to be hand-in-hand you've got to be able to think technically um but you need to be able to communicate at, in a certain way it so the communicating (unclear) talking about.

<4:37> So you've got, so those two key skills, have, um not an in-depth technical but a broad technical skill you have got to know what's possible, um you've got a have almost different patterns that you might understand that you can apply to different situations and then explain why one pattern is better than another and so the two must go hand-in-hand. But if you talking with an SME right down in the grassroots you don't need to know byte codes and that kind of stuff.

Being an architect in fact you're probably better off not to (laughter) because then you'll just keep deep diving and you won't solve any problem.

You'll never get back.

Yeah,

<5: 27> So this is in this environment that you have here in part of the environment is a fact that you don't have to have architects and the environment and I think you said this led is a as a consequence of not really being management support for architecture for project managers. So does this reflect what goes on above the project managers above who do the project managers report to where's the PMO in this?

Yeah, okay, the structure here is that there is a PMO, um who who are the housing ground all the

project managers there is a pipeline umm that comes really comes agh, not 100% from the business but it is an internal um, technology based pipeline it gets put together the business to get some overlay on that.

And there is at least one prioritization that occurs mainly around budget time, but what tends to happen after that there isn't a continual prioritization process. So that's one of the things that is missing and then there's a huge scramble for available resources.

Sorry, can we just go back so you are saying that they prioritize once when things are set off then there is like a scavenger hunt for resources after that?

Yeah, there yeah, so there are not lining up their resource management with the project prioritization, but project prioritization is done at budget time and that's it then that it they don't really come back and if a new project comes in that that wasn't on the pipeline um, the prioritization someone might make that prioritization but it's not agreed across all the project teams and project management managers and stuff and then they end up fighting each other for resources. Um, so it's no very mature in that space.

Um, so the consequence of that is then the projects um, kick off and quite often they'll struggle and some of the um, some projects will say well I've got to do this really quick I haven't got time to get an architect on board the don't see the architect as um, as helping them deliver the on time on budget um, you know getting the design right getting this a quality solution and um, it's just unfortunate in some cases um, and quite often it is those projects that run into trouble.

<8:31> The majority of the time those are the projects that will have delays or higher costs associated with them.

So if you do a project without architecture are you in any way penalized?

They, they don't get penalized no.

So I can build up technical debt for want of a better term and that's just it I just get away with it if I'm a bad project.

Yeah, so that's in fact one of the issues they we highlight as architecture is the PM who put the project in will eventually cut scope get it in on time.

And so the business don't get what they want technically it's not an efficient, technology implementation its expensive to run and maintain and next year's budget will suffer but there's no penalties applied to that project manager for doing that for cutting back.

<9:29> You know so that's one of the issues um, and because of the maturity level the architect who comes in and tries to voice those concerns can quite often be seen as are you are just trying to ruin this project or you're causing trouble and stuff. And you know, it really comes down to the leadership need to make the call and say you know we have a level of governance in the organization and I want to see that followed but they don't say it they change the governance to suite the project depending on who the PM is, right so this leads back to then the PM choosing whether they want the architect or not they are not enforced to so they don't. Um,

<10:24> Can I ask about the PMs here are they contract PMs or are they ...

We have a mixture of internal PMs and contract PMs and the yeah no it's a mixture and, but I think the insurance is not the most exciting industry so you don't get the highly um, how do you say this you don't get the best run of PMs coming at you to choose from they tend to be the old insurance PMs who've been there and managed the previous insurance projects and insurance in general not just this organization, but in general tends to fall into this pattern.

Argh, we we as this organization sit roughly on the average agh cost for an implementation as many other insurance companies. So we we evaluate ourselves against the market the the cost of delivery cost of projects etc etc.

<11:41> And it seem to be that insurance is on the higher end about four times um, err err, for our estimating we we use a factor of four as the multiplier which includes you know that covers your over heads ah things like that.

Four times the estimates?

Yeah, well fours, when we do estimation we work off the time it'll take to do the build and then we multiply out for the life cycle so design, build, test and release and we add on addition time for overheads such as architecture, project management project office etc and that works for this environment.

It comes out at approximately four. Some areas are better they can come in at three and a half or maybe even better than that with the occasional project, but argh, and then so yeah that that tends to be an industry average so

Right so those project managers are some external some internal, is there any difference in behaviour between the two do you think? Do you think that impacts things?

Argh yeah the external ones often bring fresh air the incoming will want to follow governance follow process and stuff. But err, once they find it's not there they either crumble themselves or they'll hop into their own pattern of well I'm going to deliver it this way and off they go. ENDS

14.4 Participant: DEAN – Recording: VN860013

<0:14> Successful, umm well. First off all it can't be IT myopia, so it has to look outside of its traditional comfort zone of the IT department. It has to have enough clout to be able to make a difference, be able to challenge and basically drive out comes. It needs to have architects, who have good soft skills, open to what the political climate is, and can influence without having to drive and demand. (Long pause) I'm sure more will come to me as we go along, but that's some high level points.

<1:32> By clout I guess I mean management support and management endorsement at the right levels. You have to have the right managers who are overlooking the business and overlooking the project office and overlooking the other parts of it to be able to reinforce the point that this is an endorsed activity. It's not just IT people trying to be difficult.

<1:56> I guess that's what I mean by clout. It's having the support. Is clout formal authority ... No I won't say so it's not, it's definitely not reporting lines. It's not even controlling budget, or anything like that the sort of things that architects don't do a lot of it's really it's about organizational power structures, influence and politics and all those things that you need to have aligned to make a difference in any reasonably sized organization.

You are talking about power structures, but they are not formal power structures, is that what you are saying?

(Long pause) It depends what you mean by a formal power structure I guess.

<2:49> As an architect the people you are advising or influencing generally don't report to you. They are people in the business or they are people in the project teams or they are people in other areas. Or you are trying to get an outcome to happen but you are not a CIO or a CEO you can't just say this is what's going to happen. But you can have those people back you up to make sure that it does happen.

<3:20> So, you are exercising power through third parties?

Yeah.

And this is where the soft skills are required?

That's part of it yeah.

In order to win that trust and gain that influence, but because you are influencing people you are not telling them, to be helping them and not just setting up rules and saying thou shalt not, whatever, you know. You're part of the team solving a problem or trying to achieve something you're not just someone in the corner.

You just said you weren't part of the team!

<3:58> Not formally no, you can have teams that aren't all in the same reporting structure. A team that you know, forms for a project that has different reporting lines to different parts of the organization that comes together to solve something or to do something and then you disband.

<4:14> I don't see teams as something that is necessarily reflected in an org chart. In my world the project managers are a bit of a focal point for changing the organization, so in terms of keeping on top of what's going on, what changes are coming through are those projects taking things in a direction that is just an anathema to the architecture and where you are trying to take something. Being able to inject yourself into the right part of the process to review and sign off

<4:51> and influence where things are going that's important.

There is a formal governance group (Truncated) there is architectural sign off if there is architectural content depending on how far the project has gone. If there's a heavy IT component to the project then usually they'll be a solution design or some picture of what it is they are trying to build. Which has founded the basis of high level estimates basically resource plans and so on.

<5:37> (Truncated ... not relevant)

<6:03> Generally, by the time it reaches that board it's been past my desk and I've had a chance to review it and change the direction of things or at least ask some questions. (Truncated)

<6:28> Basically we have an OPEX budget which is how much it's going to cost to run the business then there's a CAPEX budget which is money that comes down from the CEO which is basically negotiated each financial year. Different managers will negotiate for different chunks of that CAPEX, the PMO itself is more a governance body than a strategic body, but it's the main checkpoint in the organization for change.

<6:54> So, there's a lot of cooperation in this model?

I guess so yeah.

So what happens when that doesn't occur?

There is a good example of something that has happened with is a major program of work going on which is a web transformation program. There's a particular manager who has come in who somehow has got to the point where he is reporting directly to the managing director of the group and everyone else is reporting to the CIO or someone else within the company.

(Explains company group structure)

<7:48> So he's got a direct line to God as it were. So he's gone off and secured his own company capital. And somehow he's managed to make it so the CIO is responsible for making sure that that capital expenditure is not exceeded. This is an example, he's got a bit of a technology background and he's pushed SharePoint as a technology platform for this thing against my best intentions, my best wishes, my best effort to steer it.

There are some battles you can't win as an architect, and that's one where you have to pick your fights and try to limit the damage and try to learn something from it so it doesn't happen again, but what have I learnt from that? (Long pause sigh) I'm not sure yet.

<8:45> Apart from shit happens!

This guy's going to pile up some technical debt right?

Yeah, he's empire building.

And he doesn't care about the consequences.

Yep, yep.

(Truncated ... talk about defensive and offensive architecture)

We're not at that level of sophistication or power I guess, the power to actually take money out of budgets to deploy for architectural remediation.

(Truncated ... talk if you had the power you wouldn't need to do remediation)

I think the horse has bolted on this one. We could say you have to set aside whatever it is and then we are going to go and rewrite the web with different technology just to make it compliant. I can't see how I could make that stack up with someone in the business. It would be nice to get some money and go and do things, but I can't see how I can change that by getting a bit of money out of that project.

When it's as fundamental as the core platform you are building the thing on it's gone that deep.

How was he able to do that?

<10:31> He's an extremely savvy political player. He'll wedge people, he'll tell people half of the truth. He'll talk to the managing director with one version of things. Who knows what he's saying, but he's basically wily enough to get the outcome he needs. He's not liked at all in the organization, he doesn't care, he's doing what he wants to do he's building his empire. His boss is seeing this fabulous web thing we are building. Why care what technology it is on? You know.

(Truncated)

<11:32> I was recently appointed group architect by the managing director who said yes architecture is important to us. But at the same time not that important. What people really see in the value of architecture at that level, it's having some smart guys to advise to make things happen, but (long pause) Maybe in a couple of years I'll have built up that level of trust with him to be able to say, look I really think that we should stop this, I really think that we shouldn't let this happen. It's just not at that level yet.

<12:18> How are you going to do that?

You've got to get runs on the board. To build trust between anyone in business, it takes time to build credibility by delivering.

Isn't this character ripping this down faster than you can build it?

The problem is contained to my area, there's a cancer that we have isolated there is a threat of it growing though.

What's to stop others doing this?

This guy's a bit of a special case in terms of reporting lines he's got a direct connection there. So other people (long pause) I guess (long pause) umm yeah (long pause) I was tempted to say this was special, but you know is it really?

Is that a special case? Is this guy just particularly aggressive and manipulative?

He is compared to everyone else I've ever worked with.

<13:39> Those people are out there and they just happen to be people who can drive results just by being arseholes and that can build the right level of credibility with the right people it doesn't matter it's about the outcomes not the process.

So, in order to drive their outcomes and build their credibility should architects become arseholes as well?

(Laughter) ... There could be a case for that!

<14:07> If we were empire builders then yeah, I reckon so.

Are we empire builders? Personally no, I don't want to run IT operations and IT delivery, I've done people and team management and things like that, but I don't see architecture as being on top of that universe. I see it as separate and keeping those other team; honest, I don't know.

<14:36> So my boss the CIO and I want you to keep projects honest, I'm still trying to figure out what that means. Laughter ... I haven't asked him yet.

<14:45> He tends to come up with a lot of things that take a bit of decoding. They tend to change if you ask for detail.

<15:04> A poorly formed questions as we would say?

Yeah, quite possibly,

<15:55> What do we mean by playing the system here?

Do I manipulate them, do I tell them a half truth? No, do I have integrity I like to think I do. Does that mean I can't be as effective as people who don't seem to care about that stuff. Maybe? That's the sort

of compromise I'm prepared to make (Truncated)

<17:00> Was he ever inducted into a formal governance model, was he asked to sign an agreement?

No, no. The frustrations with this guy and this project run deeper than just me personally. Effectively it's across the organization. He's got his own capital, he's got his own project, there's no accountability to anyone else in the organization its, just the pet project of the managing director. So normal rules don't apply!

<17:26> Is the message that we get from that. (Truncated)

<17:45> You could almost argue that it's a change to the architecture, so you know am I aligned to the business? Or am I pushing against the business. He's says we're going to build in SharePoint and the managing director has endorsed it therefore the architecture should reflect that and not fight it. Maybe there's an argument there.

There was no transparency I was pushing because the rest of our shop is a java space, our core systems are java we've a whole team of people who know java.

XXXX is SharePoint he said no, John MXXX want's this to be in SharePoint. This was about 18 months ago when I wasn't in a position where I could go to John MXXX and say are you sure, do you realize what you are doing?

<18:49> I feel like I could do that now. But it's very late and \$20 mil has already been dropped on this thing. (Truncated)

And it's going to need its own dedicated team to feed and water it. It's never going to be integrated with the rest of the business. that's the way it's shaping up now he's building his empire and now you are looking at this on-line division within the company which is totally separate it's got its own support team its own IT team, its own business team.

Totally separate from the rest of the organization. So that's the model that the managing director has endorsed.

<19:35> The choice was (Truncated) I suspect that it was John gone here's what I want to do. And John's gone yep great.

<19:51> I don't think that a decision or a challenge was put forward at that level, it's like I know you, I trust you you are doing good things if this is what you want to do go for it!

<20:01> It's about the person not the architecture (pause) I trust you (long pause)

(Truncated ... Talk about this being a challenge to the company who owns the project at the end and has this killed architecture, CIO takes it up with the CEO who just doesn't want to talk about it, we need to support this project)

<21:10> So this person has created their own discourse that contrary ...

Absolutely! But he also happens to be the sought of guy who can't manage something effectively unless he knows the details of it so (Short version ... he can only use things he's familiar with so he can drill down and get to the bottom of it if he needs to. It is all motivated by a need for control.)

<21:34> (Truncated ... golden pattern discussion)

<21:50> So how do you go about tackling this?

My strategy right now is damage control and containment. (Truncated ... Talks about innovation zones as an excuse)

<22:35> Maybe that's the philosophy to take here treat it as quarantined zone an innovation zone and let them go and innovate the hell out of themselves. If they get the right outcomes for the business then why should anyone care? Well people should care about the technology because it drives the cost of ownership and all those other complexities of course. You could argue that you could have the same set of outcomes from another technology quite easily.

<23:08> But if that had never been an issue then architecture would never have been borne.

That's right yeah! Speak to the CFO and his view of architecture is that's cost containment, cost control, making sure that OPEX (operating expenditure) doesn't balloon, you know sustainability and all that sort of stuff.

<23:30> (Truncated ... discussion about structure)

He was manager of channel solutions, his self appointed title. He came in as a project manager for a

large project which was all there from day one the project was run horribly people would burn out it was a mess but it got delivered. And that's all that counts.

<24:18> He went from there he became a people manager had a team internally a few teams managed internal bites and pieces, internal IT stuff. Then ended up landing the new web project so became project manager for the new web, but that's now turned into manager on line solutions. Basically there's a bit of a culture of looking at people who deliver things like project managers as being top grade rather than people who may analysis things or think deeply about things. Those delivery types that see things through they are more highly regarded in the corporate culture.

It's sort of the more activity than progress approach!

Yes! You've delivered the project that's fantastic, who cares how you did it or what the long-term result is going to be, but my God that's a tick. ENDS

14.5 Participant: DEAN - Recording: VN860014

<0:14> So do you think that part of that cultural problem was that you didn't sell the thing that you do well?

Sure,

Seen as not doing anything or not as valuable as delivery?

A lot of the people I work with day to day know that I add value and that feeds up.

There's a reputational element to it, rather than directly demonstrating (unclear). Well I hear good things about this. He's obviously done good things in the past blah, blah, blah that sort of thing. So, sort of the doona effect, just give me the something nice and warm so that I can go to sleep and not have to worry. (Laughter)

<0:57> Possibly, possibly, (Truncate - Talks about connection between MD and CIO)

The Managing Director is obsessed with Sydney Swans (Australian Rules football team) and the Australian Cricket team this guy doesn't do sport.

<1:22> The only explanation I can come up with is he talks, frankly he talks a lot of shit, and just has no shame in grand standing, being able to talk himself up to make himself sound important he knows about things when actually he has no idea about stuff. But you can give that aura of confidence and knowledge and again the whole delivery thing.

<1:55> I did a course recently on influencing and they talked about four different personality types the Drivers the influencers, the analytical and there was another one for socials for those who just like to keep everyone together. Traditionally high level managers are from the drivers' school; they just want results and nice clean bullet points and don't bother me about how and why.

<2:34> So my own theory is that that sort of personality tends to be successful in organizations were you have that sort of personality at the top. Those people don't have the time, the interest or the motivation to worry about reasons or problems or that sort of thing.

<3:00> This is all material in my head there's no grand theory here explaining everything, but it's just my thoughts. (Supportive chat ... he's a bit depressed by his reflections)

<3:27> So before this person arrived you seemed to have a cooperative culture?

Yep, we still have apart from this one person. With that team the channels have opened because they've needed my help to get things done. I'm not one to hold a grudge I don't say I not going to help you. In the long-term that's not good for your personal career or for the company or anything. That stuff just comes back to bite you.

<4:00> But this person behaves like that?

Yes!

And the evidence suggests that not ...

Again, it's my philosophy, I could say I don't want to deal with you, now piss off and do whatever you want or I can take an opportunity to engage and at least know what's going on and at least give strong steering on options where he hasn't already made his mind up I can still change the outcomes of how they are going to approach things.

So any influence is better than none?

Yeah.

And where will the responsibility for all this lie in the end?

Well that's the interesting question, because my boss has financial responsibility, but not delivery responsibility So it's very ... interesting.

<4:49> Can you expand on how that works?

I wish I could. (Laughter)

How it works, I don't know how it's supposed to work? He's basically been told here's the capital budget I want to make sure that this doesn't get exceeded.

<5:06> And yet now this guy isn't reporting to you and this team's got nothing to do with IT It's my project. But I want you to, yeah so he's struggling with that.

So there's a separation of authority and responsibility?

Absolutely! Yep, a very clear one I don't know how that happens but ... maybe our managing director is getting too old. I don't know, he's 70 something, but he's not dumb.

<5:38> He just wants to outsource problems I suppose ... um a bit of an organizational, I don't know what would you call it? ... malfunction ... misalignment ... absolutely .

The strategy is to contain it ... know your enemy ... don't walk away because you don't know what you are going to find when you come back.

What are you going to do to stop this happening again?

I think I can see the signs now I can pick the personality type sooner ... that'll help me be more prepared I think it's a bit of an experience lesson for me. (Truncated ... talks about next time)

I'm just going to have to try and do my job and have the conversation with the managing director and put the case forward, you know. All I can say is I've stated the case you've got me here to do this job here's the reasons I don't think that this is a good idea.

<7:05> The decision is still yours but here is my advice.

In this instance there don't seem to have been decision rights infused in the governance model, it seems to have been a cooperative model ...

That's right,

Were people agreed to do the right thing and a party comes along who doesn't agree to do the right thing so would a stronger governance model have helped?

Yes ... I think that when this project came in the organization was in a bit of a, we'd just come through a major core system migration it was all battered and bruised teams were downsizing, managers were departing you know, everything was in flux so in that sort of maelstrom this sort of thing has emerged, if I'm not mixing my metaphors.

<8:05> The change management practice now is much firmer and has more authority than it did back then it's actually structured now. In this case it's too late.

<8:18> And to be cynical ... I think it's a governance structure ... that can still be overridden as required

by people by the managing director.

<8:35> Is it really governance if you reserve the right to over ride it at any point in time, I don't know where you draw the line.

<8:52> There's governance and there's governance isn't there?

But I think for governance to really work people above that need to imbue it with full authority for it to work.

<9:01> And consciously y support it and not override it. And that's what's not happened and ... (unclear) it could happen again.

History is teaching this person that they can get away with it?

<9:20> Yep, and teaching other people how to behave (Truncated version)

<9:34> Scary, that's business, that's people for you! (Laughter ... fatalistic)

<9:48> Do you think that some of this is a weakness in the character of architects?

Yeah, there was a weakness in my confidence back then to be able to speak up and ... make my point clear and not be worried about contradicting the chosen one.

<10:05> So, it's a maturity thing for me, still learning to do the job you are paid to do. And not be too concerned, you still have to be mindful of repercussions, learning how to state your case in a way that is firm and assertive, but not damaging or disruptive or confrontational. Getting that mix right I guess.

<10:31> State your case; (long pause), provide cogent arguments ... not everyone is convinced by cogent well thought out arguments. 30% of the decision process is rational and 70% of the iceberg is emotional historical influence and all the other things that come into play that you don't really directly control ...

<11:11> That's what architecture is supposed to get rid of isn't it?

Icebergs? (Laughter). Human nature I don't think that we can get rid of it. I don't think that TOGAF supports that yet! (Laughter) Maybe version 10!

<11:30> Isn't it the purpose of governance to take the emotion out of decisions?

Yes! In a rational perfect organization absolutely!

It should all be based on business case, strategic alignment scores, you know numbers.

<11:45> But ... in this organization there is another ... number it's ... the CEO shiny thing... factor.

This is my favorite shiny thing I want this to happen (Truncated ... talks about fads)

<12:30> The heritage of the typical architect including me, IT background very focused on analysis, data and facts and not so well versed in the rough and tumble of political life and ... the real factors behind decision making ... all those things that anyone going into a management role has to learn.

Architecture is perhaps ... a bit different, I don't know, least in a lot of people's minds you are staying on a technical track. But you can't just be a technical black and white kind of guy. You have to pick up a lot of the skills that people managers have, because that's the world you are working in. You can't just bank on your IT credentials and the fact that you know the difference between SOAP1.1 and 1.2 or whatever the hell.

<13:30> and maybe that were ... a lot of architects ... miss that step ... they go from a technical path a senior technical role and all of a sudden they are talking to people that they've never had to deal with before. It's talking different languages and talking across each other. Things like that.

<13:52> You also made reference to ethical behaviour?

Did I!

A couple of points.

Okay.

That it wasn't something that you were prepared to change?

That's a personal decision, my personal philosophy is.

You won't play dirty?

No! No I wouldn't. I believe that if you show integrity, maybe I'm just a little bit (unclear) Integrity is about doing what you say and not doing something different to what you are telling people.

<14:27> But doesn't the end justify the means? Isn't that the foundation of people management really ... it's the old thing once you can fake sincerity you've got it made?

(Laughter) I guess people make a choice in life if they are going to cross to that side or they are just in that side of the fence already and it comes naturally ... for me it would be ... a choice I'd have to make to consciously make which is to say yes I'm going to be who I am now.

<15:01> Can you make that choice?

I don't know ... suspect ... umm ... I don't know maybe it's a ... something innate in people I don't know ... it's an interesting psychological thing

(Someone nearby starts to talk very loudly)

Yet what values do you have? ENDS

14.6 Participant: DEAN - Recording: VN860015

<0:12> We're going to train some architects now. What would you train them in?

<0:18> I would definitely focus on dealing with people and communication and the influencing side of the role. The first thing that I wouldn't do is say off you go and get TOGAF accredited or whatever flavour of the month is.

<0:44> To be truly effective in the role you've got to be able to work with people ... and understand their motivation, you know it's a tricky business.

<0:59> That cliché of sailing into the wind and tacking and criss-crossing your way to somewhere, laughs. So I think that, I don't think I would hire people into the team unless I knew they had that. I have a sense of they either have that capability or it could be developed in them.

<1:23> There's obviously got to be a technical grounding that's important. But in terms of hardcore go off and learn this framework, if I was in an organization that adopted a framework then yeah, okay. But we are not at that maturity level, we may never be. So we sort of cherry pick bits and pieces and bring them together.

<1:49> So, yeah ... how do you train architects? I see this on a lot of blogs and a lot of opinion pieces and it's kind of like to be an effective architect you've got to be able to blah, blah, blah and if you just replaced architect with manager you'd have exactly the same, it would still be true. So I think that there's a lot of skills there and things that you must be capable of. Everyone seem to think architecture is special.

<2:23> Maybe it is in a technical sphere because you've suddenly opening up new horizons, but then again (unclear) it's just what everyone else in management and businesses have to do to become effective.

<2:41> I don't know I get a bit annoyed with people trying to make out that architecture is so special and different to everyone else in business. It's not necessarily the case.

<2:50> There's a certain preciousness that seems to come out every now and then. And I'm just a sceptical guy by nature. (Long pause) I see things ... I can be not abrasive ... blunt ... Is that a quality of architects? I don't know.

<3:22> It's about soft skills, communications; I'd make sure someone was a good written communicator. I think that's important in the age of email and there's being able to write documents that hopefully someone will read. You know, the written word ... seems to be fewer and fewer people who can actually construct a cogent argument in writing.

<3:53> I think that's important, whether or not a lot of people do I don't know, but, so.

<3:59> For me that's not a training thing that's the bar to entry. It's not about being able to construct a perfect UML 2.0 activity diagram or whatever it is.

<4:24> I get a sense that there's a tendency to focus on the technical side because it's easy to think about and easier to demonstrate you've got superiority on that, it's easy to grade someone and say that yes you are certified on that.

<4:40> It's harder to assess someone on how they work with people and how they can get things done in a real organization.

Do you think that those technical things are a way of hiding?

Yeah and I think that's true in IT in general. We tend to focus on what programming language do you know. What acronyms can I tick off. I've always thought that the right person can demonstrate a depth of experience and pick up the technology it doesn't matter. There's a set of skills around analytical thinking it's in writing and development and structured thinking and so on that you can apply.

<5:25> Regardless of the technology, so there's that level of things and then there's the softer side of the job which you need to have some command over even if you are not on the way up to (long pause)

What am I trying to say, I can't think anymore.

<5:55> You can call it quits any time you like.

(Laughter)

It's a ramble! (Truncated ... Talks about the "bad" project and handling the challenge to the architectural process)

<7:00> I keep coming back to the point of quarantining and not disengaging with the project because

they are going in a direction that you don't think is right. (Long pause)

There's no easy answers here, I can't think of any if you've got them I'd love to hear them.

<7:26> Try to remain constructive.

Could that be interpreted as tacit acceptance of defeat?

Giving in! Am I prepared to die on the hill or sacrifice my job on the altar of making a point, no I have the same motivations as.

Here's the question though, if it happens then you are no longer doing your job why would you stay there?

<7:59> If it happens again, I agree.

So therefore you are prepared to?

Yeah,

So if it came to the crunch?

And you are there and the evil one is there with the managing director and he wants to do it and you believe this is completely wrong and you have constructed a cogent argument why it's wrong and it still goes ahead. (Multiple yeses in parallel)

<8:25> That's when you reconsider your options, isn't it. Okay, I clearly don't have the support to do my job so it's time to start looking, absolutely.

Is that the career path of an architect going from organization to organization?

There are some writers that maintain that you should be prepared to be fired every day.

<8:56> I'd love to be in a position where I could take that high ground maybe one day I will. It's like anyone else I like to be paid. I don't like to be unemployed I like to change on my terms not someone else's. I like to pretend I have some sort of control ... (Laughter)

(Truncated)

<9:43> It doesn't matter how many pretty diagrams you draw, your organization the true structure is something in the complexities and it's something very different to what an analytical mind would be able to come up with.

(Truncated version: You had a durée which included architecture a pattern and this person came along and broke that pattern)

Disrupted it, Disrupted it, created a discontinuity changed it right?

Yes

Why was it acceptable for that person to do it?

<10:35> A lack of courage, it's not acceptable, but it's a lack of courage on my part and a lack of courage on other peoples parts to take it on. I think being brutally honest.

<10:46> Because organizations typically don't like change when that thing goes on that disrupts things.

Oh look he rubbed a lot of people up the wrong way. He has virtually no friends in the organization ... but he has the support in the right place.

Based on delivery?

Yeah, but based on a perception of delivery.

Which presumes the rest of you never deliver, which obviously cannot be true?

Obviously not no.

<11:20> So maybe there's a lesson in blowing your own trumpet more otherwise you will be drowned out by the choir, laughs, the Horns section. Yeah, it's no good if you have a flute or a piccolo you need a tuba. (Laughter) ENDS

14.7 Participant: JIM - Recording: VN860016

<0:40> There's going to be a number of factors they are going to be senior level understanding and endorsement of the practice and the communication of that down to their subordinates would be one thing.

<1:07> Levels of skills and knowledge of the people who make up the teams, the engagement model that the organization sets up to enable it to function, The culture of the organization in terms of acceptance of that function. That probably starts to touch on change management. Another aspect is clear roles and responsibilities – a level of maturity of the organization and the IT function overall. It has to be relatively high.

<2:25> In terms of senior level endorsement you need to educate and communicate the role of architecture.

<2:44> The role of architecture is [the] cost effective delivery of IT solutions to enable the business strategy to be executed in a risk managed way and that's across the portfolio of assets and over the life of those assets

By cost effective we're looking at the total cost of ownership of its life and it should include, but doesn't usually the business opportunity cost considerations of what we do or don't do or recommend.

<3:46> Techniques and practices for doing that ... first and foremost working closely with the business in terms of their strategy development from two levels one is as a person who needs to understand it because ... in response to that business strategy we will have to develop an aligned IT strategy

<4:14> and also as a contributor to the business strategy because IT itself is a business unit within the business and it has its own business needs as well.

<4:28> I don't believe that any IT solution is a strategy in itself. They should always be a response to a business strategy.

<5:15> It's about executing business strategy rather than being the business strategies some people confuse it.

<5:40> Coming up with a common language like the frameworks and so on, but not in technical terms

<5:50> Going back to that cost effective piece ... do it for the best cost benefits model

<6:25> I always use the town planning analogy. To be successful you need to be engaged with the business and understand their need and where they want to be and understand technologies and how they might be applied. And come up with a plan that you can explain to the business why they need to make those investments.

<7:00> If you get that far often it often becomes self ware unfortunately it needs to be turned into execution

<7:08> It's relatively easy to do the current state, relatively easy to come up with a fantastic future state, but the transition plan to get there is the hard part

This is where we have to to work closely with the business on the timeframes of what they want to do.

<7:25> And those initiative which are the execution of strategy

We have to have the corresponding execution.

<7:48> The solution architect needs to understand the enterprise direction and standards and why they are.

<8:05> EA group need to communicate the plans out to the rest of the IT function in terms of the IT Strategy that they have concluded through analysis are the optimal path.

<8:20> Then we are faced with the challenges of execution; multiple projects and initiatives over time that are looked at holistically. Rather than when we come to execution from the business view there tends to be a focus on that particular initiative.

How to most cost effectively deliver that initiative (without compromising the others)

<9:05> So often the programme management side of things will create a challenge to successful architecture in the sense that they don't hold that same long-term holistic, total portfolio over the life of the assets view. And they tend to want spot solutions at best a programme of work.

<9:26> EA is multi programme they struggle with their programme and don't consider that there's an even higher level.

<9:39> They haven't often got that view. And therefore there is that natural tension between PMO and the BAs who are trying to execute the IT strategy within the constraints of the particular business initiative cost time functionality. And trying to maximize the strategic content without compromising the business case for that initiative.

<10:08> It's a question of empowerment and the balance of power in that relationship. If the PM has more power than the architect then you get individual solutions that are not optimized.

<10:37> Because they don't know and they don't care on time on budget delivery even if that means sacrificing some of the features something in the future.

<10:50> Where as if the balance of power is more with the architect the architect actually does the design and says you must deliver this design that's a big area of success or failure.

<11:05> That balance of power is critical and if it is tilted the wrong way you'll get the short term view and you won't achieve the objectives I described earlier. How do you ensure that that power balance is correct? That comes back a number of ways it's a good question

<11:22> Some of the techniques I've tried and they don't always work. One is a top level education and endorsement of what you are doing. Clear roles and responsibilities and decision rights; making them very clear and enforcing those. That's through governance activities and basically senior management endorsement and making sure that it's built into people's measurements. However the organization measures their performance and that there are consequences for not following them.

<11:55> There are some of the things that we would use to make sure that the power is correctly in place.

<12:03> To use the town planning analogy the Solution Architect is building a building within the town plan complying with the plan, but then having to design the specific needs for that building. Now having designed that and perhaps planning for future things as well you can't have the project manager who's leading the construction team start to dictate what the requirements are.

<13:02> How do you get that power back they must be told that they are to deliver the design of the architect that they are not...

<13:05> One of the problems I often see is an unclear definition of who's defining the design solution we

need to separate the requirements from the solution from the construction as three different things.

<13:22> If the PM gets the power or is prematurely engaged they be driven to a delivery and they will dive into the solution and they'll try and guide that without consideration of all these other things and often run into trouble. Senior management control, HR systems Job descriptions performance measures governance activity and consequences if you don't follow.

<14:05> They are a bit more stick than carrot. From a carrot side Architecture has a responsibility to do the education, the training the communication ... (Truncated ... and be open and share its decision process)

Part of that is to engage people and listen to them because architects are not perfect.

(Truncated ... talks about the air conditioning at Federation Square)

<16:50> Solution Architect hands down a solution design to a PM for delivery. I think it's dangerous to have an IT delivery manager prematurely involved. That's a seed for failure. There is a need for a business PM to be involved earlier because they are involved in the business initiative right.

<17:18> That's what they should be managing. (Truncated ... talks about transition from requirements – design – construction)

And if you mix those two together you run into trouble. A lot of the problems I see are around that engagement with the project manager.

<17:28> The other dimension is trying to get requirements instead of solutions and that's a very common problem. BAs need to be trained to have a focus on abstracting what they are being told, because it's fair enough the business are going to tell you a solution. But they have to understand the difference between coming up with a capability that needs to be in a solution rather than the way it's going to work.

It gets to be a grey area it's fine to have conceptual views of screen and work flows and stuff like that but that should not be perceived to be the design.

<18:04> Certainly they should not select the tools or the technology. That's the role of the architect. It is when those roles aren't respected that you run into trouble. They get the illusion of progress they cut

corners they think that that analyst know what to do we'll just take that requirement we don't need the design we'll just go straight to the developer we don't need the architect.

<18:35> That's fine for small things I suppose you need to portion out your degree of involvement so that you are not a burden

<19:00> (Truncated ... talks about involvement depends on complexity)

<19:25> If you can't execute then it's just shelf ware I wouldn't mind seeing a rotation of architects from the EA level down to see through execution and take ownership of it all the way through.

<20:16> The level of emotional maturity of the organization is critical.

(Truncated ... talks about BA maturity model from order taker to solution architect)

That creates challenges if someone's seen that they go I'm the BA I should do the design! We've got these professions coming from different areas colliding

<21:21> That's historical as well. 20 years ago we had developers who became analysts and systems analysts. The systems analyst was a mixture of a BA and an architect. We've split the roles apart.

In this company in insurance which is not known for adopting new ways we still have systems analysts.

<21:51> They can't understand the BA role so they do the requirements and the design So they are in that old world and no one has told them about this new world. (Truncated ... talks about BA and Systems analysts and recaps...talks about technology and Infrastructure)

<24:00> (Truncated ... talks about Solution Architects who were developers not understanding that their particular technology may not be the optimal one for the long-term cost effectiveness)

<24:14> They just don't have that view. Similar to the way the project manger has a particular view these guys have a particular view and often there's conflict in why are you deciding not to use my technology and giving it to the other team? Or to someone outside when I should be writing this.

<24:31> Once again these sorts of decisions rights and communication needs to happen if that doesn't happen then you get individuals kind of like soldiers sent out into the field and they have a battle rather than know the terms of engagement and so on. That's a cause of conflict and potential failure. It adds to

the cost if you don't resolve those sorts of issues and you don't have the maturity to understand the function. And probably define a career path from these areas Bas and PMs because I think that a good SA has been a PM has been a BA, been a developer. And understands business well

<25:17> That's what makes them, I don't want to sound elitist more like getting towards the pinnacle of the career path from any of those sides of in terms of an IT solution.

<25:42> Other's that don't have those skills don't like that view because they look at it from a narrow perspective. And that's why it has to be trained and communicated.

<25:51> (Truncated ... talks about aligning with operations and infrastructure) Infrastructure and technology architects won't like that view as well particularly if they are from outside the team because they are focused on keeping the business running. And also because that's one of the more interesting parts of their job and they'd rather not give that up.

How do you solve that one, maybe the technology architect should be part of that team.

Just like in the developers you have someone who looks after an application and could be called an application architect they look after the integrity and intent of (internal integrity not allow its pollution with ad hoc changes of function) May be they could progress from there to the architecture team

The question comes up with these roles are they part of the architecture team is that a separate function should they be part of the specialist unit that looks after that function.

<28:01> Business Architect with BA team; where do you place these to some extent that's dependent on the organizational culture, level of maturity, ability to cope with change you probably have to look and those and the emotional intelligence over all.

And take an approach to get endorsement buy in from those guys about acceptance of this this capability and a way of transitioning that is to build those groups in those areas to start with. And at a later date when that's all understood say hey maybe these should all be part of my architecture group.

But then those people then have all the relationships and knowledge. If you come in with the perfect model to start with it might be a bridge too far for them to make that leap.

So you are talking here about evolving the structure and organization of your EA practice

<29:16> Architectural practice according to the nature of the organization, the environment the culture at the time.

<29:29> You can mismatch if you come in with a very advanced model it will not fit. They won't understand it and they won't accept it. So there's a long-term often painful ... pain-staking ... taking one step at a time evolution.

That's the nice way of doing it, but may be you can't afford that time, because that takes two or three years and that's a lot of money. Is the business going to be patient and wait for that?

(If you try it with a miss match) you will fail. So you have to build it separately and replace all them or you have to do a transition plan. It's a bit like rip and replace or evolve. But this is from a people management a change management point of view not an architectural system, but it's the same sort of thing.

With rip and replace there's a lot of disruption really quick, but you could bring in the right people at the right level of maturity and set it up. Transition is more people friendly, but takes time and might cost more.

<30:56> What's the opportunity cost of losing people with knowledge verses taking that time.

<31:09> It goes down to so many levels it's almost like that's the whole war Each battle (Truncated ... talks about architects getting into estimation to cover the total cost of ownership, but people thinking that is only a concern of the projects managers.)

A lack of maturity organization will take that estimate from the architects and say that's it (but it was created for a different purpose) that's what you're going to live with. This slows the whole process down because they treat that as the budget too early when it's really an estimate.

<32:23> That's actually a lack of maturity from the senior management level.

<32:45> Those governance activities need to be mature as well. (...) we have very immature views from the business about what they want and when they want it it and how much it's going to cost. It's almost like they have decided how they want it done and they are telling us the price they sent all the parameters from a project point of view and they may not be a viable solution set.

<33:13> So really people find it hard to understand I say give me one they say what do you mean I should be able to give you two cost function and time (talks about time function budget balance and how business doesn't understand it) Silly as it seems that's how it works here.

<33:53> We have a year and \$100m what are we going to do?

And that's how most organizations do it. In the absence of a plan they can go back to it's just all random. Some things are successful some things are a lot of waste.

(Truncated ... talks about the mythical Word macro project and cutting functions down to fit time and budget.)

You get in all sorts of mess if that doesn't happen.

<34:46> Back to the infrastructure thing ... there's certainly I would suggest in my experience that the technology architecture team almost like go and select a set of existing people who already work in that space and say we want you to do these activities because generally I've found that they are capable of doing that.

<35:10> Operations are often very focused on the cost of operations and the yearly cost ... they are always overworked and they are quite happy to do things more efficiently

<35:24> One of the things for success that I've tried to do, with varying degrees of success depending on maturity is to get estimates from people who'll do the work. You don't hold them accountable for.

We try to help people upstream and downstream common language, common classification schemes that speeds things up as they go along. ...

<36:45> (Truncated ... talks about using all the plans to assist in planning of other things; for example sewer plans being available to building architects)

available in a consistent centralized way. To make the right decisions.

<36:53> Respecting and helping each roll up and down and accounting for

(Truncated ... talks about typical PM only looking at their cost to deliver the project)

<37:20> (Truncated ... talks about the NFR cost never being included in the project cost. Talks about a decision maker dashboard that covers all concerns)

<38:09> They can then see a value from architecture now you are telling me stuff to make me a fully informed decision maker. Because a lot of its fear when you talk to these business people they've got no idea.

You talk to them confidentially they say I really don't know what I'm signing off on. I don't know what this thing does for me. I can't convince myself that it will meet my needs I just have to trust you. I don't know if this is a good price or not. I don't know what issues are going to come up for me later on. And if you don't have the architecture function there they won't get all that information.

<38:42> Getting that message out about value is important. What doesn't work is if that goes through project management they filter all that out and they won't show that

<38:53> They'll edit the material to present how they want to do it. They'll skew the business case to make it easy for them. We have had situations we've recommended look at a thing, it's going to be a temporary thing hey I can build this for 200K its going to meet all your requirements plus more.

But then the PM comes along I don't want this new technology I don't like it. I've got to deal with new people let's go with the old thing that I know. \$1M and then in the end only a fraction of it gets delivered anyway.

<39:29> But that information never made it to the business. This is where things start to fail. You can do all the work and have it ruined by so many points unless the whole thing works as a system.

<39:44> So I think that having a practice and a methodology that acknowledge the role of architecture enforces it ... is a critical thing.

<39:58> that then is what makes successful architecture or not.

I suppose I'll stop there.

<40:19> Just one point there about the quality of architects?

Yeah, you've got to get the right knowledge and training and so on.

(Truncated ... Tells story about University course for developers that resulted in them becoming frozen by an inability to resolve the conflicts, they could not handle the enterprise view a sign that they did not have the broad experience needed).

You've got to be able to look at people and say who are they where are they in their mind. What roles and responsibilities do they think they have?

Work with them but also call out I really don't want you to write this solution bit here can you just concentrate on the requirements.

For example in a BA, you make sure that people have those experiences there might be some aspect in people's natural way of thinking an ability to resolve conflicting stuff and there's different types as we know from all these psychological research of people.

I remember the DISC one Directive Innovative and Systematic and I can't remember what C was for it might have been creative.

<42:56> (Truncated ... Describes 4 types in the DISC system)

<43:20> You need to look at personality types. You've got to get the right people and there are techniques for that assessment models the Herman Brain Dominance thing.

(Truncated ... Talks about various models Myers Briggs)

These sorts of things can be useful because typically successful architects have a preference in particular zones of these models. You've got to get a broadness of experience and across industry experience is useful as well because you need to look at different ways of doing things. If you promote people from within

<43:59> People who have been in an industry for 20-30 years they don't have the experience base to abstract and conceptualize things out to realize different ways of solving common problems. And they need that ability to do that abstraction and frameworks and stuff to classify things a lot of architecture practices have ... (Truncated ... talks about frameworks, Zachman TOGAF)

To deal with conflicts that comes up along the way. If people cannot handle that then they aren't the right person.

<44:56> Also have to be able to deal with all sorts of people because you'll be working with senior level people, you are working with everyone. As you have quite a central role and you are going to get people who are quite rude and arrogant you're going to get people who are quite supportive you are going to get people who have got no idea. So you've got to have good presentation and communication skills. You've got to be able to pitch things at the right level at the right time. Think on your feet drill down to things, helicopter in from a high level and down to the detail depending on the audience.

<45:42> You add those up and the pool of potential good candidates diminishes then you could probably systematically train people up to increase that pool.

<45:51> I just did it personally , I did it myself I like kind of realized that at one stage I was going down a more technical route I got a job as an IT auditor I had a management view of things I started to see things from a different perspective. It was like an IT management audit sort of roll and then did BA work and one day it just all kind of gelled like I could look at it from a business view point, a technical view a project manger's view from having done all these roles. Sometimes ignorance is bliss and now all of a sudden you know all this stuff and you can see the way out, but trying to get all these other people; you need influencing skills as well.

<46:35> Probably a weakness I have ... is in the beginning in the role, 10 or so years ago now, was well, I kind of a belief that if I explain things logically and put the case down for people surely they'll see that this is the way to go? And you put an honest case, but then you have to realize the politics of it all. If that conflicts with someone who's been working on something for five years and all of a sudden you've come up with an answer in six months and it's going to be cheaper and better for the business they are not going to be happy campers.

<47:13> So you have to look at people's You've got to learn a lot more about where people are what their agenda is what they've been working on. Use techniques like help them change their mind get them to be partners in this new thing. Get them to think it was their idea. You've got all these techniques for the change management, I mentioned in the beginning. Those sorts of abilities to understand the personality types and the situations that all these different parties are in and try and make things so that they don't lose face as you go through. That's what the emotional maturity thing I mentioned before is so critical.

If an organization already has high levels of emotional maturity in terms of the people who work there,

it's not a problem, they go but you know you are right, that's a good idea lets work on this together cause other's go I've been working on this five years.

<48:12> I had one of these things, to be frank with the boss who's proposing to merge two old legacy mainframe things together the return on investment was 11years and that was with being very optimistic with the figures and I pointed out different ways of doing things and actually demonstrated some of that later and all of a sudden the business were quite interested hey hang on we can do this faster we can buy the build, applying some of the architectural principles.

In times of those challenging ... when you have those conflicting areas of how do we deal with things that's where the architectural principles come in and we can say we'd rather buy not build or reuse.

You've got to understand the basis of reuse you don't reuse for reuse sake that's not just to save money. Don't reuse a bad thing that's just making it worse.

<49:01> People just say reuse is good. You've got to understand reuse and why it's there, but ultimately it goes back to the cost of ownership over the life of the asset.

So those sorts of abilities to understand where all those people are.

To go back to that boss example so this thing was going to take, here's a different way of doing it all of a sudden the business are interested in doing it. I didn't have a very happy boss cause he'd kind of staked his career on this thing and done a lot of work convincing people, I came along and naively said they look at these figures this doesn't make sense. We can do it for a fraction of the cost and a fraction of the time; that didn't go down very well, then you find all sorts of funny behaviours.

ENDS

14.8 Participant: PETE - Recording: VN860017

<0:05> It's almost like it's got its own brand recognition now. I want an architect telling me if I should even be looking at this business strategy. Tell me better ways of doing it.

One of the things that helps is we have just formalized setting up the innovation capability in the group and now that falls under the responsibility of the architecture often we are being asked to the table in the context of that responsibility.

<0:31> Architecture started off as architecture, then it's expanded downstream, if you like, to encompass design. But it's also expanded up stream to cover strategy and now it's actually gone further than that to encompass pre-strategy innovation. So within the architecture function now we have enterprise responsibility for innovation.

<0:49> Technology strategy supporting business strategy, architecture and solution design.

That's a very high degree of integration.

It is and I don't know how much of that we will sustain because a lot of it comes from strong leadership. Our inspirational leader has made the decision to move on. To take a delivery role because it is perceived that to be a general manager that he needs to have a delivery program under his belt. Without a leader who inspires confidence where people feel comfortable giving up some of those capabilities (power) is another question, that's the challenge we've got.

<1:34> (Truncated) the challenge (for his successor) is how do I maintain the momentum that's already there and actually ensure that we don't go backwards.

<1:37> Because entropy in XXXX is an enterprise architecture function of 2 or 3 people and completely federated architecture at the solution level completely spread across the business. That's how it was 3 ½ years ago, now it's the exact opposite of that. But it takes a force of will; it takes good people and the right organizational structure and appetite to make that work.

<2:01> So I guess that when you take key people out of that you have to sustain the pyramid without having it collapse on itself.

<2:15> (Truncated) we were identifying successors to ourselves in our team, Tony's openly admitted the

fact that I'm leaving and there is no clear successor indicates a failure on my part. And that said all of us are only a year or two in our roles. We are all new to the one level below him.

<2:31> So it would have been a big stretch to go from leading teams of 5 to 20 architects to leading this massive conglomerate of innovation, strategy and architecture. It's almost a general manager level it's like being a director in its own right.

<2:43> That was his concern his view was that actually I am a director I'm just not recognized as such so I'm going to go somewhere that will allow me. So what's the career path for a senior level architect?

So there's a lack of prestige in it?

That's the thing I think that there's a lack of prestige, prestige is one thing but direct line responsibility is another. So you can balance prestige with the salary that comes with being a general manager the salary of being a general manager is 2 -3 times greater than being the senior head of something. If you've been the senior head of something doesn't go up for 3 -4 years people go I've achieved everything I want to go to up a level but you are told that you can't do that without a delivery record that you will never get where you are then you need to go outside that system to find that move. That's ultimately at the end of the day he didn't have a great working relationship with his boss.

<3:40> Probably didn't think he was supportive and so he went to work for a previous boss. That's my take on it. And that's what's happened.

<3:47> Leadership is a key piece?

Yes, architectural leadership is a critical success factor in its own right. That is the ability to communicate the value proposition and the outcomes of architecture upwards in the business.

<4:10> It's natural for architects to communicate requirements down to projects. At the project level, projects take direction from solution architects and they implement it ... that's the hygiene factor for good architecture to function.

But at some point we start making recommendations in design that (unclear) that sit above the project level that are more enduring. Anyway to put in place enduring capabilities is to secure the level of sponsorship needed at the level of the business that can implement more enduring capabilities.

<4:44> Typically the way you fund anything is on the back of a project that has a business case that has inputs outputs and a time frame. To endure, to actually establish a capability that isn't established by just one project or requires potential many a major programme requires a level of visibility, trust and credibility that sits above the solution and project level.

<5:01> That needs sponsorship and leadership for architecture to operate at that level.

How do you attain this? This person you've been talking about did he come to the role with a high degree of prestige?

I think a lot of it has been injected by the people around him. Including the new CTO who's come with high expectations of business engagement and really bought business engagement out of architecture

So I think it's been a growth area for everyone. Not hold back go and talk to the business at senior levels and listen to what they are saying and try make sure what is being responded to and delivered is actually achieving some of those longer term requirements.

<5:50> (Truncated) The business general managers are the ones with that have funding delegation left verses right zig verses zag. Anyone else can make a recommendation but ultimately it's the general manager that actually implements or pulls the trigger on the piece of work that delivers.

How do you engage lower down the order at the project level?

It is multiple levels of engagement you have a team of people who provide the solution architecture for a project so it's to work out what to do. The solution (Truncated)

Separately from a governance perspective very project that does get designed and wants to get the funding for delivery needs to get the sign off from enterprise architecture to make sure it aligns with the long-term strategy. And what allowed that governance structure to take off was to do a very comprehensive long-term technology strategy with the business in the first place.

So if the business felt comfortable with the long-term technology strategy was actually implementing what they wanted from a business perspective they were more likely to cede control, cede governance to a group that was testing for alignment to that technology strategy. If they saw a technology strategy that they hadn't been involved in or didn't reflect the priorities and requirements of their business function they would have been a lot less willing to be governed by it.

<7:07> (Truncated) We kicked this off about 3 ½ years ago it was a very comprehensive technology strategy it took about 6 months to do. It involved 300 people business and technology and all the key General Managers and GE's had very intense sessions putting their opinions forward. It led to a whole funding cycle for the bank. And because the technology strategy that they were being governed against was implementing that piece of work its governance is against a known accepted agreed target.

<7:37> I guess one of the challenges for us was to keep that current which is why we refreshed the strategy recently. To go back to the same GMs and refresh and validate the directions and make changes where appropriate so that it stays current in their minds.

<7:50> (Truncated) When the business sees that the technology plan is delivering outcomes that they benefit from they are more likely to cede dominance control to a group that's managing the achievement of that long-term technology plan.

<8:15> I think that there's the stick and the carrot, there's good intentions, but good intentions can be lost in delivery and day to day decisions. So it's a multi-faceted approach. Whether architecture delivers is another question the reality of what we are seeing is you need to have a technology strategy that the business can understand end to end because it's the delivery capabilities that they will benefit from.

But you then need to make sure that when you are delivering projects that they are in alignment with the strategy otherwise it's a piece of paper on the top shelf that's not really governing anything.

The way that was done was, A first lock in a strategy that everyone got behind then B making sure that everyone said they would stand to be corrected and in fact architecture doesn't have the ability to stop a project. But architecture has the ability to provide transparency of concerns to the peak approval bodies. Do that every peak approval body that has to look at the project and answer the question around whether they should get further founding one of the key pieces of information they get is an architectural assessment of A the overall project's health and B its alignment to the technology strategy.

<9:26> I would say architecture's goal, and I say this to all the guys in the team, all the enterprise, certifying architects report into our team. The responsibility of architecture is to provide transparencies of compromises being made at the project level around long-term verses short term technology outcomes.

We're not here to tell you it's not the right thing to do, we definitely try to steer you towards long-term

targets, but we see that at the moment you may have valid reasons trying to achieve short term targets at the expense of the long term. We're not here to say that that's a bad thing, but we are here to flag it so anybody who's there to decide if you go ahead or not or that you get additional funding that they do it fully informed of the implications

<10:16> of what you are doing from a long-term technology perspective you may be building a legacy that is going to cost us more to clean up and if it's dead set that we have to actually deliver that long-term capability we may be able to make a more balanced decision whether a project can continue down the path and so our peak approval body literally looks at is this taking us forward in terms of where we want to be in the next three to five years because if we are going to make an in \$20m investment in a project that's going to have us treading water or worse still building further legacy that we'll have to get off. You all as very senior GMs also want to get to that long-term target we'll really scrutinize you.

<10:54> And because projects realize they will get that extra level of scrutiny if they get a flagged project from an architecture certification they actually work very hard to avoid that in the first place.

<11:00> (Truncated) you're not the architectural police you're more like tell tales

We also say the opposite if what you are doing is accelerating the long-term target then achieving your target's but also laying the foundation for three other projects behind you we'll definitely point that out and we won't just say it's good enough we'll say it's accelerating the long-term strategy. Those projects normally get through a lot more effectively because they are seeing the bang for the buck for the business is greater so it works in both ways.

<11:40> People would actually like to get a good report card from us because we keep it pretty simple are you unaligned. Are you neutral, aligned or accelerating? If you are accelerating you are actually laying target state capability if you are aligned you're just reusing the target state that already exists. If you are neutral you're not really creating a big mess, but you are not really adding you're not taking us forward.

If you are misaligned you are actually using some capability that we want to move off and in fact there's a worse one contrary which is actually implementing capability that is directly opposed to the stuff we want to be doing.

I think that we were possibly lucky more than anything that landing on that particular spectrum people

obviously know that neutral align or accelerate are the place to be anything that is misaligned or contrary is going to get a lot more scrutiny.

And the reason that it's going to go through a lot more scrutiny is because the peak approving body are responsible for all parts of the bank so they know that every time they approve a unaligned or contrary project they are making it harder for themselves.

<12:40> For all the other projects that they own and have responsibility for it's going to increase the cost of legacy for themselves and other areas to move forward.

(Truncated)

A number of critical success factors A making sure all key decision makers are involved in the setting of the technology strategy B securing some sort of transparency of alignment so that the technology strategy is part of the alignment process for funding and making sure that there is a peak approval body.

<13:11> If you have delegated authority to fund projects then if no one else actually ever has to have visibility of the fact that you've green lighted a project that you know is heading in this direction but not the same as the others then people can do what they want in their domains and it may be against best practice or the long-term strategy of the group but if no one has centralized visibility of that then you will never get pulled up.

<13:35> I think having a centralized peak approval body went a long way to providing the final mechanism because all the decision makers are in one place, it's very regimented it's run on a four to six weekly basis it's called the PEAK Program investment committee and every project over \$2 or 3m has to go through it.

<14:00> So having that capability in place has made a big difference

(Truncated discussion about limits avoidance)

That's the same with us too. We have a continuous improvement program so if it's less than a certain figure you go through an alternative process

Now the truth is the level is set that even if the project was completely contrary then there is only so much damage it can do. Generally they can only do a limited amount of spend, obviously they could do

some major damage so on an exception basis if it come to the attention of certify architect it can still be called up, but it's on an exception basis. Given that most of our projects still go above that threshold it's almost a case of how do you get maximum coverage given the limited number of resources.

<14:52> (Truncated) How do you get visibility of those projects? They still have to be centrally registered and in various parts of the bank we are less effective at this than we are in others. In the more mature parts of the bank projects have to go through domain level reviews. The principal domain architect would on an expectation basis escalate it and it will be treated like any other project.

(Truncated)

<15:55> Certification was only introduced into the bank about 3 years ago and it started as a soft touch and started going to a hard touch initially it was opt in now after about a year it became mandatory.

(Truncated) a by product of centralizing the architecture teams was expanding governance.

<16:45> So who pays for those architects?

The solution architects are basically funded by projects the certify architects are funded centrally and are not costed to the projects.

(Truncated) you can get away without an architect on you project, but you still needed architecture governance. Before funding someone from architecture may come and do a quality review of the design just to put an architecture opinion on it.

<17:24> (Truncated the governance model is quite pervasive and is constantly refreshed)

The outputs of architectural governance is creating insight which is then going to be added to the Board technology report.

<18:03> The output is literarily going up to the board level now. Quarterly ... Three times a year basically.

That's the next level using architectural insight to actually inform the board on technology decisions ... you can't get much higher.

<18:21> So that's going from the day to day decisions of the projects literally with a path of escalation all

the way up to the board of technology review. So you typically expect to see in the Board technology committee only three or four call outs that could have been generated by architectural review but we (unclear) and some of those are positive not just negative.

<18:38> It's almost a pipeline originally all the activity was around all us techies making sure we were all in alignment so we focused on project level certification then from project level certification we went to recording and governance etc what we call technical solution design with the technical architecture review council so on an exception basis we're making decisions on architectural direction will go to the architectural council and get it endorsed. It then therefore has some sort of meaning. If a project at a solution level has an issue or wants any guidance they can go to the technical solution design council and that's staffed by the key architects in the group.

<19:19> Then what we've gone from is generating reports for those bodies to the TAD the Technical Architecture Decision Council which is the peak body for architecture contention once they make a decision in gets referred to the leadership team of technology and they effectively endorse it.

So what we have gone from doing is producing reports and analysis for that TAD meeting which happens once a month to actually saying once a month that gets generated and on a quarterly basis, broadly speaking insight from there will go into populating the board technology committee report which will be a distillation of the key issues that went up to tad.

<20:03> The key architects are the heads of architecture the people who run architecture for the various towers. As well as the Enterprise Architects. We only have 4 Enterprise Architects they are business application, information integration technology architects as well as the line of business architecture leads.

It's like head of architecture for retail bank, head of architecture for banker's trust (Truncated) there's about 6 or 7 heads of architecture and there's 4 Enterprise Architects.

(Truncated talks about standards and principles)

<22:00> The responsibility of enterprise architecture is to keep those standards current, to communicate them to people and then govern against them.

So leadership and governance is that what you are saying?

I think it's like a Maslow's hierarchy you need good architects. Once you have good architects then you need to do good architecture, then you need good programme architecture then you need enterprise architecture to tie it all together. And then you need to go beyond certain levels of confidence you need to have it ingrained in the day to day operations of the group on one hand and in the strategy of the group in the other hand.

<22:29> You attack those in different ways. You need to get involved in the strategy setting, but then you need to be involved in the day to day operation of decision making to make sure the strategy's been ... it all sounds good on paper.

<22:43> don't think any of this was deliberate it's all been evolutions in different areas to improve chunks, but in retrospect you look back and you go oh well this has gone quite well. There's areas for improvement and that's sought of where we now focus.

<22:54> Now for us it's like career management we've got a team of 140 people with a number of people in very senior roles where do you take a principal architect?

Now it's almost the longevity of managing that, it's one thing to create it it's another thing to sustain it.

You've actually got your own little ecosystem that's been set up, before there wasn't an ecosystem there were 5 architects you just need to manage the 5 architects and make sure they are happy. With 140 people there's career cycles in there there's segaways there's how do we rotate this guy from here to here to there ... you know ...

<23:34> Some of the guys we've talked about its how do we get this guy out of architecture because they've got to end of their career here and they've been a former head of architecture but they literally can't go any further in the architecture discipline now they want to head up a technology line of business or they need to go to the next step of leadership.

<24:00> Is it being seen as an incubator for higher management, that's what you are implying?

At the moment no, I think that we've got to the point where we've done a good job of creating good architects and at the moment they are at that interface. There's no obvious place for a senior architect to go once they get to the end of the architecture discipline.

<24:17> There are some places that they are going interestingly our boss has made a sideways and

potentially backwards move to develop the skill sets he need to be a general manager. If in two years time he gets appointed as a general manager then it will attest to architecture being a good background for that sort of individual, but at the moment it's not perceived as being a good breeding ground because there is no direct route to general manager there's only one general manger who comes out of architecture and that's the Chief Technology Officer.

Which is back in the tradition mold really isn't it?

Yeah, so I think for us that would be one of the challenges we have which is a good thing to do, but establishing a career path out of architecture

<24:59> Is one thing especially for your high performers who may want to after 5 or 10 years in architecture or 15 years in architecture may want to try their hand at senior management and that's one thing, paths are being forged now.

<25:15> I've seen people succeed in architecture and get to the barriers of that and are now trying to work out where do they go to from here?

<25:41> General Managers are the equivalent of a partner in a big four or five consultancy so they seem to get paid, from what I can see, about three quarters of a million dollars and they are generally in charge of hundreds of people and budgets in tens of millions of dollars or more.

<25:53> So, it's not an obvious skill set for anyone to have there's not many people who qualify for that level of experience so for someone who can clearly get things done and coordinate massive amounts of funds and activity. And the types of managers you have across the business are very varied. There's 100's of them in XXXX so then the question you ask is in architecture where do you get those skill sets. So a general manager might coordinate 200 people while we've got a big architecture function but it's only 140. So you already have the size of team limitation. A general manager might coordinate 10 millions of dollars you don't do that in architecture.

<26:33> A number is a number but I think there are big metrics that, there are metrics used to measure up someone suitability the only currently obvious career path in architecture is, and it hasn't happen yet is a CTO position. (Unclear) Our former CTO is now the head of on line banking for the group which is a very senior business general manger. But that's the only way out. ENDS

14.9 Participant: ALAN - Recording: VN860020

<2:55> I believe that in a sense that EA is a business tool, it's about understanding the business and seeing how best we can get the business delivered.

What works for me in a sense is that in my organization we are a knowledge industry therefore business and IT have a very strong alignment; were joined at the hips.

And the frameworks of EA give us models it gives us a lexicon to talk. So, when I started looking at my organizations needs. Which was at the back of the merger the merger bought together disparate business, a whole range of different applications, different hardware and it was just like ... a huge huge challenge of not knowing where to start.

<3:44> Embracing the EA approach for us and picking up on the Zachman framework was to try and get an overview of our organization as to what business we were in. And that was the starting point for connecting the business because they themselves knew their business but they didn't really know their sister business they knew their processes but they didn't know which processes were duplicated.

They could really tell which systems they used outside the process when in fact those were the main line of business systems. So, it gave us a quick walk through the organization to get an understanding of the business at a high level. For the business to try identify what are the main systems they use what information they would use and up with some conceptual model of how the organization was working.

<4:34> Now what was important from that piece of work was the touch points of the different applications. So, that was our starting point and we used that to try and get an holistic feeling for the organization.

And while we were doing that we also did some target modelling with the business because they themselves had a merger. With all mergers you've got a settlement post acquisition. And then you try look at where you want to get to because the shareholders want to make sure that this merger is going to work. Umm,

<5:00> Our organization being a knowledge industry was focused on informing our customer base was focused on ecommerce, was focused on e business was focused on e citizen systems. And yet at the same time or internal systems were decrepit we had duplicate processes within the business and what came out of it was a separation of focus. There's focus from the outside in this work improved our portal

our external looking systems this work fixed our customers therefore they feel the organization is unified. And then we come back and work internally, once we got the outside fixed up.

<5:36> Outside in, then inside out. On the inside out allowed us on the second part , so, the first part of the project was called BITES Business and IT Electronic Service delivery plan it was it [unclear rolled?] service delivery into the organization that lasted about four years. And I'll come back to how we approached it. And the second part of the plan which we call ORBIT Organization Readiness which is about how we work this is about ERP systems this is about our processes and the second stage was to leverage the work we did in the first stage.

<6:09> We didn't throw that away we leveraged that into the second stage and we're just finishing off the work of the second stage now. So, if I look at the start of the 4 month project to go through the organization and describe the enterprise architecture plan of our business, of our systems, of our information what came out of it was a strategic plan to do something which had a business case and then put a governance and then we broke them down into a series projects. A lot of times EA starts off with a depiction of the business that never ever amounts to an implementation a plan. So you have a beautiful bookshelf, but it doesn't actually live beyond that.

<6:51> So that's pretty much our journey. In previous times when I did EA in other organizations it was always in one of three or four areas. It was an information study, we would look at what information we were using; or it was a technology review because we had to do some refresh; or we would be looking at a business area rather than looking at all the business areas in our enterprise.

For this plan that we embraced in this organization was a review of all our business functions then drilling down from those business functions and looking at what systems supported those and then analysing those systems to try and identify what are the common information bits, doing a touch point map right across the organization and then coming up with a plan. That allows us to deal with the business focus, improve services to our citizens, to our brokers to the external community and build a framework a foundation platform and then work through your organizations systems to enrich those.

<7:52> So, it was a long-term plan it involved about 25 mill for each part of the plan and we don't in this organization get through money in one large slab. We always have to break it down, draw down against a treasury allocation limits. For this type of organization, we're extremely rich, but we don't really have much capital at our disposal.

<8:13> So, my plan would have chunks of say 5 million dollars lots. And then you spend more time actually thinking about how do you get your frameworks right.

<8:22> So, we may design for a storage area network to grow up to a petabyte but we might only actually start with say 500 terabytes and then it can grow more incrementally as we add more bricks back into it. So, we are spending more time designing big, while building small.

<8:38> And it takes a lot of time as we have to continuously review architecture. We thought about our bus because we need to abstract [unclear] systems. We thought about a portal to give us a consistent interface we reviewed all the different players in the market place. We spent a lot of time to try and find the best organization that over a long journey is going to give us the functionality.

<9:01> So, taking a step back to where I started from, after describing the organization we knew what we wanted to do. When we had a look at our legacy systems, our environment, when I looked at the skill sets. We had one set of our skills, one set of our IT folk were [unclear Delphi?] developers, others were java and we had a whole range of different development platforms and a whole range of different integrated development environments. It allowed us to think through that in order to do this we needed to take a different approach and that's where SOA came in to it.

<9:30> So, we liked SOA as an approach as part of our EA work. And we had a look at breaking down our business as services looking at our components as services, infrastructure components, treating our applications as services. So when we described the bus we also described the bus services and decided to build the services above the bus. So, in the future it will become the repository and we'll use that to replace the old applications. The old applications then we'll just keep the data base which mainly then becomes a repository and all the logic and stored procedure all logic in home grown code overtime will become superfluous because we then started to live out of this library.

<10:13> So, we've got now close to 280 services and we are just finishing the coding of those and putting them into WSSR which is one of your products as you know. We've lived out of an oracle database table where we can manage our services, but now, now these services are used so much now that we need an industrial tool to manage them so we've got all the services coming to WRRS.
(WebSphere Registry Repository Server)

They are all encoded they all have descriptions each service has a packet that describes what it is we

know who invokes it how it's called. So that's where we are right now.

<10:47> That came from our first incarnation of BITES and stayed with us while we then worked on the organization internally, but now we are ready to take the original services that came from the first strategy to encoding and moving to this new platform.

<11:01> So, you can see how we started off. We started off on portal as you can see from the delivery we started off on the bus. Then we built services against a whole range of external facing services. We bought some adaptors to enable our ERP system. We then moved internally and started to move our HR app from (unclear) on to our SAP ERP as part of our organizational readiness we added on e-commerce we added on involved parties we added on customers in our SAP system and as we were doing this we were transforming and retransforming those subsystems. That sought of gives you the road map right.

<11:43> So, as we started to transform the organization internally we started to pick up some of these line of business systems were in fact got problems with internal skills sets going through retirement. So that's all part of what organizational transformation. We knew that by 2013 we could probably lose about 50% of our work force.

So, organizational readiness was for us an important strategy. We couldn't focus on that problem until we sorted out all the rats and mice. We needed to stabilize the business focus externally. Fix that up then go hard internally. So then go hard internally was to get a platform for managing our resources which is ERP. Then look at those services or areas where we're most exposed and then work in those areas what helped us those areas are modeller process server they described new ways of business working these areas and then push it out.

<12:42> So we are at a stage now where this month which is the end of June we're going to go live with our new e-plan lodgement system. Which is an area we are most exposed in it takes maybe about ten years to up an examiner and its all different aspects, different types of surveying that they need to know to be an effective examiner.

Umm, what we now do is if a graduate that just come to the organization in about a week they are actually performing work that a normal examiner would have done after eight years with us, that's what they're doing.

So, most of those rules have been sought of picked up by the system and all they can really do is look at

checks. So all method testing of closures, young workers can do all those sought of things right now so that they can focus on the big issue stuff. We went through a huge amount of energy to build routines for those different groups.

So, that's our journey right!

<13:41> That's pretty much where EA started. Our EA project wasn't even called EA, we called it SIAP Strategic Information Architecture Project. So it was looking at information and architecture to drive the business and it brought business and information together with applications and technology. And those are the four quadrants that bring together EA.

<14:02> But we didn't call it EA because no one in this organization would have understood that it was about the whole enterprise so we called it SIAP.

SIAP Strategic Information Architecture Project.

And that project was about base lining where we were and it was about trying to come up with some projected models. So as we started to implement, I must inform you XXX that we didn't actually maintain the original models as much. It gave us a base line and as we started to build we started to build beyond that. And started to build this new architecture, so what we do have right now is a revised technical reference architecture, we've maintained that because all our investments in terms of replacing systems that's up to date. We got whole reference architecture of how we have deployed on to highly available services. You know using portal from 5.1 to 6.1 to 7.0 we are we planning to get into it right now. We've had IBM HYPOT teams come in and review the architecture to make sure it can deliver and drive through. So, the technical reference architecture is good on the service side having the mapping for all the SOA services and the bus is strong. Then on the business area with the exception of the areas we transformed, only those areas we've maintained. So the eplan that I mentioned to you we've got all of those described in modeller.

<15:24> Where as when we started the base line we discovered in Popkin and using UML just very basic process flow diagrams. Where we transform now we use process server and modeller not the other side so the models are kind of out of synch, but that's alright as you start to work and go through them (unclear).

So that's our journey, so for us it was really trying to think through the business problem and use EA to

identify where we wanted to attack and use it as a basis for funding to put forward a strategic plan that allows us to get on the band wagon and get that built and err so that's what we did.

<16:12> Hard work four years and the next stage of the plan was to empower people in the business, so we put BAs back in the business that understand the model, so we started a whole renaissance movement in the business. To build up as much EA skills in that area we use BAs in the business and taught them about modeller and showed them how to use the architecture. So we then have this complement of them working on this architecture and understanding it together with my staff.

We maintain the reference architecture any projects they are working on in the business must fit, referential fit and we do it all the way through the life cycle of the project.

So when we had a look at at where we are right now, in our first iteration of our first plan BITES it took 2 ½ years before we got the first payback. Payback came when we had our first services reused. And since then basically we've been getting payback. So at the end of BITES which happened in 2008 we then went through and counted up all the benefits, they would include for example cost avoidance because a traditional application is going to take say 100 function points to build but because we going to leverage that we've built infrastructure the function points maybe reduce by 80 points so you've only got 20 function points to build. We started to count what is the residual cost avoidance to those business cases. So now we find after four years we've returned about 100 million dollars after four years of cost avoidance.

<18:01> Umm, and every year above and beyond that we've gone about 50 million extra so we started with 100 after 4 and I think it's now 200 or 250 which is where we are (unclear) and we do that every year.

And every 18 months we do a whole benefits realization and we've also pick up what I call an intellectual capital statement where we are looking at the skill set growing and changing. Looking at how many people have studied formally the matrix across the organization gauges the complexities of what's happening and is seeing that our staff numbers are actually staying static in fact becoming a lot less because freezes recruitment in this are but our costs do not balloon because the benefits have accelerated.

I think it came from embracing a SOA approach and a lot of times we did this in IT departments before

but we never tracked those benefits and I think tracking the benefits shows clearly how you can return these investments so. The formal piece of work that we did to base line the organization I had about four people working on it and it cost a half million dollars okay, so that's all half a million bucks we had a base line, we had a target plan.

<19:23> Then I wrote a business case and we had \$25m, approved for the first case and then we've got 25 approved for the second case. So that's only 50m dollars right. After the first 4 years we had 100 m dollars returned already so they full life is already fully paid for. Just in terms of cost avoidance we would have needed that extra money had they not had this infrastructure, not done these additional improvements.

Not only did the costs decrease, but the time to market improved. So you've got a whole bunch of infrastructure you can leverage. What would have taken us traditionally, the Eplan project, which goes live this month two and half years to build, took essentially you know less than nine months. Cause you're inheriting an environment and infrastructure.

And any new application initiative you are working on identifies what services it has or which services it needs to repurpose because you what to use them a little differently or what new additions we have to add on to our repository.

Umm, that's working really well, I must admit in my last organization we embrace extreme programming and we spent a lot of time refactoring services because we built them as they came out without a plan. And we had to kill that baby after two and half years and write it off mainly because the cost to refactor and retest was killing us each time.

What we did with this approach was to do what we've always done is to come up with a design and against the design look at how you can do rapid development against the design. So, design big and rapidly develop against that rather than just keep rapidly developing and just hoping something comes out of it. It's about having rapid development in its right place?

That's exactly how we approached it.

<21:15> That's interesting because you often get those people come along and they become fanatics for it and off they go.

I had a fanatic that sold it on to me and I accepted it. And I had a little chat to my spirit and I knew in a sense one on one information system principles we were taught in uni the first day was about design and architects, if you don't have a design how are you going to get there?

Well, he said this is how we build programs these days, you know you just stick it in there and (unclear) we'll show you and they did.

There's that just word.

And I remember when I had to go stand in front of my board to explain why in fact this project need to be turned off they weren't there with me it was a very cold day standing alone to explain, this you know 2 and half million dollars investment which was working, but it was a clunker.

So you had this ultimate completion between agility and cohesion and the agility had bought you a lot of stuff in the short term but ultimately it fell short of the cohesion.

Very much

<22:18> It couldn't stretch, it just couldn't stretch.

I noticed in that conversation there that you seemed to have had very high support from the beginning. How did you achieve that?

This is something I know that a lot EA struggle to achieve.

I think what really happened in the beginning was with the merger we had a new CEO that bought the merge together then he appointed a new COO a Chief Operating Officer. The COO worked with me in a former organization. He bought me on board and said look I need to do something I need to attack.

<23:00> So when we started EA we started to think through this business, he had already worked with me and he knew fairly much the way I would approach it which is really about understanding the business. So I had confidence from the COO I didn't have to prove my methods and theories. I'd proved that before. So that gave me a fairly very big passport inside the organization, so I came with credibility. But I also came with a whole pocket full of experience.

<23:30> I didn't bring anyone else on board; no body followed me I just came by myself. So, I think that

gave us, he had to prove himself too because he was a fresh, brand new contract. And while this organization was all over the place with this merger he knew to make sure and stabilize the business so he focused on as a COO and I started to think through about his business. I had to learn his business very quickly and get across it. The fastest way to learn his business was EA. So if you model the business and you understand the business and know the touch points. I knew his business better him, holistically in about four months.

<24:08> Okay, so that gave me confidence because now I could speak business language and because when business and IT got together we could use models to describe (unclear). I think that the confidence came in the first four months of doing this. They were not exactly sure what EA was, but as we started to do it, they started to see the models; they started to see what it is. And against that we then started of the development exercise. Now umm, for the foundational stuff the infrastructure it's hard to justify there's an element of faith there, but we were fortunate that we had a lot of systems failures because the environment was untidy, we had a lot of problems in the environment. So very soon, very quickly I started to stabilize that.

<24:51> We started to; we quickly could see where the squeaky wheels were.

So being more chaotic was probably to your advantage?

Oh yeah exactly! And I hit little things very quickly; we replaced the desk top we focused on things that people start their life with every day. You log on to your network, you get authenticated to your network we saw the things that were giving them grief we fixed them very quickly.

While we were doing against the backdrop we laid our plans, you then have to decide what you're going to do with these things, ok are we going to standardize on maybe a larger enterprise servers right, so all that takes months to think through, call tenders and do all the stuff you do generally in government. When you are doing that you are having to re skill the people and get (unclear).

So, while we were working through the longer term parts we were always trying to abstract that and look at some quick wins. So, the business started to see very quickly that we had a whole portfolio of initiatives and once we started to put in place the bus and the base infrastructure one of the first projects I kicked off was, that umm gave us a return, was an audit report that said to us, because we are a large organization in terms of returns of monies to treasury, so we give'm a lot of money a lot of the

key systems we were using that manages interface to were on the SAMBA mount, but on the SAMBA mount was also a common file and print server that the staff were using. So, it was open to potential abuse and previously audit had picked up the mess and there was an audit letter that identified the exposure. So I picked that up and said okay, how can we deal with this rather than use a SAMBA mount a file based system, how about we transform that and guarantee that message delivery using MQSeries.

So, that was the first initiative we kicked off. Immediately we then got the audit qualification taken off us, off our books we got a stamp, the executive were listening we'd fixed up a problem. Then we had the bus in place. So now the bus was in place (unclear that gave me all that?). Strategically we were trying to find areas that will instantiate infrastructure.

<27:04> So you can see we had squeaky wheels things were falling over , infrastructure helped all that, get the bus, they all feel like heroes because they've addressed that and nobody else has. And against that incrementally you can just keep adding on. Then, a lot of the time I would be initiating these things and then I'd go back to the business and sell them the idea. So, then it becomes theirs. So, that was the chicken and egg part of it. So I worked very closely with them to get the plan after that it was trying to drive through the plan, when I got to the end of the first plan. We started to launch some new products and then I had a bit of a run in with the business.

<27:39> Where basically they thought I was taking the organization down a pathway that they didn't want to go. Because the pathway to that point was to bring citizens to the portal and we're a wholesale business, when you bought them to the portal as the whole sale business I saw an opportunity for retail services.

<27:56> So, because we had all of the services now we could actually offer some retail so that then bought us to a point where we had to work out are we a wholesale or a retail business. And the question was can we be both?

<28:09> And so there was a huge stouch between the business and ourselves I saw potential and the business just wanted to be whole sale. So we then saw the executive, so the COO who bought me on board he and myself are friends but we were having a stouch so we went to see the big boss. So I said to the CEO, umm he believes that we should stay wholesale and I believe that we can be whole sale and retail. Why don't you make me a wholesaler? I'll buy the data from you as a wholesaler and I'll sell it retail and any percent I make I'll put it back to the organization. As IT and corporate services people for

salaries and I guarantee I'll make more than enough money that will pay our way going forward. The CEO said great, umm, make him a broker.

<29:05> A very interesting approach.

It is. A broker buys a XXX for 4.40 for retail IPAC (regulatory body) says we have to sell it for \$11.70 when I look at the prices the brokers were making they were selling them for \$11.30 40cents less than what we sold it. So I figured I can buy it for \$4.40 I can sell it for \$11.70, but if I actually add value add services I can cream this market.

<29:30> So the boss said yeah, make him, you don't want to go wholesale, make him a broker he'll wholesale it and whatever money he makes isn't his personal money we will claim it and that will be our contribution that management and staff are making to pay our own way.

<29:49> So they went back to the business and they said oh no; we don't like that idea, we think we should be given permission to do retail, have part of us doing it. So that's how we got retail started.

<30:00> That forced their hand. So now we've got retail in the business. And you wouldn't believe now that retail is such an important part of the business. It's actually the thing that saved them in this last merger (unclear a separate?) organization. So the thing that, the stone the builder rejected has now become the corner stone for a whole new strategy. So we had this big Barney around about the middle and then it was for about a year on going friction trying to align areas, but we pushed on and kept straight true to our original plan and I think we have sought of comeback working more closely with the business once again. Where they saw we can leverage the infrastructure (unclear). So I think that's part of the journey it's a combination of various things.

That's very innovative, as a consequence of that are you now seen as a centre of innovation? If you were to come up with another innovation would that be expected, is it accepted?

Well I think it is expected, I think it is accepted, I think they generally see that a lot of innovation comes from this area. I mean I've got four of my staff, we've got four, in the time of working through these issues we've got four PhDs in my area right including myself. Umm we've got two more studying, so we are constantly investing in our people. I'm not saying that you have to have a PhD to come up with ideas. But because we are researching, because we find some things we are always a couple of steps ahead of the business. We are looking at what other industries are doing. And we look at the way the

world is approaching these things. We're coming up with papers we're going to conferences we're making inroads, we're talking to different teams in the US. Your guys in Texas, we speak to your folks up in Boston we speak to ESRI, so we're getting a lot of information. And that allows us to be innovative in terms of understanding what's happening out there with technology at the same time we understand the business. Therefore we can describe it. They do look to us right now for the innovation.

<32:05> And I think the business want to know that. So their strategy was to send BA's into my area and learn how to model, but and you know it is working and but a lot of what we do is in a sense is understanding technology. But I think as a business person, they understand business but they can't think as an IT person. We've got one advantage here.

<32:25> So you would say that the education and selection of your architects is one of the keys to your success?

Yeah, I think so too. I think also selling if you look on my computer the directory with the most number of file entries is my power point directory. On average in a week I'll have one or two presentations, I'll give it to the business or outsiders. You are talking about EA so the amount of work we've had to do in selling EA I think that's another key thing.

<33:08> A lot of times we do this we don't sell, we're presenting all the time I've had graphics people work with me to sell. I'd be writing the business case and writing the PowerPoint it terms of how do we get these messages out? So constantly we are presenting, constantly we're sending information out, umm all the time. And I do that. So I would say that maybe most of my time is spent thinking through business concepts then building up some very very simple conceptual views of what they would look like. And explain what it would look like.

<33:39> People understand now and generally feel comfortable with that. And I think that's another key part of success there. I would think that I over use power point, not in dot points but in pictures.

Earlier you referred to them and now the business and their more comfortable. Who is that constituency?

We way we are organized we are a business technology service. I mean the business with their different business divisions. So you have XXA, and XXB and you've got XXX.

(Truncated concerns business organization)

<34:51> So, when I speak about them I really speak about the XXX information business area and we've got a board of management and because we are (not) part of the board of management we've got a service level agreement between us. And even that took some difficulty to get described. Initially the service level agreement was thou shalt fix this problem in ten seconds and people would say that's ridiculous an SLA has two parties to it so I refused to sign anything that didn't make sense.

And we got to the table to work our way out of it. So I had a look at the way they were selling their cases to Treasury. They used a SBI Statement of Business Intent. So I came up with a Statement of Service Intent I said I'd sign the service intent until we can get both parties to come together.

<35:38> So, it's taken a while to get the service intent established, it has all the things that a service level agreement will do. Except now we can go from an SSI to SLA where as when you started off with the original SLA it was so limiting in what we must do, it really limited us. It really just kept us bound and we were endlessly chasing our tail. There was no innovation at all and it was very punitive as a statement. Yeah.

So, I think that's part of the things we were constantly doing all the time with the business working hard to improve the relationship always accepting the fact that we are equal partners, yes they are funding us, but they are going to get something back from us, they're going to get a system solution that we are working together, we can understand their business, we can you know see the business we can share the technology path with them. We didn't necessarily see them as having an exclusive market place on all business ideas.

<36:35> And we would challenge them and then occasionally we do it when we had differences of opinion in a concept other times we have abandon it.

So, I think it's a combination of leadership, as you can tell, if we were just subservient to accept what the business was saying we never would have built the portal to the extent that we had to.

We saw opportunities for market place and we had to trust them, we knew the market and we didn't want to disrupt all the information brokers that's their bread and butter. But there's also a whole big market place and was missing out on it so you had to go the broker to get your services. well equity of access people living up in Broken Hill they need to go on to the internet so why should we deny them

just because of a philosophical view that we are only a wholesaler. Challenge that, let's review our business imperatives going forward.

<37:29> Yes, I think that's what we did, but EA gave us an understanding of the business and it gave us the mapping of the business, but it also got the business to understand that the environment was very complex in terms of integration paths. So they will be very circumspect just about being blasé about what they are doing. So they saw well we'll work together and we'll drive through and share both the outcomes. So when I return those business benefit value statement (unclear it's their statement?) they will actually show that this year we've actually paid our staff \$150m but we've returned similar value and they will be using that in their discussions with treasury.

<38:12> So you actually had to readjust the power structure, the discourses in the corporation?

Yep, and that's, the CEO always believes in hybrid vigour, in fact in the power structures he liked a bit of discord, he liked us having argie bargie stuff going on as well because that always bought a bit of (unclear) tension ... it's frustrating...

Creative tension?

Yeah, yeah, but it was frustrating.

I can imagine. How did you sustain yourself in that?

Beroccas, vitamin B, I think that we sustained ourselves we knew as professional IT folk we can do this. The technology part wasn't that hard. We could see big potential and opportunities in the business area.

Umm, it wasn't, sometimes it was an us and them, most times you know we worked together they started to sleep at ease at night they could feel that the problems they had during the day were going away and systems weren't breaking down.

So the confidence was growing and ballooning in that area, but the regular growing up in a family there are growth fights and we had a lot of growth fights going through.

Urr I think that the tension wasn't a bad thing, but there was no malice, there were times when they took away my delegation or tried to take away some money I, you know I would think it was a bit of malice, but when I look back now they just wanted to be more involved in the decisions that we were

making.

It's an interesting story.

It started from EA right.

Yes, but this is the fundamentals of how it was successful. This isn't about TOGAF this is about the things you had to do to make it successful. In this instance which is not necessarily the same thing.

And it's selling it's about believing, it's about adjustments, it's about being flexible, and it wasn't about trying to sell EA you know we wanted to try and understand the business. And I think that is the thing that I must really underscore about EA, understand the business, understand technology, enable a plan. If you have a technology road map people can see it. They can say okay jeeze you're going to spend so much money on this infrastructure what am I going to get from it? How you going to do it? If we didn't have a plan then it's just every year you come to June and you've got this money spend up because someone else hasn't executed their projects. It's wonderful to have the opportunity, but you are just going to make poor decisions.

<40:48> So, I think that by having the plan and having the plan vetted and going a (unclear gateway review) across your plan, getting the Hypot (an IBM technical team) team from the US to review the architecture confirms we are on the right path. And it should withstand scrutiny, this is public monies, and we should be able to make sure we are returning dividends to our business.

<41:06> So leadership is a theme I hear here, accountability a degree of openness which I think you have to be quite courageous to do is that a fair thing ...

I think that's fair I think that's a fair call. Your courageous but it is a boldness that you have to deal with, SOAs a journey it's hard for me and my peers if they want to go on a path of enterprise SOA not an application SOA.

I was asked to think through the costs, this is a journey you'll invest a lot to get your first payback. But once you get it's going to be beautiful. But you need to keep faith there will be times when you may want to abandon the strategy.

There'll be times when you haven't delivered yet and you just have to keep going and keep building up your teams and eventually you'll get it. So, it's hard and I think that's when leadership comes into it. I

think, you know part of leadership that comes here XXX is when you worked in our industry from the grass roots up and we didn't just come into our jobs, because we just stumbled into them we haven't been a librarian, we've worked on the coal face so we know what it's like to cut code as a programmer we know it's like to work in an operations room running 24x7 you know the environments.

We know what it's like to built a network. We know what's like, so when you bring all that experience together you can see how you can get this delivered. If you didn't have the fundamental discipline of architecture 101 you'd be all over the place.

I think that together with the leadership and understanding the business and having a plan through it I would say gave us the overall plan EA was the start but the thing that gave it life was the BITES plan which was the 4 year plan and the thing that gave it an extended life was the ORBIT plan.

<43:08> And the BITES (unclear bite size pieces? Pun?) Organizational readiness and they are lined up and they understand that is very much where we are now in the cycle here. Now we are moving to the next stage where we starting to think through about mash up centres talking about government shared services and umm, ... we're about to think through how do we do this and work our way through it and so we're in another different stage now. We need a plan for this next horizon, beyond the ORBIT which is taking what we do and providing it as a shared service it's much bigger and broader than this organization. It offers other organizations and agencies can consume ... that's the sort of things we are starting to thinking about now.

<44:03> We've architected ourselves to govern that pathway, done due diligence making sure that our customers really want this so when the service is built they will come that's really where we are at right now. It's a different approach.

But I think because we have done a wholesale transformation we can now go and hit areas where we've got problems with processes we've got problems with poor applications which we can address, we don't have to keep base lining the whole EA project here. But I'd like at some stage maybe soon to rebase line our business model. In terms of where we are now because we had a merged we're a new organization, some things have been cut off some things have been added into it. So it's a good time to rebase line the business environment. Maybe restart another SIP initiative in the next little while; let's maybe rebase the business organization using the new environment. ...

Another question people are always asking me what tools do you use, I say system architect, argh!
Great! Let me write that down, I need to get one of those.

In reality we only use the repository towards the end of the 4 months, the first couple of months we just used very simple word documents we used excel spread sheets and we used Visio. Simple is how I'd describe that, that's it!

So, we got all of the business described in a very simple way and then against that we can put it into a model here.

<45:47> And I found when we started here with Rational Rose in the first case when we had we tried to use a tool to model you were very limited because people have got to learn the tool and you are constrained by the tool. So I said forget the tool let's do what has to be done word is good enough to capture these things this is how we want to set them up ...

<46:22> Most people think that if you get an EA tool you'll get a solution that's totally different.

The pencil is the most powerful EA tool someone said to me once.

It is, it is.

<46:32> In 2004 there was a document put out by the Butler group on enterprise architecture

What it did was describe the area and then it review all the different vendors

We used this document extensively to help us think through which vendors we wanted to invite in.

(Truncated talks about vendor selection process and about books that influenced the process) ENDS

14.10 Participant: ALAN - Recording: VN860021

<0:03> I think you've covered that quite comprehensively. I mean you you've pointed out how the key pieces that fitted there, the process by which you went through. You've let us in a bit on the challenges of actually applying that.

Some of the advantages you've had here the organization being basically merged so. A point of chaos I'd think you'd say it had many broken things and that gave you an opportunity to score I imagine some relatively easy goals compared to some organizations.

<0:32> And umm, I think the point that you are making there is that you are not selling EA you are selling what EA can do. Which is not quite the same thing as some other commentators have said to me you know sell EA from you I get the sense that you don't sell EA as here's a great idea it's this is what we've done and it just happens to be the way it was done the way it was achieved. Which is slightly different.

It is slightly different.

<0:58> Orientation, one thing I'm finding is organizations typically do the same things poor ones and good ones, but it is the way they do them that seems to be the differentiator.

And that's one of those differentiations I guess you call it a viewpoint technically speaking a more business viewpoint than a technological, methodological, (unclear) I'll be listening to you several times over the next few months I'm sure.

<1:36> I think that the other part is the methodology. We did that right. One of the things was we came up with a hybrid approach. So a lot of the times when approach, want to embrace EA, embrace an approach to the organization a methodology maybe TOGAF, it maybe Zachman, it may be Spewak they look at the methodology and they believe that if they follow the process steps they get something else out of it. When we looked at our organization we knew the processes portion, but we wanted to model the business which meant that we came up with a hybrid approach.

<2:14> And one of the key things I stumbled upon was towards the end of it by pure accident. We had gone about four months and we were close to the end of the four months when we had finished the business model.

<2:34> I was presenting to my records staff and the two ladies I was presenting to looked at each other very knowingly and said this (unclear works like?) DIRKS. I said what's DIRKS? It's Document Information Record Keeping methodology which is much the same as an EA approach. They do exactly the same thing they go through the business they find which business records are being used. They are describing the architecture plan.

<3:05> If you look at the back of DIRKS it has steps A - G that describes very much the same all the way through it. So I felt the meeting immediately went to look at DIRKS downloaded the manual went through it and then I mapped what we were doing to DIRKS.

<3:19> And I said okay this is what the records are using to describe their records management architecture we can enhance what DIRKS is doing. All I have to do on mine is to ask for the vital records I've solved their problem.

So we then went back and redid how our business model delivered vital records I was able then to address the records management issues at the same time.

<3:40> And that was pure coincidence that we found that out. When we found that out that then allowed us to go and get our functional retention authority guys (unclear) allowed us to treat as it is inside the organization. And against that we are now the only organization that has every business unit fully described, because it asked the same questions about the business about the business processes the systems it uses.

<4:05> We had all that all we didn't really have was vital records. And I was picking up all the electronic systems and they were picking up all the manual records. Simple.

So, I'll show you the mapping of DIRKS against the EA. And the records people were using it. Just they call it DIRKS. Different name so, they looked at each other you know cause I explained how we do the business and they said yeah, yeah we do this already now. We're the first ones doing this.

I said Okay show me. So, they said just go online the federal governments produced this thing called DIRKS it'll give you a Document Information Records Keeping System and it allows you are the end of DIRKS to come up with these different artefacts, the business plan will be your taxonomy for your classification schema. Everything that we were doing or the EA part of it the records guys had already thought through. But at the back of DIRKS which I found was better than some of the templates in

Spewak's book. Where templates on what questions to ask about the business.

<5:07> And these are the sought of questions you ask to get the information. They describe questions and templates to ask. We quickly picked this up and said gee whiz we spent all this time going through this. We could have actually saved some time here if we knew DIRKS at the start of the process right.

<5:24> One of the other things on the modelling side. I said to my staff we can't go for twelve months on EA we have to do it in a short space. I chose BA that knew the business and their job was to model the business and ask the business to QA what they've modelled.

Rather than actually bring in through, because the business, the first meeting we had was a total stuff up.

<5:48> They said we've done this all before. We've told you all these things before. Asking us about our business there's nothing left to tell you. You already know it. So we said, ah okay this is not going to work so let me, how about we just present back our understanding of their business and get them to identify where there's gaps.

So, then my BAs have a different challenge now. So rather than being given to my working party groups. We had to go out and describe the business back to them. That worked really well because they were QAing our knowledge of them rather than we deducing the knowledge from them.

<6:21> Back the other way. That was a different approach to our modelling, but it allowed us to kill some more birds with a single stone, by just looking at vital records. That gave us the whole issue of part of our work as well.

Now being a fairly old land organization, you'd understand that our organizations deals with titles, registers that are all paper based. So we can track back, we're the oldest department besides Penal Colony. So, the prison and ourselves go right back to federation, right.

In the first records the first acts of parliament we handled all of those, so when we started working through our records side we said a jeez this is (unclear) go back and deal with all those first acts of parliament. All those things we had in this organization, of huge value to the state in terms of archive, we can start to fix some of those in terms of conservation then roll the records back into state archives. We couldn't do that because we didn't really know when they been used, who using them and for what

purposes. We did that after four months.

So four months vital records and we're finished. And then we had a plan for dealing with records. Which solved the records problem at the same stage purely by coincidence, picking up on DIRKS.

<7:37> But, that's government right. All we are dealing with here are government records.

It is knowledge based right from the very beginning isn't it?

It is, So pick up DIRKS an EA approach for records, yeah. It's funny how many organizations have DIRKS and have taken an EA approach dealing with records if they had added on electronic systems they would have everything done. We did the EA then we had our records, but if we'd have done DIRKS for records we would have found all the information stuff we would have been done.

<8:11> That's interesting isn't it? There were these ladies hidden away in the organization who knew this stuff.

Totally!

And nobody knew that they knew.

They tried to sell it, but they couldn't, they'd tried for a long time to get it started, they were just working from their positions. But we put it together and solved a business problem. ENDS

14.11 Participant: FRED - Recording: VN860022

<0:20> Enterprise architecture at BANK (pause 3- 4 seconds) Very succinctly (cough) we are very mature architecture thinking organization, but an extremely immature architecture practice organization. As in we all value architecture from the senior executives down to the umm ops developers etc. But how we put that into practice is evolving.

<0:50> We have gone through a process to actually understand, we tried a self-assessment of our architecture, to be world class enterprise architecture based on TOGAF. Umm and this includes a mapping to a CMM type model of maturity. The enterprise applications architecture domain, my portfolio, sits somewhere between zeros and twos, not more than that in terms of capability and maturity but we have got structures in place they were put in place a couple of years ago when we started our investment portfolio.

Now we are looking looking to make a change to evolve because the requirements around governance have changed. So too we need to evolve the process and the rigor around how we actually do so.

<1:47> But overall umm, BANK is, embraces enterprise architecture in a strategic direction, and end to end and highly values the, the information and, that is provided as a result of doing architecture.

<2:08> That's the summary. You said that your practice was perhaps not that mature?

Umm,

By that you mean the mechanical practice?

Yes, ... so we ... we create artefacts, but we don't have a standard way to create artefacts ... we ... those artefacts if they are created in, let's say Visio for example for a modelling tool we don't have a ... the ability to capture those point in time ... artefacts and draw them into the bigger picture.

We can't strategically plan by using those artefacts and doing any sort of analysis on them in terms of how they would evolve over time in light of where our strategic direction wanted to go.

We recently rolled out the IT strategy; we refreshed the IT strategy and know what we are going to do over the next seven years in terms of alignment with the strategic imperatives.

But ... (pause 2 seconds) that's at a high level. We're going through a process now, another member of

my team is going through the process to take that strategic direction and create domain architecture reference models or domain architecture blueprints in terms of the current, target and transition states in light of the fact that we know where our strategic direction is.

We are evolving, but if you asked me today. (Pause 2 seconds) How are we going to get from where we are to a strategic target and what we are doing about doing so I would be able to say, tell you what the transitions are to get from point A to point B. I wouldn't be able to show you a definitive source of that information of how we are going to use that information to assist us with strategic planning ...

<4:03> Another thing is there are probably seven or eight different repositories of ... consolidated lists of applications across the bank, across the group, we don't know what our complete list of applications are.

In the applications domain which is my portfolio I cannot point my finger on one repository and say this is the comprehensive source of information and depending on what, what's the the the umm, the lens you are looking to use or to view that information from its incomplete such as.

<4:42> The infrastructure guys ... they have a need to understand from an application down to which server, which rack in a data centre. The umm, architect as in myself I don't really care that much what server, but I do need to know which application and sits on the the what's the cross section of those configurations and the cross stack in terms of infrastructure, ah application, database server, operating system, you name it, because the analysis point of view if we strategically plan to upgrade, let's say window seven which we are planning to do then what business systems are impacted.

<5:31> I recently went out to the group operations area ... mission critical business applications are ... being built in office tools, in MS office tools because technology takes too long to deliver, it's a classic which happens in every organization that to me, it shows that we need to be more in tune with the business.

Umm and get them to value technology, we're getting there, we are building the bridges technology is far better perceived than it was two years ago when when the acquisition of OTHER BANK occurred and the merger, but we've a long way to go.

<6:15> We see ourselves as as a strategic partner of the business. They do as well, but sometimes technology is seen as a constraint in in, in the mix as opposed to an enabler. So there is all these building

blocks (pause 2 seconds) in themselves they have got their own deficiencies.

We're identify what those areas for improvement are and we are focusing on them such as myself doing architectural governance transformation another member of my team as I mentioned before is doing umm, domain blue prints for, ... specific domains umm, ah and therefore be able to align them to the IT strategy. So we are improving there.

<7:03> We've got good good engagement with the heads of technology who there from and ah and through to the business. (pause 2 seconds) but we're not there yet in terms of a consolidated view of from from that infrastructure configuration items to the umm the application upstream to umm, if we, how do we strategically plan around, that, ... so the method of how we do architecture is (pause 2 seconds) evolving from ad hoc now more around a a loose, loose type of method but it's not been (unclear) defined, its horses for courses. Everyone does their own way at the moment, it's not standardized. We've got principles, design and architecture principles and they're used quite extensively and our governance forms score alignment with those.

<8:00> But that's when you make ... key decisions, but in terms of actually generating documentation and including artefacts in the documents they become shelf ware and not reusable. Umm ... to besides for more than just copying and and start fresh there's no way of actually taking the implied information within an artefact and using it for with other pieces of information to strategically plan. That's where the gaps exist.

So, a lack of formal method limits your ability to analysis of models?

Correct.

<8:40> Is that a reasonable summary?

Correct.

So you're driving to formalize your method more ... or is that ... the case?

Part of the portfolio of my team member who's responsible now for domain architecture blueprints; she's also responsible for method. There hasn't been an appetite for an enterprise architecture tool and and the tools agh range from the strategic planning ones to pure modelling tools the appetite hasn't been there because the approach has been don't bring tools unless you have the process down pat and

and and the rigor around it down pat. We're now getting to that point where we've got the foundations in place to build upon and that's where toolsets will be highly useful. So that is coming ummm over the next short while.

<9:37> This is an interesting juxta position to a lot of organizations I've come across where they gain credibility because they have good artefacts and before, before they can gain that credibility and access, that that partnership with the business (unclear), you seem to have achieved that the other way around.

<10:00> Don't get me wrong the role of architects, enterprise or otherwise, is to produce useful (1 second) sales messages (pause 1 second) to bring whoever your stakeholder is on board and along the journey, and to sell that message. (Pause 2 seconds) whether my primary tool of trade is PowerPoint to develop my message (pause 1 second) and that's the way I bring people on the journey, but (pause 1 second) describing what is required and building those relationships is key.

An artefact is an element that tells a story (pause 1 second) right? Whether you do it at a strategic enterprise IT strategy level and showing alignment with the strategy or at (pause 1 second) the transformation programme level where you understand we'll what the transformation program how that fits into the strategy or alternatively what's going to happen with the complete domain. At the end of the day an artefact is a (pause 1 second) a building block within a message that is (pause 1 second) crafted in an appropriate way to enable key decision makers to make those decisions.

<11:24> So, (pause 3 seconds) we, we've got ummm. Everyone has their own way of crafting our message (pause 1 second) umm and there are standard templates for the development lifecycle, but when you talk architecture, architecture is a science. SORRY! Is an art and those artefacts that build build in your message is (pause 1 second) an artistic approach and and by putting the rigor and creating artefacts we're actually confining the ability to think outside the box. It's important in a in a software development lifecycle to have standard artefacts to communicate (pause 3 -4 seconds) how a solution architecture will ... be delivered because when you got a number of programmes and projects that use the same method of building the solution architecture you can actually see where the overlaps are.

<12:30> But, once you get into the enterprise level ... purely at that relationship level and it's communicating a message how you do so ... is in my opinion is not as relevant as what is done and built in those relationships.

<12:44> So I agree with you that there are organizations out there that have got quite a rigorous process to actually do architecture ... but here, building that that relationship is key to any sort of successful engagement.

<13:01> I've noticed that when you were speaking there you spoke about IT or technology as if it were a separate entity from yourselves, there's the business, the architects and IT almost seemed to be a third part separate. Do you see that or do you see yourself as part of the IT side of things?

<13:20> Funny you ask. In the previous organization where I worked where I effectively developed a strategy for architectural capability and put it on the map. I was having a chat with the CEO and he mentioned to me Why do you sit in technology why don't you sit outside technology ... across the group? And I said "You're 100% correct that's where the enterprise architect should sit." A strategist should sit there because, as appose to a domain architect and a solution architect an enterprise architect should sit outside technology. (Pause 1 second) An enterprise architect is that bridge between business and technology.

So on the one hand we do sit in technology part of the CTO group within BANK, but (pause 2 seconds) the primary piece of work that we do is to actually ensure that we, we know where the business wants to go and we ... make ... it ... even make decisions or enable decision makers to make decisions (pause 1 second) to strategically address this.

<14:31> So, ... we are one, part and parcel of technology within BANK and a highly valued ... umm, probably one of the most highly valued teams within BANK the enterprise strategy team. (pause 2 seconds) But, because we're, we're ... enabling decision makers to make decisions on what will be the technological change we do sit in technology. But the function of the enterprise architecture function should be viewed as independent of code cutters, sitting outside that to to make sure that there's a harmonious relationship to deliver strategic goals.

<15:15> So, you are separate and the same?

Yeah!

You talked there about looking at the business overall ummm, so where does innovation come from... I guess that's the short part of the question.

Where does innovation come from?

Where does it live in this eco system?

Funny you ask.

(Laughter)

We are a group of companies BANK, Another BANK, Another BANK2, institutional bank ... hmm (long pause) Another Bank and Another Bank2 are known to be agile flexible organizations and innovative.

Bank (pause 1 second) is known to be the late adopter and a slow moving beast ... there's nothing wrong with that but in order to embrace innovation it is now strategically placed on the radar in terms of the IT strategy, in terms of where strategic spend needs to be. The the ... if you don't innovate you go backwards in my opinion.

<16:28> But, when it comes to innovation technology ... in this mix cannot and should not push innovation on ... the rest of the organization on the business but should show the value of innovation to the business and get them to come on board. At the end of the day its coming down to selling that message and ummm, so we've got one of our key capabilities in the IT strategy is customer centric innovation.

<17:04> So we are looking at at umm ... (pause 3 seconds) explicit funding for in the IT strategy for innovation as in known, but there is a rigorous process around ... how something gets classified as customer centric innovation as in opposed to none customer centric innovation. And also (pause 1 second)

the request needs to come from the business it can't be technology pushing the envelope blowing the innovation trumpet.

<17:37> So recently I indentified I had a business problem that I ... found a solution I can't be perceived as a solution looking for a problem.

So you plant the seed?

Pardon?

So you plant the seed?

We plant the seed the innovation approach is a fast fail approach seed funding to ... try to see if it works if it works this model works exceptionally at Another BANK and we are trying to replicate it, but if we replicate it without top down endorsement it won't happen and therefore in this case we've put it on the agenda, part of the IT strategy it's been endorsed by the board. But now the business needs to request and put in (unclear) funding submissions for these strategic reasons for innovation.

<18:25> It seems to be a little bit of the chicken and egg sought of thing going on here?

Yes, but its ummm ... size needed for the business to call out ... we are running innovation forums across technology and business umm to make sure make sure that we I we identify where gaps exist for innovation and how we can ... whether the innovation is technological or not.

<19:00> Whether it is process innovation it's still customer centric so we can effectively plant the seed or make suggestions ... but if it's not coming from the business saying yep we endorse this. We sponsor it. This is an evolving process. It's not going to happen overnight it's a three year journey for innovation. I would suppose ... in my opinion at the end of this three year journey BANK will still not be a leader in innovation but won't be a follower it'll be somewhere in between, whereas now it follows.

<19:41> From all these things you've obviously got an equal or close to equal relationship with the business, how was this achieved?

<19:53> I've been with BANK now for for a year but umm from what I've seen (1 second) there was an org chart an org restructure that happened late last year where the CTO ... umm CTO group expanded to include business engagement ... so the general manager or Chief Technology Officer is now general manager or super general manager of CTO and business engagement ... so the effect you've got a front office and a back office the back office being service service delivery.

<20:32> By embracing and changing the way strategy and architecture is structured to embrace the way the business engagement teams is structured ... the heads of architecture have got a direct relationship with the heads of technology part of the business engagement team. And those heads of technology have got a good relationship with the business.

<20:50> It's ... it's ensuring that ...that the relationship that already existed between the heads of

architecture and business is a triangular now triangular relationship. Where heads of technology but that business engagement relationship understand where the strategic architectural direction is and the business stakeholders who themselves have got other constraints whether they are delivery focused or ... need to meet umm shareholder milestones whatever it is they understand our perspective so...that relationship is a triangular one and it's actually working well.

<21:30> So I would say that is the the key the reason why we've been successful ... so far in our journey to establish that relationship and maintain that relationship.

<21:44> So you're arguing that it's predominately a structural thing?

And a mindset change.

And a mindset change, a cultural change? So to speak?

Yes, umm, anybody whose part of strategy and architecture ... has in the enterprise space or the domain space as opposed to solution architecture ... whose focused on that ... what are they doing ... what ... if they do something what are they doing and what is its impact on the strategic direction so how does the piece fit into the puzzle.

(Pause 3 seconds) It's evolving ... umm, it part of that maturity up skill, upscale but ... keeping in mind the bigger picture has enabled that cultural change umm, ... And that's what I was saying right at the beginning we're a highly mature architecture thinking organization. Practice is different.

<22:58> Which is a little unusual I'd I'd argue, typically it's the other way around where people have mature methods and artefacts will often ...

It depends on the background if if your architect ... (Pause 3 seconds) sometimes you get enterprise architects in other organizations who have been developers solution architecture, solution architects who step up to the enterprise architect or alternately become architects because of seniority not based on experience, experience or expertise

<23:36> An enterprise architect is very different as you probably know well to a solution architect ... all the members of the team have done have done their stint in the solution world but (Pause 5 seconds) but changed their perception of doing architecture when they moved into the team.

<24:03> Everybody's a strategic planner, strategic thinker they happen to have done to architecture or development or other things in other past lives in their career but ... they are now strategic planners

<24:17> Are they made or are they born?

<24:25> Both when I used to work for Accenture many years ago a partner said to me once an enterprise architect is a behavioural irregularity ... as appose to a solution architect ... cause you need to be able to in my bridge type of world be intuitive but be (sensitive) at the same time. Be able to get down to the detail, but see the bigger picture.

<24:54> Which is irregular ... rarely do you find people who are good enterprise architects because they can see that and what's more have the specific domain responsibility. If I'm the enterprise architect for applications within BANK so across the group I do strategic planning around the applications space for these systems (3s) and therefore can see the strategic goals from in from an umm intuitive perspective. But also I'm getting down to the detail required to transform the governance piece ... to make sure we actually mature our our practice of a method around doing architecture. So ... coming back to your question ... is somebody born or made?

<25:45> An enterprise architect ... you need to have a foundation to then build on ... if you are a code cutter a developer it's very difficult to step out of that myopic world to become a an enterprise architect

<26:20> I recently recruited somebody I had a number of applicants ... 60% of the applicants were developers I didn't even look at them. I look at someone who is more an analytical mind ... and I actually recruited someone who is from outside of technology cause they had been in terms of their their engagement space they understand what it means to engage.

<26:48> So you can take an architect you can take someone with a foundation in analytical skills ... and you can build on that. You can give them mentoring. There's no way you can teach someone to do architecture ... there's no cook book of how to do it. It's a mentored approach because it's that art.

But you can take someone who has that foundation and bring them on a journey ... but if you don't have the mind set to think outside the box to have that analytical perspective and how you're going to be able to sell that message ... you don't have ... I don't think that everyone has the ability to become an architect.

<27:30> Umm, at the end of an 18 month process this new architecture analyst if they are unable to hold their own at the end of those 18 months ... in my opinion I would have failed ... umm ...it's all about that engagement and fitting that into the picture and how the small parts fit part of the bigger picture... in my opinion.

<27:55> So, the architect is part of the key to success an architect that sells that larger vision enable by a particular structure that is effective in that organization

Without a doubt ... I would say ... take a hypothetical, ... if an organization has no architects (Pause 3 seconds) umm, but yet has quite a strong business engagement relationship ... there is a void ... how do you actually take that relationship if you don't have those architects in place all you can do is take the the engagement and driving force individual solutions that themselves don't make umm, are not pieces in that bigger picture.

<28:57> For you to have the rigor around an engagement, the rigor around ensuring compliance and alignment with a strategic direction and then also having umm, sponsorship both in technology and the business to have a successful umm ... journey.

You keep emphasizing journey is this to give emphasis to the idea that there's no instant solution it's an evolution I think that's another word you used?

<29:36> I recently read a paper from MIT the Sloane School of Business the paper was titled forget strategy, focus on the operating, operating model. Where the idea was and we actually use this idea quite extensively as part of the IT strategy refresh. The idea was that your target is always moving. If you focus on your target you will not get there. You need to focus on the operating model; you need to focus on the journey. If, because that operating model sets the framework for how you do your architecture. In BANK for example, on the one hand we want to unify our enterprise functions and capabilities and infrastructure, but ... we also want to have a unified, umm information customer information source so that that way we can have our brands tap into ... across the group for information. But on the flip side ... currently ... in the teller world because the business process is different we can't have the same technological solution and that's what makes our brands differentiate and able to compete with each other quite successfully.

<30:57> So, (pause 1 second) we are on a journey, it's a seven year that we have outlined, but believe

you me that journey will extend long (pause 1 second) or contract, ... whether it's because of cost constraints, market info market constraints umm or even internal agh organizational change may change the way umm (pause 1 second) may change the the strategic journey assuming tomorrow BANK has zero funds for any (unclear) we've got a seven year journey that won't happen but what we do know well is that n the thought around developing that journey in terms of the operating model, operating model understanding is what's key. So forget the strategy, forget the target focus on the operating model we focus on the operating model and now intimately understand how the group operates. As appose to two years ago when there was a consolidation, So what was promised to the market is we are going into architect principle 101 we're going to reuse instead of buy or build so we gonna reuse the ANOTHER BANK teller system instead of the legacy BANK one because the legacy BANK one has got umm ... 16 bit, 16 bit technology and continuously falling over we've going to use the more modern so we thought okay we're going to take as is and chuck it in.

<32:41> But, and therefore from a unified approach what we now understand is that we can't unify that because the business process is different ... albeit using the same application and and business system for that process.

<32:54> So, (pause 1 second) the ... when we analysed and and understood how the operating model in the group worked, we were able for valid reasons to change the original strategy and justify that change for the next seven years.

<33:16> But as I said before there will be various constraints that will deviate that that target state, but the journey to get to that target ... may take longer may maybe whatever it is but we know that the target state is well informed by the operating model.

That's why I emphasis journey who knows what technology is around the corner? And we may say yep what we are going to do in two years time might have to wait because of technological advance can't be avoided or whatever it may be we need to push that out. And as long as we understand where we strategically want to get to and what the operating model is that will assist us to understand what those transitions are to get along that journey.

<34:10> And more importantly, be able to sell the message of change to those who've got the purse strings.

Stretching the purse strings wider?

Without a doubt, but at the end of the day you need to influence ... in concentric circles, the purse strings in my opinion are near the outer concentric circle, because you need to have the appropriate technology and business stakeholders on board where both are drawing the same comfort on the same page to make sure that the the funding is is given a Guernsey.

So part of that structure is the funding model?

Yes, two years ago when the consolidation the merger occurred between BANK and ANOTHER BANK the IT strategy informed umm ... sorry more than informed actually dictated the funding allocation for the investment programme programme we have a strategic investment prioritize that are occurring now the IT strategy directly informed what is the funding profile for for each of these.

<35:31> There is a regular umm, annual cycle of of business strategic planning and funding submissions they conflicted because there was a three to five year strategic plan in terms of funding that was is that was directly informed by the IT strategy. But the annual cycle still kept going so there was too much investment requested for what was available in the pipe. This time round we are basically in apposition where we have said the umm, (pause 1 second) the IT strategy and the strategic direction and the the programmes of work that should that are due to occur in order to enable the capabilities (pause 2 seconds) they were planned out (pause 1 second) to (pause 1 second) and they were planned out to to a a dollar range, but they were planned out to (pause 4 seconds) based on the urgency and the value over a period of time within a funding envelope.

<36:40> But, the unlike before two years ago were technology and the whole IT strategy was saying this is the investment you are going to do now it is a matter of the business themselves need to call out for those investments and have to justify it from a benefits realization point of view.

So it's a much more umm aligned process for funding submissions and those funding submissions were presented back to us after we did the IT strategy to say alright now you guys have done the IT strategy you know how things are going access the funding submissions for A alignment to the strategy in terms of timing in terms, in terms of actual whether its aligned or contrary to the IT strategy and also contention if individual business unit silos request (pause 2 seconds) for immediate access to a large amount of funds (pause 2 seconds) the human resources may not be available to execute it.

<37:40> The assessment we did we know that over seven years when the investments are due to occur based on the funding envelop (pause 2 seconds) That was then used to reflect upon when the funding submissions were presented to us say assess for alignment and contention and this comes down to a fact that there is (pause 2 seconds) outside technology ownership and call out for those investments as appose to this is technology saying this is what we are going to do. So there, there is that ownership (pause 1 second) from the business umm (pause 2 seconds) it therefore gives them the empowerment to to understand (pause 2 seconds) By mainly, mainly what they do is they put in their not so to speak life on the line, but they they can't say it wasn't technology, they can't say technology told us to do it. It was (pause 2 seconds) technology said in light of where you you business want to go this is our recommended course of action. But the business themselves need to now call out for those funding submissions for the funds to make it happen

<38:55> So they are the owners of the technology and IT run it on their behalf?

(Pause 4 seconds) For want of a better set of words yes. They (pause 3 seconds) I won't say they own the technology, but they own what, they own their strategic agenda.

Technology exists for one purpose only in my opinion and that is to enable the business to achieve its strategic goals. If we are doing something totally contrary to where they want to go what's the point? Many years ago when technology was divorced from business that was quite acceptable, but now not so much we d however have (pause 2 seconds) technology initiatives.

Sorry,

We do have technology initiatives, such as data centre consolidation and new enterprise security, perimeter security portfolio (pause 2 seconds). But those are foundations that have to be in place in order to have business strategic planning on top.

<39:59> So, to clarify your question, the business owns their investment from what business system change has to occur, but they don't own the technology.

They own the business system that's a better description?

Yes. They don't own the infrastructure and they don't own the technological change. They own, the the (pause 2 seconds) strategic plan to get there.

<40:28> ENDS

14.12 Participant: BILL - Recording: VN860041

<0:08> You know this is an age old subject success factors of enterprise architecture and everyone's gone around it and round and round and round the traps about it. To my mind the success factors of enterprise architecture are predominately and I don't know which one comes first, but you either need someone who knows what they are doing and I don't mean a technocrat I mean a person who has management experience as well as technical experience and can actually be quite forceful.

<0:34> You're like what's his name De Bono has his six hats. I reckon there's about six hats that you need to be a successful enterprise architect.

<0:42> You have to understand the business issues of time to market you have to understand people issues and I'm not just talking about training and education I'm talking about the soft factors, like you have to know what people are thinking, what they're believing what their attitudes are.

<0:57> And you have to have a marketing hat whereby you can circumvent all those difficult people how have vested interests. Who have their own way of doing things. You have to be able to align with what they are doing, you have to be patient, you have to be tolerant, you have to compromise, you have to be collaborative.

<1:15> So really successful enterprise architects, and I haven't even gone into it you have to be able to data model, process model, understand the whole lingo of the technical area. So it's quite a hard role to play and that's why in my opinion. Umm, I'm gonna boast now. In my opinion it was phenomenal what we built in the XXXX group because there was a marriage of the people who could theorize as analysts, that could document all this rubbish, sorry all this good stuff in their deltas and their practices. Delta was a two page, practice was a twenty five page way to do things there were hundreds of them.

<2:00> But we the consultants used to go out and apply with our own interpretation. And we opened up and there were two of us in the team and we opened up in six countries over five years.

<2:13> And we did about 40 different organizations. I mean the whole of government of Singapore the largest conglomerate in Malaysia, you know and big stuff.

<2:22> Aussie defence, Singapore defence, the Asian Development Bank and when Gartner bought XXXX Group it was really funny because they wanted to met the team, so they sent the guys out from the US. And my business partner and I, because we were subcontractors to XXXX group we were sitting in the

conference room waiting for them. They walked in and they said where's the rest of the team?

<2:44> (Laughter) We said no it's just us. And so where I'm going with that was that if you know what you are doing and you have those six or seven hats you can wear, you can apply with the methodology that you understand completely then you are very effective.

<3:03> The best way in my opinion of getting an enterprise architecture up and running is to hire in the people who know what they are doing. And we used to only charge about \$80 grand for a two week consultancy and we're very expensive with um, three days a month after that and we would nurture people into architecture approach.

<3:24> So that was, that's the first major success factor in my opinion. Because if you have somebody who's grown up through technocrats environments they'll be blown away by the business people who just don't want to talk techie stuff; who don't want to be bothered with the detail business process; who want to talk about what it is they want. I'll get back to that in a minute.

<3:45> Because I think the second level of factors is how you approach it. What artefacts you're looking for. And of course that's horses for courses. But there are fundamental things that get business excited and implement, interested.

<4:00> The other thing is the CIO or the CEO, remember I'm talking about the major factors. The first factor was the enterprise architect himself, at least that role fulfilling with a consultant and somebody in house.

The second factor and this is a beaut one I reckon if the CIO or the CEO don't understand what an architecture approach is forget it!

<4:26> You are never going to be successful.

You're doomed?

In my opinion yes and we proved that so often in XXXX group that if the CIO or the CEO didn't understand what we were about we wouldn't take the contract.

So that was like a gate?

<4:44> Yes, yes. Like down at Family and Community services down in Canberra. This story is about 2003 – 4 something around there. The CIO called us in he said I need an architectural approach he sat me down at a work bench, we had I don't know about a five or six week contract there

<5:02> And he said there's some other consulting stuff here from previous projects in the draw. And four other consultants had done what he had asked me to do. You know they'd tried to put in place the architecture approach. So I went to the CIO and said look I can't improve on all this. You've got enough here to work with. So I made a series of appointments all the senior, executive committee people and we went and talked to all of them. We got the funds we got the project we got the thing moving.

The poor CIO resigned after that, sorry he was medically retired.

<5:35> He had put it off for so long because he didn't want to take that extra step. Of where he had to put the architecture in place, you know he couldn't sell anything he was an IT manager and not a CIO. And I remember him saying after we had got the approval to go ahead, he said I fell like Cortez, know Cortez, burnt his boats.

So they can't go back?

(Laughter) Now there's second level success factors are, in my opinion are the whole objective an architecture approach is to do the right thing, do it properly so that you have high reuse, minimum cost and it's highly agile and flexible so that you can match the business change requirements. Right?

<6:20> So, you've got to get the business on side, they've got to be able to see they've got to be able to invest. There's a huge investment upfront and then it tapers off. So how do you get business people to actually get excited about architecture? If you said to any technocrat or and I'm an arrogant bastard. If you said to most people in this field or in the field of strategic planning, business planning or in the field of IT let's build a business architecture they immediately gravitate towards business process.

<6:56> I remember Gold Coast City Council we walked in there one day when they asked us to come and solve their problem because we followed a lot of the big consulting companies KPMG, Price Waterhouse we've followed the lot of them to clean up their mess. And I think Price Waterhouse had been in there and they'd spent zillions defining 7500 processes.

<7:20> That was their idea of a business architecture. It's disgusting what some people do. By the way

since I came back into, I had a restaurant I thought I was going to retire, but I lost a fortune so I had to come back to work. So when I came back, it was just amazing to me how, (brief incident beer and sunshine)

The level of corporate ethics and all that was steadily plummeting in my opinion and what the big six do these days and even IBM up the road they really don't care about the client, they don't care about doing the right thing they just want their money.

<8:05> And it's really refreshing to see organizations and I saw a group of IBMers the other day telling Transport NSW that they were going in the wrong direction that's good to see. But I'm wavering off the point.

<8:18> The point is business architecture, now when I was a global CIO of New Zealand's largest company, I had to get my, we have 23 business units in 13 countries somehow I had to bring everybody together. And I developed this business architecture based on business modelling. (Truncated ... Brief discussion about business modelling)

<8:55> We were in NZI, do you mind stories like this?

No not at all it's one of the best ways of passing knowledge.

<9:00> We were NZI and there was NRMA (draws diagram) here and we had, we're a \$5 billion company globally and we had half a billion dollars in Australia. And we segmented our business, into four, that's five (Joke ... referring to diagram) four business units. NRMA had 240 business units.

<9:24> Now this is all about segmentation, is the business model of your business and its defined as business services and I'll define that later, through channels to a customer segment.

So we had a set of, and in those days we used to take process, but I lifted it up to service we had business services through channels like branches or intermediaries or something like that to certain customer groups or affinity groups they could be Joe public they could be large enterprise or SMEs or whatever.

<10:06> Anyway we only had four and it was geographically split. NRMA had 250, so along comes Tom Hope we say you are an urban guy for your insurance on car that's \$100 you go to the NRMA, you're a safe driver we've looked at your history \$80.

I come along they say you're an urban guy \$100 I go to the NRMA and they say you've almost lost your license \$200.

So good business goes that way bad business goes that way. So the only way we could compete with that was one had a segment better than the NRMA. And the way to do that was to work out what were our business, sorry who were our customers and how do we segment them up, what services do they get and we define and when I did the whole of government of Singapore the public service man gave me such insight there.

<11:09> He said I don't want business services defined from inside the agency to what their perception of what the customer is. I want those people with your help Robert to go out there and position yourself as a customer and look at not just the agency but at the government.

<11:26> And say what is the service the customer wants from the customer viewpoint, so from the customer viewpoint what are the services? How do we get it through at the lowest cost most effective channel and that's the first thing what did we call it it product, service, channel, market segment. The second thing is we've got to be better at defining those segments than the NRMA.

<11:50> And the third thing is a data warehouse so that we can work out for each of these segments what is our investment, because for each of those segments. You could put a balance sheet and a profit and loss.

<12:02> So you can work out at that fine granular level where you should invest your money. Now I've done that in a number of organizations and one of the most recent is Transport NSW the transport management centre. And we are progressively going along, and I don't think that we can name them.

(Truncated ... Discussion about removing client's name)

And with the senior management they bring their team in and we talk about well who are your customers? And they say it's the most complex organization I think that I've ever dealt with, except for the whole of government.

<12:51> But, its only 200 people it's amazingly complex. What they were doing they've got rail, bus, train, taxis everything.

<13:01> And they are trying to coordinate Sydney which is one of the most complex cities in the world

one of the largest train systems, it's just amazing. So we've got the group in the room who are your customers? What do you think that they want from you guys? We call those business services. What do they want you to give them? Don't worry about how you do it, what do they want? And we define the business services and then we say okay what are all the process that deliver and support those service and then we do a very quick but detailed data model. Saying what is the information that you need to manage and operate the delivery of the process to succeed in delivering services.

<13:42> And all this takes about two months max. With one hour here one hour there and the most recent one that we've done is the guy who's got to coordinate and he's senior management he said my team on day one learnt so much because they understood what we're about and what our responsibilities were what everyone in the team was doing and how each of those people were fulfilling their role.

<14:07> He said it's been wonderful. So that's the second tier thing that must be done in my opinion. It's not analysis paralysis it's business process and it's not the detail data model whereby people just don't understand why they are doing they can't understand it, but you put data model in the context of what the business needs to do the business services and processes suddenly business get quite excited.

In a lot of ways you are modelling the business model.

Well it is.

Not the organization

That's right, well when James Martin, do you know James Martin the guru

I know of him, but I've never met him.

Oh well I was co director with him in 82, yeah 82, James Martin and Clive Finkelstein setup information engineering and that was where we developed data modelling for the business, but I think American, I'm sorry, Europeans are very into data modelling Americans don't understand it really and think that process is the world, but process is what the business people feel easy about speaking about.

<15:12> If you put services down it takes them into a new paradigm and they say well let's forget about the current processes let's talk about the service then you can talk about the process and lift it to a new level and then you can talk about data, because all they muck around with as managers is data I mean

people (brief laugh).

<15:30> But they need data to muck around with people properly. It's amazing to me what happened in the last 20 years, because in the late 80's data modelling just fell away. No one taught it.

(Truncated ... Discussion about the rise of process followed by discussion on research process)

<19:26> That's another thing that's missing totally one of my mates is um (unclear) I help him correlate all his gear in 1985 or something but he's a very gifted architect as well as psychologist and he divides the world into the rational and the irrational and that's where he works. We were business partners for a long time. And he says that there is this change cycle, by the way the key point here (large ant falls on table laughter) the change cycle about a year ago he signed with Accenture in London and Chicago they can now front end all their projects globally with his techniques. This is not small bickies. (Begins drawing) There might be a change then there's a reaction.

<20:18> Sorry, retreat then there's a reaction then there's passive acceptance then there's chaos and challenge now this is just the grief cycle applied to the corporate world

And it's the sought of thing that as and, this is one of the hats. This is one of the hats that an EA has to wear because you are taking responsibility from people you are telling project managers that no longer are they managers of their own domain. You are telling programme managers that they are no longer managers of their own domain only. Everything has to be aligned to the architecture Not that they have to comply with the architecture.

<21:00> They have to be aligned which means most probably that the architecture will learn from the project and change and evolve based on what the project team has found out a very important point. I was going to come to that last.

As you go through this you have to be able to recognize when someone wants to go back into the old world and you've got to tell them hey you either leave or you're moved. Sorry that's when they are over developed and they become stuck. In any of these positions in the change cycle. People can get stuck and it's up to the change manager or the EA wearing that hat to move them out of that stuck state. The stuck state here is that they can't accept the new world the only way to get them out of that is sometimes to be brutal.

Reaction can go into sabotage and we've all seen that, passive acceptance they can get stuck again and people like you and I we go through the passive acceptance in about a millisecond, but some people really find it difficult.

<22:12> To find their position and their role in the new world. Once you get through that chaos is where you there's a thousand things that you want to do and you can't pick which one to focus on and so you need help there. Challenge is when you finally focus and you are away.

<22:27> Until the next change. Anyway that's just one of the many of the many tools

(Truncated ... Brief discussion about where things are going)

The other model is the doubt model where you have the mission, the vision and all that crap, you have your objectives and strategies and then you have your normative environment where you have a business cycle that wanders around and wanders around and if nothing in the world changed we would be quite happy mucking around in the normative world but quite often when people go through the change cycle they'll start to doubt what they are doing and if someone comes to you as their manager and says I don't like what I'm doing its useless telling them that you have to do what you are doing.

<23:21> You have to catch it at the next level you have to go to the objective level or the strategy you have to move like the meta level. But this model is upside down so you go to the next level down and you say hang on we're to achieve this objective how else can we do it unless you contribute with what you are doing. But if they say I don't believe in that objective anymore, then you've got to catch it by saying who the bloody hell are we and what are we here for? And a lot of people will address the doubts at the normative level they'll tell the person to do the task and that's when your operational relationships start to fall apart.

<24:00> If a person is doubting the objective and you say that's our objective and we have to stick to it they lose the respect for management. If people say why are we here I don't understand it you've lost them anyway and it's dysfunctional

<24:32> In my opinion the fundamental that the enterprise architect has to have in his mind is an understanding of a data structures for that enterprise and they are not that difficult to have. The trouble is over the last 15 to 20 years data has lost the primary position for a lot of architects and they talk about process that's where they move into analysis paralysis and process is just subjective were as data

must reflect reality.

(Truncated ... Discussion about QBE and the old days)

<26:10> Clive Finkelstein always used to say a data model is what the business defines. I totally disagree, for any given business

(Joke ... About selective quoting)

There is no doubt in my mind that there is a fundamental way in which data should be structured. And if that is done its very easy to acquire, merge and integrate other companies. The problem is a lot of architects allow the data structures of their organizations to be skewed by management's perception because they come at it from process. So therefore you have great difficulty in aggregating certain things.

<27:00> So I've done enough big companies to sought of prove that to myself.

Let's move on skip application and go to technology. These days in my opinion technology is about 80 – 90 a commodity I reckon every day the (centre?) should look at just letting Fuj, Fujitsu or Global switch or somebody like that look after it cause I can't see how if you are just mucking around with information why you need different technologies. It would be much better to but the technology um, have a service level agreement and move all the risk and problem and skill management and all that to the outsourcer.

So to my mind I can't see the reason. Well if you've got certain Scada issues like Transgrid or Powergrid in Queensland, yeah there's a problem there. But for the normal It environment for my mind technology is something that should be outsourced.

<28:10> Applications, I think that we are still waiting for the great breakthrough. Which, don't know if I should say this? I have a patent that does away with programmers, but were still waiting for the great um breakthrough.

<28:29> That allows us not to increase the complexity, I used to be an assembler programmer and that was easy I've tried to program these days and I just can't.

(Truncated ... Discussion about changing programming paradigms and the shortcomings of business analysis)

<33:31> What I've talked about is Enterprise Architecture success there is no doubt in my mind that any insightful CIO or CEO has to embrace architecture. You're stupid if you don't. It's a big statement, but I can't see how business can manage at the fine level of granularity where they know where their return on invest is unless they do that business architecture. And it excites them and gets them going and they look at where their investment in IT should be.

<33:56> If we agree that the technology environment is commoditized, then application should look after itself, but application is so bloody complicated and yet I can see a light at the end of the tunnel. And that lights burning bright in the UK and hopefully will burn brightly here soon.

But to cope with the millions and millions and millions of people currently exploiting technology, in what from my point of view is almost a chaotic way that's got such momentum it's going to be hard to ...

It's almost like you can see this chaos happening its if you if the human race ever gets storage at the atom level or the molecule level, believe me there'll be no coming back. (Laughter)

There are a couple of real problems in our current IT environment or even wider in many disciplines as the competition for professional roles increase I have seen a definite shift in people hiring based on accreditation balance with experience and skill and demonstrated capability to just accreditation. There are so many people who shoot for accreditations like ITIL, MSP, TOGAF all those things these days and they're and people hire them. When I was at IBM people used to say you never get fired for hiring IBM now I think that people say you never get fired for hiring someone who's totally accredited.

<35:53> I've hired a few of these guys and something changes from where they, from the standard methodology and they fall in a heap. It's not good. It's um (long pause) at um, when I, now when I hire in fact in the last 10 – 15 years when I hire somebody to be an architect I look at their accreditations look at where they've been and usually they are coming from project management or the technical area which I think is alright, but then they got to have a personality that allows them to you know blossom as an architect.

You can't transform or yourself morph yourself from that stereotype of a heavy tech person and a project manager into an architect unless you have the propensity to, you know when they do a 16 PF or a personality test, quite often, what's the ENTP? Myers- Briggs

(Truncated ... Discussion about Myers-Briggs types)

<38:57> Where I was going with this.

(Truncated talks about IBM training and internal MBA)

<40:30> So the nature of the architect?

(Truncated discussion about patio furniture)

<41:10> I was trying to summarize by saying the business architecture needs to be exploited, you know proper way with business services and that takes someone who's got business experience, the technology is commoditized, the application is a big area and I don't. That's where I was going!

I believe that the age of the umm packages is almost at an end. Now everyone used to say my estimates were always accurate so long as you double them.

I reckon we are going to see and Microsoft tried to do this and a number of other companies tried to build those services that you then fabricate into useful applications. And that that's failed. But there has to be a resurgence of that idea, because I believe that that is the way forward.

Ah, but this other thing that's happening in the U.K. which is close to my patent, I think that that's the way forward. So I reckon in about six or seven years, read fourteen or fifteen years. (Laughter)

Umm, we we've got to address, I mean there hasn't been a really big breakthrough at all in the application world, there has only been, in my opinion a more complication.

Yeah, I I'd argue that a lot of that complication came from an urge to work of a cheaper platforms that were less powerful that then required you to distribute your load (unclear) and that's just bought incredible complexity.

(Truncated discussion of architectural development driven by hardware platforms)

<43:20> When we were in XXXX group, we did a study, very informal, on a lot of large organizations and we came to the conclusion that they didn't have enough money to get out of their black hole that their legacy systems had them in.

Comm banks recent, what was it \$600 million, that's now \$1.4 billion effort to redevelop their core systems. I mean I designed CS90 way back in 1985.

Did you?

Yes, with two other people and our methodology was object oriented before we knew it was. And the, um, Ross Perot's EDS came out and we gave a presentation to them, they gave a presentation back. Then IBM FSD division which put the shuttle into space they came out, we gave a presentation to them, they gave a presentation back to us about their understanding. There's no doubt that Ross Perot's group, not the EDS of today ... their charlatans.

(Truncated discussion about EDS)

<44:30> We made a recommendation go EDS, cause they understood what we were about, where it was object oriented, where it was database, where it's a data item you need to have add, modify, delete, read, cancel housekeeping function around it .

And you know you had building blocks that you fabricated to do application and useful work. Retail bank if they are going to spend \$200 million said who? EDS; IBM we recognize that. So they bought IBM.

And these idiots came over, sorry these very accomplished control engineers, cause I was a control engineer, they came over and they believed with their shuttle experience that they would build a closed system, a control system.

But a closed system, I mean commercial systems aren't closed.

<45:21> It was an interesting paradigm for a banking system.

Well it was forced on us and can I.

I'll keep telling the story, because after all these years I finally figured out, why there are about six factors for failure in this \$235 million project.

But, one of them was, as the sort of methodologist I had to give these 25 US guys education. They in turn forced us to learn ADA.

(Truncated discussion about the ADA Programming language)

My presentation was about how we were moving business rules from data structure into data. So that we could actually manage them more easily and more effectively and more flexibly. And so times give

the business people the tools to manage what they were competent at.

My problem was, do you remember Robert Holmes – A' Court buying out, agh, umm, Alan Bond? No Alan Bond buying out Holmes-A'Court in some Kennard like thing in WA (Western Australia)?

\$1.2 billion he spent.

Wasn't it Bell brothers?

Bell, it was Bell. So, that was in the papers at the time 86 - 87. It was so funny and I decided I would use that as my example, of how, as a finance example, to show them how data rules can be moved from the data structure which if you have 5000 data tables you need to have 5000 bloody programs at least to muck around with them. Well, you know that order of magnitude.

<47:08> But, if you consolidate all your data in more generic structures you can have less code driven by business rules which is where we are today. And I used this horrible example of West Australian special person, because the bank said, you can't name Robert Holmes-A 'Court, but of course all these Yankees, when I abbreviated it, they were offended. WASP. (Laughter)

(Truncated discussion of cultural differences)

That was just a horrible experience to see that whole project fail.

(Truncated discussion about more beer)

<49:16> So, we've talked about applications which is a problem area. We've talked about applications which is the problem area and umm, because of the complexity governance is key.

Now governance was my strong point in XXXX group and from my point of view Enterprise Architects need to hook on whatever governance structures there are during programmes and projects.

Success for the architecture is that they have to have a solution architect who has at least function responsibility to the chief architect in every project. At the outset, at the outset of a change. So that when a change is proposed, and we've finally got this imposed at NSW transport, when the change is proposed the solution architect can scope the change in terms of business services, processes and data.

And so they know exactly, what in terms of the business architecture and the information architecture is

involved in that programme or project. You can do overlaps; you can look at dependencies, interdependencies between projects and programmes. A solution architect has to be involved throughout the project even if you are going to do something that doesn't involve IT.

Sorry, Information Technology, they should still be on the project team and be called in when required.

<50:44> (Truncated discussion about a cat)

<50:49> Cause at four stages during a project in most of my clients they instituted enterprise architecture alignment. And as I said before that means most probably that architecture learns from the project. And it's so easy, I mean 20 years ago we put together this three page check list of principles and artefacts at each level of the BIA. And the project manager with the solution architect just goes through and says whether they are compliant or not.

If they are none compliant that then goes to the chief architect to resolve. 90% gets resolved by the chief architect saying "good idea". 5 or 8% might be "I think you should come back to align with what the architecture says because we've thought of it". You know. But 2 or 3% will be where the project is off on its own it's either recalcitrant bastards or it needs an exception.

You know it's so easy, but there's so much conflict between projects and architects that's not required, because if you have an alignment strategy and a governance management hierarchy as soon as there's a disagreement between the project manager and the architect it goes up. To what would it be the architecture review board?

<52:08> Chaired by the CIO if that's too much for them it might go up to the senior executive committee, who cares. If you have a disagreement it's because you both believe in your position. There is no need for conflict there is a need for escalation, that's what I've found.

And it always works, in my opinion, in my experience.

So in that place, in that situation you have a balance of power between the project manager and the architect.

Yes! Remember what I said before that the problem we have, with um, agh the architecture approach is that it changes what most programme and project managers believe and that is that they are masters of their own domain. They are not! They are masters of their own domain with a bit of a functional

responsibility to align with the architecture.

And through that alignment they will find that they might have interdependency for another project. Now most project managers would recognize that one, but they might not recognize the fact that it is the architecture that will alert them to some of that interdependency.

And save them from themselves.

Yeah!

It's such a simple thing to do. I feel embarrassed that I'm asserting it's simple because most people believe it's difficult, but most people go about it with the idea that it's going to be a conflicted mess and chaos will will ensue. But, to my mind what happens is, I mean.

Your model is very rational.

Yes, but remember I drew the the model

Conflicts typically aren't rational are they?

No they're emotional. And there's an attitude and that's why it's very important to understand at what stage that person is reacting from and whether they are over developed in reaction or retreat or whatever, because you can handle it differently.

<54:08> The key is to identify the none conformists, once a none conformist is identified you access where the person is on that chart. I mean this isn't a process, it's got to be done in a social environment.

Laughter

Then again if our friends, where's that 16PF, the narrow one if they try to run a process there they'll have a secondary and tertiary action against the fact that they apply a process against this personal interaction.

You know if somebody here tries to run a change management issue they fall down on their face.

Should I finish it there?

Well I'm trying to think what else is in the success factors, but it really depresses me when I see people

who are architects ... argh the other one.

Tools, if the tool takes over you are dead. Um, its very important to get a tool and also if the methodology takes over. TOGAF to my mind, I've used to be an accredited trainer, had wonderful times there. But if you adhere totally to TOGAF, well TOGAF doesn't have a business or information architecture, so it's a bit, they talk business scenarios, God knows what they are.

(Truncated discussion about TOGAF)

TOGAF is really an architecture development methodology whereby it helps the project management of an architecture evolution. But ArchiMate now,

(Truncated discussion about ArchiMate)

I like it because it does business services, application services, technology services. We've applied the services concept at every level in my methodology. (unclear) But it misses out on information services. Once again there is another way to look at the world that Archimate has described, but its prorogated the TOGAF view which doesn't promote information to its required preeminent status I believe.

The dominance of process?

It's an American disease.

(Truncated discussion about the dominance of process and the decline of the data centric discourse)

<58:40> Business people only talk process initially so you have to be able to talk process.

(Truncated interruption time for dinner)

<58:57> I just want to get that point across, (the decline of an emphasis on data) well you've seen it by the publications.

Umm, you can see that, you can track it.

I find that amazing, but, but a lot of people even the person who, umm, someone told me this the other day. The person who is the lead guy in BPM, he actually said data is becoming more and more important. We have to data model, whoever it was I've forgotten.

But over the top of all this stuff is the fact that you've got to deliver. You can't be an ivory tower. You can't be behind the walls. Someone once told me that there was this Enterprise Architect who put boxes all around his room and he was sheltered from people looking at him. Sorry, this image in my mind is important, but (laugh) I didn't express that very well.

It gets back to the hats I was talking about in the first part of this interview; an enterprise architect is not just an ordinary person. They have to have these many hats.

Some people have described them as a behavioral anomaly. It's not natural, it's not common.

That's right. When I was CIO of, well it was group technology manager of NZI I had global responsibility, my MD said to me, cause I said what are my limits, he said none, I just, I terms of expense or anything. \$80 -100m I had in terms of budget. I said well hang on how do we control this? He said all I want to know is that there are no complaints from my managing directors around the world in their technology domain. That was my one performance indicator.

I instituted, the first thing I did was bring everyone from all around the world, all the CIO to Auckland, although our head office was Sydney for New Zealand's number one company. Took them all to the head office in Auckland and gave them an architecture presentation and got them all to agree to an architectural approach. Because I had the freedom to do anything, now most architects are constrained by budget I had a few million bucks that I could put down into an operational project to make it globally applicable. For instance we had a cargo marketing system kicked off in Hong Kong for North Asian division. I went up there and we decided that this had to go to all thirteen business units around the world.

Well, most of them around the Asia Pacific rim. So I think that I put \$600,000 into that project to give it the strategic capability of being replicated around the world. That sought of thing doesn't happen these days. No one's got the budget to be freely strategic.

It's just amazing how probity and governance has gone too far. I met this guy Dean E out of NICTA, he's a professor, in the lifts, so it's informal you can't quote him.

He said from his studies, and he goes to America all the time, America is now spending 20% of its GDP on probity and governance.

Is it anyway different from here, I'd estimate the same. It's just crazy what we do. Even in this little organization I consult to there was a 700 page business analysis. There was a 300 page business analysis report, business requirements definition. I mean no use. In ASIC, when I was at ASIC there was a 400 page document for one of their systems and it was sent to the functional responsible people in Brisbane. They responded we can't read this, because we don't understand it and IT responded saying if you don't understand it and sign it off the project goes on hold. They signed it. They didn't have a clue what they were going to get.

(Truncated discussion about document size)

Why can't we specify a system in 400 pages?

Because they've gone back to the Victorian novel, they've forgotten about pictures being a thousand words. They've forgotten about keep it simple stupid otherwise you'll be tied by analysis paralysis.

All of those lessons and it was blown away by the PC in 1982, because people on the PC could suddenly do more than the mainframe could do in a shorter time.

All the lessons we learnt in the mainframe environment got blown away. Anyway we are relearning them, so what does that say about us? If you don't learn from history you relive it. Who said that?

Was it Marx? ENDS

14.13 Participant: PHIL -Notes from a single interview

PHIL was asked what he thought were the critical success factors for architecture. He responded slowly and thoughtfully with many long pauses for reflection and answered in a list like monologue of pronouncements as he ate his lunch.

PHIL's environment was highly political and he declined being recorded. His responses were measured probably with an eye to the consequence of them becoming public. His comments are recorded in writing as close to verbatim as possible in a noisy food hall.

- An architect's credibility is measured by technicians as technical knowledge.
- Architects must be everyone's friend.
- The TOGAF process is an internal discipline for the architect, [do] not try and apply it to the business.
- Model the business model not the business organization, if you do you'll repeat the same pattern.
- Time and long-term planning is dependent on the technology. Commodity technology has no long term.
- The culture of the organization and the balance of power between the project manager and the architect are vital.
- Formal governance model is only used when communications breaks down.
- You can have supply side architecture and demand side architecture.
- Supply side architecture where the CIO gets some architects and says "go and fix the business" fails. Demand side where the business says "we need to change works".
- Supply side architecture doesn't work
- Why does architecture need sponsorship? Infrastructure doesn't, applications don't.
- If you need sponsorship that's a warning sign.
- CIOs who come from IT don't like architects because they already know how it should be done. They also tend not to talk to business.
- CIOs from business like architects because they don't know anything.
- The architect has three roles, Explorer, Instigator and Guide
- Architects need a wide experience of problems and technologies, this is their advantage.
- EA need access to specialist architects like data architects.

- You have to add value all along.
- Architects need to be turned on by technology and must be able to think like a business person.
- Architects must be able to talk to everyone.
- If the business has a short term strategy then there is no long-term to plan for.
- Technical debt is timeframe dependent you can spend so much time trying to avoid debt that never happens or it doesn't matter.
- You have to be able to make logical choices that you can explain and that people can understand. It's no good saying do it because I'm the architect.
- Escalation through a formal governance model is the last resort.
- Business and IT have completely different world views and competing systems of logic and that's where the conflict comes from.
- Architecture should be involved all the way through the process. And at the end when they are "opening the building" the architect should be there. And when they cut the ribbon they should be saying "this couldn't have been done without this guy!"
- TOGAF is just a set of processes architects need to be more holistic, business people don't get process.
- Model the business model so that you know what silos can share what systems with other silos.
- Culture is very important.
- I've spent a lot of time on governance and decision rights and I've moved past that it doesn't work.
- The architect is important and it's not about being TOGAF certified.

14.14 Participant: DAVE - Notes from passing encounters.

The following are quotes from passing encounters with DAVE while working temporarily at the same organization, but on different projects. They were recorded verbatim as hand written notes at the time.

- So, he comes marching into my office and slams this down on my desk (architectural design document) and says “What’s this f*king bullshit!” They just didn’t get it a box with a little box on top, (UML notation) they didn’t understand it so they really didn’t like it.
- So he sits there, in his office (gestures leaning back with hands behind his head) and says to me “I’ve been doing Claims for thirty years and I’m telling you it can’t be improved.” I didn’t know what to say that’s the sort of thing we’re up against.
- So she (head of the project management office) comes screaming out of her office screaming “What do you think you’re all doing? Architects can’t stop projects, it’s what the business wants!” “Oh! Yes they can” I said “this is not what the business signed up for”. Well I can tell you they weren’t real happy.
- You can pick the architects from [Big International Consultants], they’ll be the youngest people in the room and that’s ‘cause they bend over and just [let] the business do what they want. That way the scope blows out and they rake in the money.
- So at drinks on the following Friday he [the PM] sidles over to me and says, in effect, I know that the project isn’t doing what it was supposed to, but I’ve spent 80% of the budget anyway so why stop it now?
- X (an architect) is just as bad he took the only decent project manager we had and turned him into a f*king cripple. Because he just wasn’t going to accept responsibility for his crap architecture.
- So we’ve got these people, with no technical background second guessing me. And if they don’t like my decision they run off to the vendor and get a second opinion and take it to the business.
- They just hire their mates and none of them have a f*king clue, so they’re all kinda covering up for each other.

15 APPENDIX F – INTERVIEW ANALYSIS

Threads or themes are noted in the first column where the number in brackets indicates a count. The fragments from the transcriptions appear on the right. They are always post fixed by the script id (VN number). Sometimes they are prefixed by a word or phrase in upper case, for example TECHNICAL ALIGNMENT. This indicates a possible sub-thread.

Thread	Comment
Communication and Consultation (11)	<p>They can then see a value from architecture now you are telling me stuff to make me a fully informed decision maker. Because a lot of its fear when you talk to these business people they've got no idea. (VN860016)[Trust]</p> <p>Getting that message out about value is important. What doesn't work is if that goes through project management they filter all that out and they won't show that(VN860016)[Dialogue]</p> <p>what that means is that some architects are more successful than others, agh um, therefore some, some projects have some architecture or a fair level of architectural governance applied to it. (VN860006)</p> <p>a good architect can then in this situation can start to use their level of knowledge to to quietly educate and start to ask certain questions within this space and trigger you know some action from these particular SME groups. (VN860006)</p> <p>other architects who are successful um, can, you know are quite brazen individuals can take comments but then turn them around and feed them back to the project team questions or or his advice on how to get through to various, you know elements so that's part of the communication style. (VN860006)</p> <p>the low-level skill groups they'll quite often they'll be having a dig at you just ignore that and get on the job of the architecture and and do that, eventually of the time you do win those people over. (VN860006)</p> <p>you're putting people in an uncomfortable position, you know they've been doing the job for years and you come in and ask some hard questions. So that exposes them a little. (VN860006)</p> <p>Now going the other way the architects got to be um, particularly strong in talking to the business in business in their own terms. (VN860007) [Knowledge Broking]</p> <p>you're almost the translator between the, you know the IT people at the who speak you know gobbledygook and the business who speak English right and that's um that's a primary skill that the architect must have. (VN860007) [Knowledge Broking]</p> <p>time I've had graphics people work with me to sell. I'd be writing the business case and writing the PowerPoint it terms of how do we get these messages out? So constantly we are presenting, constantly we're sending information out, umm all the time. And I do that. So I would say that maybe most of my time is spent thinking through business concepts then building up some very very simple conceptual views of what they would look like. And explain what it would look like(VN860020)</p> <p>You know so that's one of the issues um, and because of the maturity level the architect who comes in and tries to voice those concerns can quite often be seen as are you are just</p>

	trying to ruin this project or you're causing trouble and stuff. (VN860007)
Alignment with the Business (24)	<p>a lot of the mismatch comes where agh, business has this great plans with what they do and where they want to send the organization but unless the enterprise architects or the um architects in general know what that is agh, you can get some fairly exciting mismatches occurring. (VN860005)</p> <p>Identifying them is not easy but when they're identified then it can become agh, interesting to try either to convince the business that what they are asking for is crazy talk (VN860005)</p> <p>For organizations despite what most people think don't change their fundamental function very much and XXXX still today does what it did five years ago um, it doesn't radically change. (VN860005)</p> <p>It's a monitoring well that's one of the areas where being in concert with the business is helpful. (VN860005)</p> <p>So it's all too easy for IT people to get carried away and provide a wonderful you beaut wizzo electric solution, solution to solve a problem that doesn't exist, [you] have to be careful about that, providing a great solution in search of a problem. (VN860005)</p> <p>the other side of the coin we might say to the business you know business we can provide you with an electronic front end to this venture, want us to do that and they might say no I'm sorry um, it has to be on a paper form cause it's written in stone and in the legislation (VN860005)</p> <p>So there is a bit of a resistance from both directions and that we have to make sure that we provide what the business wants but we don't provide for what the business doesn't want. (VN860005)</p> <p>I won't say they own the technology, but they own what, they own their strategic agenda. (VN860005)</p> <p>So, to clarify your question, the business owns their investment from what business system change has to occur, but they don't own the technology. (VN860005)</p> <p>we are a knowledge industry therefore business and IT have a very strong alignment; were joined at the hips. (VN860020)</p> <p>and picking up on the Zachman framework was to try and get an overview of our organization as to what business we were in. And that was the starting point for connecting the business because they themselves knew their business(VN860020)</p> <p>there was a huge stouch between the business and ourselves I saw potential and the business just wanted to be whole sale. (VN860020)</p> <p>I'll buy the data from you as a wholesaler and I'll sell it retail and any percent I make I'll put it back to the organization. As IT and corporate services people for salaries and I guarantee I'll make more than enough money that will pay our way going forward. The CEO said great, umm, make him a broker. (VN860020)</p> <p>Well I think it is expected, I think it is accepted, I think they generally see that a lot of innovation comes from this area. I mean I've got four of my staff, we've got four, in the time of working through these issues we got four PhDs in my area right including myself. Umm we've got two more studying, so we are constantly investing in our people. I'm not saying that you have to have a PhD to come up with ideas. But because we are researching, because we find some things we are always a couple of steps ahead of the</p>

	<p>business. (VN860020)</p> <p>What people really see in the value of architecture at that level, it's having some smart guys to advise to make things happen, (VN860020)</p> <p>You've got to get runs on the board. To build trust between anyone in business, it takes time to build credibility by delivering. (VN860020)</p> <p>This was about 18 months ago when I wasn't in a position where I could go to John MXXX and say are you sure, do you realize what you are doing? (VN860020)</p> <p>We recently rolled out the IT strategy; we refreshed the IT strategy and know what we are going to do over the next seven years in terms of alignment with the strategic imperatives. (VN860022)</p> <p>Techniques and practices for doing that ... first and foremost working closely with the business in terms of their strategy development from two levels one is as a person who needs to understand it because ... in response to that business strategy we will have to develop an aligned IT strategy (VN860016)</p> <p>Coming up with a common language like the frameworks and so on, but not in technical terms(VN860016)</p> <p>But that information never made it to the business. This is where things start to fail. You can do all the work and have it ruined by so many points unless the whole thing works as a system. (VN860016)</p> <p>the heads of architecture have got a direct relationship with the heads of technology part of the business engagement team. And those heads of technology have got a good relationship with the business. (VN860022)</p> <p>Not hold back go and talk to the business at senior levels and listen to what they are saying and try make sure what is being responded to and delivered is actually achieving some of those longer term requirements. (VN860017)</p> <p>We're not here to tell you it's not the right thing to do, we definitely try to steer you towards long-term targets, but we see that at the moment you may have valid reasons trying to achieve short term targets at the expense of the long term. We're not here to say that that's a bad thing, but we are here to flag it so anybody who's there to decide if you go ahead or not or that you get additional funding that they do it fully informed of the implications. (VN860017)</p>
<p>Tools and Formal Methodologies (21)</p>	<p>Where they all intercept is the solution architecture this applies or builds an application to support that business function and manage that business data on that technology is all these things come together in solution. (VN860005)</p> <p>See we have a solution development method that is supposed to incorporate architecture activities for the project is doing the solutions. (VN860005)</p> <p>pure modelling tools the appetite hasn't been there because the approach has been don't bring tools unless you have the process down pat (VN860022)</p> <p>we started here with Rational Rose in the first case when we had we tried to use a tool to model you were very limited because people have got to learn the tool and you are constrained by the tool. So I said forget the tool let's do what has to be done word is good enough to capture these things this is how we want to set them up (VN860020)</p> <p>where I effectively developed a strategy for architectural capability and put it on the map. (VN860022)</p>

we create artefacts, but we don't have a standard way to create artefacts ... we ... those artefacts if they are created in, let's say Visio for example for a modelling tool we don't have a ... the ability to capture those point in time ... artefacts and draw them into the bigger picture (VN860022)

so the method of how we do architecture is (pause 2 seconds) evolving from ad hoc now more around a a loose, loose type of method but it's not been (unclear) defined, its horses for courses. Everyone does their own way at the moment, it's not standardized. We've got principles, design and architecture principles, and they're used quite extensively and our governance forms score alignment with those. (VN860022)

but in terms of actually generating documentation and including artefacts in the documents they become shelf ware and not reusable(VN860022)

fresh there's no way of actually taking the implied information within an artefact and using it for with other pieces of information to strategically plan(VN860022)

At the end of the day an artefact is a (pause 1 second) a building block within a message that is (pause 1 second) crafted in an appropriate way to enable key decision makers to make those decisions. (VN860022)

It's important in a in a software development lifecycle to have standard artefacts to communicate (pause 3-4 seconds) how a solution architecture will ... be delivered because when you got a number of programmes and projects that use the same method of building the solution architecture you can actually see where the overlaps are. (VN860022)

architecture is a science. SORRY! Is an art and those artefacts that build build in your message is (pause 1 second) an artistic approach and and by putting the rigor and creating artefacts we're actually confining the ability to think outside the box. (VN860022)

don't think any of this was deliberate it's all been evolutions in different areas to improve chunks, but in retrospect you look back and you go oh well this has gone quite well. (VN860017)

o that part of its kinda covered, although the governance part of it is broken. (VN860005)

We didn't throw that away we leveraged that into the second stage and we're just finishing off the work of the second stage now. (VN860020)

A lot of times EA starts off with a depiction of the business that never ever amounts to an implementation a plan. So you have a beautiful bookshelf, but it doesn't actually live beyond that. (VN860020)

And the frameworks of EA give us models it gives us a lexicon to talk. (VN860020)

we are spending more time designing big, while building small. (VN860020)

We try to help people upstream and downstream common language, common classification schemes that speeds things up as they go along. [Is method communication] (VN860016)

One of the problems I often see is an unclear definition of who's defining the design solution we need to separate the requirements from the solution from the construction as three different things. (VN860016)

The other dimension is trying to get requirements instead of solutions and that's a very common problem. BAs need to be trained to have a focus on abstracting what they are being told, because it's fair enough the business are going to tell you a solution. But they

	<p>have to understand the difference between coming up with a capability that needs to be in a solution rather than the way it's going to work. (VN860016)</p> <p>It gets to be a grey area it's fine to have conceptual views of screen and work flows and stuff like that but that should not be perceived to be the design. (VN860016)</p>
<p>Governance and Monitoring (6)</p>	<p>TECHNICAL ALIGNMENT - that's also to some extent an extension of the next layer of architecture we talked about which is solution architecture while um the individual projects have their solution architects designing their solutions or building their solutions or whatever, agh, being overseen by a centralized if you like enterprise solution architect and make sure that those various sundry designs and activities remain aligned. (VN860005)</p> <p>TECHNICAL ALIGNMENT - you need to monitor that it doesn't drift in the meantime (VN860005)</p> <p>TECHNICAL ALIGNMENT - need to make sure that when you are delivering projects that they are in alignment with the strategy otherwise it's a piece of paper on the top shelf that's not really governing anything. (VN860017)</p> <p>GOVERNANCE STRUCTURE - so the enterprise solution architects did that governance role, the enterprise architects never saw any of the solutions and solution architects, the central ones, the enterprise ones never did need to do the designs themselves so they're like the bridge if you like between the target and the actual. (VN860005)</p> <p>GOVERNANCE STRUCTURE - A first lock in a strategy that everyone got behind then B making sure that everyone said they would stand to be corrected and in fact architecture doesn't have the ability to stop a project. (VN860017)</p> <p>GOVERNANCE STRUCTURE - We have a continuous improvement program so if it's less than a certain figure you go through an alternative process (VN860017)</p>
<p>Coordinating Developers (5)</p>	<p>COMMUNICATION - lot of the time I.T. people who are running around building computer systems don't need or care about architecture too much, there is a limit to how much they need and you can get quite excited about thrusting architecture upon people whether they like it or not, um, whether they need it or not and so we need to be careful that we aren't burdening people with an architecture they don't need (VN860005)</p> <p>COMMUNICATION - help people be aware of other things that they may not know about because because, most projects are delivered as siloed projects, we are sitting here doing this particular function agh supporting that method, process business process or building a database on this technology, um, agh, they specialize in doing that; they quite rightly don't know that over here is a function being built that might need to use the database and that over here another function is being built that replaces a system they thought they might talk to and so agh, one of the important roles in enterprise architecture, (cough), the function can do even if it's only enterprise solution architecture is to help be the glue between all of these activities that might not be aware of what each other are doing. (VN860005)</p> <p>COMMUNICATION - there are dependencies between the applications that are not know about, that they might not be able to manage because it had the view from above. Or that they might not know that this is happening over there so we better tell them, the place for that to happen is a centralized enterprise architectural, centralized solution architecture function. (VN860005)</p> <p>AVOIDANCE – But where they don't want to be guided, where we don't know the project exists. We can't guide them if we don't know that they are there. Um, it's an uphill struggle to guide them if they don't want to be guided. (VN860005)</p> <p>AVOIDANCE – if they want to hide from us then they will, agh, often they would rather do their own thing than be told what to do. So they will explicitly go out of their way to</p>

	bypass our involvement if they can. (VN860005)
<p>Architecture Appropriate to Organization (15)</p>	<p>you could bring in a bunch of consultants to spend six months crawling over it, over it and producing for you a “to be” and a current architecture assessment and so forth and so on and then off they go again. (VN860005)</p> <p>while having a current, um, inventory keeping aspect as well. (VN860005)</p> <p>Larger organizations would benefit from and would require a continuous process but don't think smaller organizations do. (VN860005)</p> <p>That's something we need to be careful about wasting time on, such organizations, um and the other thing I guess that makes them successful would be agh (long pause) making sure they provide value for the rest of the IT function. (VN860005)</p> <p>We can't spend all our lives running around looking at technologies we might want to use in case and speaking to vendors just because we can, because ultimately 90% of them you look at and say well that's nice but we don't need it. (VN860005)</p> <p>that we aren't wasting our time in ivory tower activities, pursuits that don't add value to what other people are doing working end to end at cross purposes to what the real value that might be added could do. (VN860005)</p> <p>I think that's what they heading towards that's what they said they're heading towards is to have more broadly focused enterprise architects who do that solution oversight role as well as enterprise architecture role. agh, rather than, um, bringing in specialists that then go away and take that knowledge away with them as well, which is another problem. I think they are heading that way. (VN860005)</p> <p>we need to make sure that we retain that intellectual capital because it's, agh, something that can be painful if you lose it. (VN860005)</p> <p>IT can't help that exercise. And the business had decided against sending out updates and alerts and alarms (cough) information through twatter (Joke Twitter). And again, knock yourselves out; enjoy yourselves there is nothing that IT can do to help you do that. (VN860005)</p> <p>you need to make sure that the scale of both the organization and enterprise architecture are matched in order for it to be successful. (VN860005)</p> <p>a match between what the organization, um would benefit from or need and what the organization can deliver in terms of enterprise architecture, because if it delivers way more than the organization needs then they are wasting their time and money and the architects are seen as being a useless and superfluous (pause) if they are not keeping up with what the organization's needs then the organization's going to become a bit rudderless and a bit haphazard and a bit arbitrary in how it does its architecting and how it builds its systems and how it meets its business needs. (VN860005)</p> <p>Architectural practice according to the nature of the organization, the environment the culture at the time. (VN860016)</p> <p>You can mismatch if you come in with a very advanced model it will not fit. They won't understand it and they won't accept it. So there's a long-term often painful ... pain-staking ... taking one step at a time evolution. [Note Evolution] (VN860016)</p> <p>at some point we start making recommendations in design that (unclear) that sit above the project level that are more enduring. Anyway to put in place enduring capabilities is to secure the level of sponsorship needed at the level of the business that can implement</p>

	more enduring capabilities [Note Evolution] (VN860017)
The Scope of Architecture (14)	<p>DEFINITION - We need to think about what type of architecture we're talking about because it's become such a general and vague term that it now encompasses a fairly wide spectrum of the IT life-cycle IT world and depending on which part of talking about you'll get a different answer. (VN860005)</p> <p>DEFINITION - and there was breakout session and the guy asked in this room of about 30 people who still writes code on a regular basis, on a daily basis and 29 hands went up I didn't I was the only person there who didn't write code on a daily basis(VN860005)</p> <p>DEFINITION - So what we used to call programmer analysts are now calling themselves architects and so architecture has drifted down towards the program design end of IT activities. (VN860005)</p> <p>DEFINITION - Very succinctly (cough) we are very mature architecture thinking organization, but an extremely immature architecture practice organization. As in we all value architecture from the senior executives down to the umm ops developers etc. But how we put that into practice is evolving. (VN860022)</p> <p>DEFINITION - we tried a self-assessment of our architecture, to be world class enterprise architecture based on TOGAF. Umm and this includes a mapping to a CMM type model of maturity. The enterprise applications architecture domain , my portfolio, sits somewhere between zeros and twos, not more than that in terms of capability and maturity but we have got structures in place they were put in place. (VN860022)</p> <p>DEFINITION - Now we are looking looking to make a change to evolve because the requirements around governance have changed. So too we need to evolve the process and the rigor around how we actually do so. . (VN860022)</p> <p>DEFINITION - One of the things that helps is we have just formalized setting up the innovation capability in the group and now that falls under the responsibility of the architecture often we are being asked to the table in the context of that responsibility. (VN860017)</p> <p>DEFINITION - Architecture started off as architecture then, it's expanded downstream, if you like, to encompass design. But it's also expanded up stream to cover strategy and now it's actually gone further than that to encompass pre-strategy innovation. So within the architecture function now we have enterprise responsibility for innovation.[Note Evolution] (VN860017)</p> <p>DEFINITION - I think it's like a Maslow's hierarchy you need good architects. Once you have good architects then you need to do good architecture, then you need good programme architecture then you need enterprise architecture to tie it all together. And then you need to go beyond certain levels of confidence you need to have it ingrained in the day to day operations of the group on one hand and in the strategy of the group in the other hand. (VN860017)</p> <p>DEFINITION - You need to get involved in the strategy setting, but then you need to be involved in the day to day operation of decision making (VN860017)</p> <p>DEFINITION - I believe that in a sense that EA is a business tool, it's about understanding the business and seeing how best we can get the business delivered. (VN860020)</p> <p>DEFINITION - In previous times when I did EA in other organizations it was always in one of three or four areas. It was an information study, we would look at what information we were using; or it was a technology review because we had to do some refresh; or we would be looking at a business area rather than looking at all the business areas in our enterprise. (VN860020)</p>

	<p>DEFINITION - For this plan that we embraced in this organization was a review of all our business functions then drilling down from those business functions and looking at what systems supported those and then analysing those systems to try and identify what are the common information bits, doing a touch point map right across the organization and then coming up with a plan. That allows us to deal with the business focus, (VN860020)</p> <p>DEFINITION - so for us it was really trying to think through the business problem and use EA to identify where we wanted to attack and use it as a basis for funding to put forward a strategic plan that allows us to get on the band wagon and get that built (VN860021)</p>
<p>The Critical Success Factors (34)</p>	<p>So depending on which of those were talking about, plus various other flavours which I have mentioned, agh, different things make them successful or make them fail. (VN860005)</p> <p>however what I do find in the organization is that architecture is as successful as the architect is able to communicate. (VN860006)</p> <p>if you can come in and demonstrate value, communicate well, um, show that customer focus, um, and basically appear to be adding that value that the project team believe, um um, you know, is valuable to the project assisting the delivery and you'll probably do okay. (VN860006)</p> <p>So I agree with you that there are organizations out there that have got quite a rigorous process to actually do architecture ... but here, building that that relationship is key to any sort of successful engagement. (VN860022)</p> <p>someone who knows what they are doing and I don't mean a technocrat I mean a person who has management experience as well as technical experience and can actually be quite forceful. (VN860041)</p> <p>First off all it can't be IT myopia, so it has to look outside of its traditional comfort zone of the IT department. (VN860013)</p> <p>It has to have enough clout to be able to make a difference, be able to challenge and basically drive out comes. (VN860013)</p> <p>It needs to have architects, who have good soft skills, open to what the political climate is, and can influence without having to drive and demand. (VN860013)</p> <p>There's going to be a number of factors they are going to be senior level understanding and endorsement of the practice and the communication of that down to their subordinates would be one thing. (VN860016)</p> <p>Levels of skills and knowledge of the people who make up the teams, the engagement model that the organization sets up to enable it to function, The culture of the organization in terms of acceptance of that function. That probably starts to touch on change management. Another aspect is clear roles and responsibilities – a level of maturity of the organization and the IT function overall. It has to be relatively high. (VN860016)</p> <p>If an organization already has high levels of emotional maturity in terms of the people who work there, it's not a problem, they go tut you know you are right, that's a good idea lets work on this together cause other's go I've been working on this five years. (VN860016)</p> <p>It's relatively easy to do the current state, relatively easy to come up with a fantastic future state, but the transition plan to get there is the hard part. (VN860016)</p> <p>From a carrot side Architecture has a responsibility to do the education, the training the communication(VN860016)</p>

	<p>The level of emotional maturity of the organization is critical. (VN860016)</p> <p>here's a different way of doing it all of a sudden the business are interested in doing it. I didn't have a very happy boss cause he'd kind of staked his career on this thing and done a lot of work convincing people, I came along and naively said hey look at these figures this doesn't make sense. We can do it for a fraction of the cost and a fraction of the time; that didn't go down very well, then you find all sorts of funny behaviours. (VN860016)</p> <p>because we're, we're ... enabling decision makers to make decisions on what will be the technological change we do sit in technology. But the function of the enterprise architecture function should be viewed as independent of code cutters, sitting outside that to make sure that there's a harmonious relationship to deliver strategic goals. (VN860022)</p> <p>At the end of the day its coming down to selling that message and ummm, so we've got one of our key capabilities in the IT strategy is customer centric innovation. (VN860022)</p> <p>So, the architect is part of the key to success an architect that sells that larger vision enable by a particular structure that is effective in that organization. (VN860022)</p> <p>You need to focus on the operating model; you need to focus on the journey. (VN860022)</p> <p>to sell the message of change to those who've got the purse strings. (VN860022)</p> <p>And he said there's some other consulting stuff here from previous projects in the draw. And four other consultants had done what he had asked me to do. You know they'd tried to put in place the architecture approach. So I went to the CIO and said look I can't improve on all this. You've got enough here to work with. So I made a series of appointments all the senior, executive committee people and we went and talked to all of them. We got the funds we got the project we got the thing moving. (VN860041)</p> <p>you've got to get the business on side, they've got to be able to see they've got to be able to invest. There's a huge investment upfront and then it tapers off. So how do you get business people to actually get excited about architecture? If you said to any technocrat or and I'm an arrogant bastard. If you said to most people in this field or in the field of strategic planning, business planning or in the field of IT let's build a business architecture they immediately gravitate towards business process. (VN860041)</p> <p>In my opinion the fundamental that the enterprise architect has to have in his mind is an understanding of a data structures for that enterprise and they are not that difficult to have. The trouble is over the last 15 to 20 years data has lost the primary position for a lot of architects and they talk about process that's where they move into analysis paralysis and process is just subjective were as data must reflect reality. (VN860041)</p> <p>Because entropy in XXXX is an enterprise architecture function of 2 or 3 people and completely federated architecture at the solution level completely spread across the business. That's how it was 3 ½ years ago, now it's the exact opposite of that. (VN860017)</p> <p>it takes a force of will; it takes good people and the right organizational structure and appetite to make that work. (VN860017)</p> <p>architectural leadership is a critical success factor in its own right. That is the ability to communicate the value proposition and the outcomes of architecture upwards in the business. (VN860017)</p> <p>That needs sponsorship and leadership for architecture to operate at that level. How do you attain this? This person you've been talking about did he come to the role</p>
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	<p>with a high degree of prestige? I think a lot of it has been injected by the people around him. Including the new CTO who's come with high expectations of business engagement and really bought business engagement out of architecture (VN860017)</p> <p>A making sure all key decision makers are involved in the setting of the technology strategy B securing some sort of transparency of alignment so that the technology strategy is part of the alignment process for funding and making sure that there is a peak approval body. (VN860017)</p> <p>I think also selling if you look on my computer the directory with the most number of file entries is my power point directory. On average in a week I'll have one or two presentations, I'll give it to the business or outsiders. You are talking about EA so the amount of work we've had to do in selling EA I think that's another key thing. (VN860020)</p> <p>I think it's a combination of leadership, as you can tell, if we were just subservient to accept what the business was saying we never would have built the portal to the extent that we had to. (VN860020)</p> <p>it's selling it's about believing, it's about adjustments, it's about being flexible, and it wasn't about trying to sell EA you know we wanted to try and understand the business. And I think that is the thing that I must really underscore about EA, understand the business, understand technology, enable a plan. If you have a technology road map people can see it. (VN860020)</p> <p>There'll be times when you haven't delivered yet and you just have to keep going and keep building up your teams and eventually you'll get it. (VN860020)</p>
<p>Qualities of the Architect (33)</p>	<p>not an in-depth technical but a broad technical skill you have got to know what's possible (VN860007)</p> <p>Being an architect in fact you're probably better off not to (laughter) because then you'll just keep deep diving and you won't solve any problem. (VN860007)</p> <p>So you can take an architect you can take someone with a foundation in analytical skills ... and you can build on that. You can give them mentoring. There's no way you can teach someone to do architecture ... there's no cook book of how to do it. It's a mentored approach because it's that art. (VN860022)</p> <p>I don't think that everyone has the ability to become an architect. (VN860022)</p> <p>The heritage of the typical architect including me, IT background very focused on analysis, data and facts and not so well versed in the rough and tumble of political life and ... the real factors behind decision making ... all those things that anyone going into a management role has to learn. (VN860014)</p> <p>But you can't just be a technical black and white kind of guy. You have to pick up a lot of the skills that people managers have, because that's the world you are working in. You can't just bank on your IT credentials and the fact that you know the difference between SOAP1.1 and 1.2 or whatever the hell. (VN860014)</p> <p>a lot of architects ... miss that step ... they go from a technical path a senior technical role and all of a sudden they are talking to people that they've never had to deal with before. It's talking different languages and talking across each other. (VN860014)</p> <p>We're going to train some architects now. What would you train them in?</p> <p>I would definitely focus on dealing with people and communication and the influencing side of the role. The first thing that I wouldn't do is say off you go and get TOGAF</p>

	<p>accredited or whatever flavour of the month is. To be truly effective in the role you've got to be able to work with people ... and understand their motivation, you know it's a tricky business. (VN860015)</p> <p>how do you train architects? I see this on a lot of blogs and a lot of opinion pieces and it's kind of like to be an effective architect you've got to be able to blah, blah, blah and if you just replaced architect with manager you'd have exactly the same, it would still be true. (VN860015)</p> <p>know I get a bit annoyed with people trying to make out that architecture is so special and different to everyone else in business. It's not necessarily the case. (VN860015)</p> <p>I see things ... I can be not abrasive ... blunt ... Is that a quality of architects? I don't know. (VN860015)</p> <p>It's about soft skills, communications; I'd make sure someone was a good written communicator. I think that's important in the age of email and there's being able to write documents that hopefully someone will read. You know, the written word ... seems to be fewer and fewer people who can actually construct a cogent argument in writing. (VN860014)</p> <p>I get a sense that there's a tendency to focus on the technical side because it's easy to think about and easier to demonstrate you've got superiority on that, it's easy to grade someone and say that yes you are certified on that. (VN860015)</p> <p>Okay, I clearly don't have the support to do my job so it's time to start looking, absolutely. (VN860015)</p> <p>I'd love to be in a position where I could take that high ground maybe one day I will. It's like anyone else I like to be paid. I don't like to be unemployed I like to change on my terms not someone else's. I like to pretend I have some sort of control (VN860015)</p> <p>talks about Solution Architects who were developers not understanding that their particular technology may not be the optimal one for the long-term cost effectiveness(VN860016)</p> <p>Just one point there about the quality of architects? Yeah, you've got to get the right knowledge and training and so on. (VN860016)</p> <p>You've got to be able to look at people and say who are they where are they in their mind. What roles and responsibilities do they think they have? Work with them but also call out I really don't want you to write this solution bit here can you just concentrate on the requirements. (VN860016)</p> <p>Think on your feet drill down to things, helicopter in from a high level and down to the detail depending on the audience. (VN860016)</p> <p>they need to be hand-in-hand you've got to be able to think technically um but you need to be able to communicate(VN860007)</p> <p>Don't get me wrong the role of architects, enterprise or otherwise, is to produce useful (pause 1 second) sales messages (pause 1 second) to bring whoever your stakeholder is on board and along the journey, and to sell that message (pause 2 seconds) whether my primary tool of trade is PowerPoint to develop my message (pause 1 second) and that's the way I bring people on the journey, but (pause 1 second) describing what is required and building those relationships is key. (VN860022)</p> <p>Everybody's a strategic planner, strategic thinker they happen to have done to architecture or development or other things in other past lives in their career but ... they</p>
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	<p>are now strategic planners (VN860022)</p> <p>an enterprise architect is a behavioural irregularity ... as appose to a solution architect ... cause you need to be able to in my bridge type of world be intuitive but be (sensitive) at the same time. Be able to get down to the detail, but see the bigger picture. (VN860022)</p> <p>you need to have a foundation to then build on ... if you are a code cutter a developer it's very difficult to step out of that myopic world to become a a an enterprise architect . (VN860022)</p> <p>You're like what's his name De Bono has his six hats. I reckon there's about six hats that you need to be a successful enterprise architect. (VN860041)</p> <p>You have to understand the business issues of time to market you have to understand people issues and I'm not just talking about training and education I'm talking about the soft factors, like you have to know what people are thinking, what they're believing what their attitudes are. (VN860041)</p> <p>And you have to have a marketing hat whereby you can circumvent all those difficult people how have vested interests. Who have their own way of doing things. You have to be able to align with what they are doing, you have to be patient, you have to be tolerant, you have to compromise, you have to be collaborative. (VN860041)</p> <p>So really successful enterprise architects, and I haven't even gone into it you have to be able to data model, process model, understand the whole lingo of the technical area. So it's quite a hard role to play and that's why in my opinion. Umm, I'm gonna boast now. In my opinion it was phenomenal what we built in the XXXX group because there was a marriage of the people who could theorize as analysts, that could document all this rubbish, sorry all this good stuff in their deltas and their practices. (VN860041)</p> <p>And so where I'm going with that was that if you know what you are doing and you have those six or seven hats you can wear, you can apply with the methodology that you understand completely then you are very effective. (VN860041)</p> <p>The best way in my opinion of getting an enterprise architecture up and running is to hire in the people who know what they are doing. (VN860041)</p> <p>Because I think the second level of factors is how you approach it. What artefacts you're looking for. And of course that's horses for courses. But there are fundamental things that get business excited and implemnet, interested. (VN860041)</p> <p>The other thing is the CIO or the CEO, remember I'm talking about the major factors. The first factor was the enterprise architect himself, at least that role fulfilling with a consultant and somebody in house. The second factor and this is a beaut one I reckon if the CIO or the CEO don't understand what an architecture approach is forget it! (VN860041)</p> <p>when I hire somebody to be an architect I look at their accreditations look at where they've been and usually they are coming from project management or the technical area which I think is alright, but then they got to have a personality that allows them to you know blossom as an architect. (VN860041)</p>
<p>Commitment to the Use of Architecture (109)</p>	<p>if the CIO doesn't understand what enterprise architecture is or does then they are not going to support what it is does and are not going to understand how it ought to be applied across the organization. (VN860005)</p> <p>By clout I guess I mean management support and management endorsement at the right levels. (VN860013)</p>

	<p>You have to have the right managers who are overlooking the business and overlooking the project office and overlooking the other parts of it to be able to reinforce the point that this is an endorsed activity. It's not just IT people trying to be difficult. (VN860013)</p> <p>That's a very high degree of integration. It is and I don't know how much of that we will sustain because a lot of it comes from strong leadership.(VN860017)</p> <p>I think what really happened in the beginning was with the merger we had a new CEO that bought the merge together then he appointed a new COO a Chief Operating Officer. The COO worked with me in a former organization. He bought me on board and said look I need to do something I need to attack. (VN860020) [Trust]</p> <p>So I had confidence from the COO I didn't have to prove my methods and theories. I'd proved that before. So that gave me a fairly very big passport inside the organization, so I came with credibility. But I also came with a whole pocket full of experience. (VN860020) [Trust]</p> <p>That's the thing I think that there's a lack of prestige, prestige is one thing but direct line responsibility is another. So you can balance prestige with the salary that comes with being a general manager the salary of being a general manager is 2 -3 times greater than being the senior head of something.(VN860017) [Legitimacy]</p> <p>But overall umm, BANK is, embraces enterprise architecture in a strategic direction, and end to end and highly values the, the information and, that is provided as a result of doing architecture. (VN860022) [Legitimacy]</p> <p>Certification was only introduced into the bank about 3 years ago and it started as a soft touch and started going to a hard touch initially it was opt in now after about a year it became mandatory. (VN860017) [Legitimacy]</p> <p>So I would say that is the the key the reason why we've been successful ... so far in our journey to establish that relationship and maintain that relationship. So you're arguing that it's predominately a structural thing? And a mindset change. (VN860022) [Legitimacy]</p> <p>The problem is a lot of architects allow the data structures of their organizations to be skewed by management's perception(VN860041) [Lack of authority]</p> <p>It is multiple levels of engagement you have a team of people who provide the solution architecture for a project so it's to work out what to do. (VN860017)</p> <p>there's no mandate to make them do it. That's one problem is that we, we have here in the architecture group. Aand the sponsorship from the management isn't wasn't consistent, um, in setting that you know, in making sure that those things were put in place to ensure it happened. (VN860006) [Lack of authority]</p> <p>That part has been broken, people you know, the first thing we find about some projects is that they are in production. And we go well, how did that get in production? (VN860006)</p> <p>architecture just trying to cut into that base and then with the lack, the lack of um, enforceable and from above then it becomes, you know, agh, up to the architect whether they are successful here or not. (VN860006) [Lack of authority]</p> <p>That's the first we've heard of it. They go, or, nobody said we couldn't. So, so there needs to be a tie in between the gatekeepers of the life cycle and the architecture activities that</p>
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	<p>are part of that. At the moment they are not seen as being essential necessary (VN860005)</p> <p>arms and legs of the business that had their own little fiefdoms they did whatever they liked, um, without central architecture oversight. Not because there wasn't any but because they were simply just too many spinning plates for any central unit for people to know about all of them. (VN860005)</p> <p>from the architect here is that, um, that they are playing in a space where they, they are not understood by the people they're working with. (VN860006) [Legitimacy]</p> <p>skill level is acquired within and without formal training without disciplines without going to market without having a mass-market, um, experience, um and therefore they only know what they know they don't know what they don't know. (VN860006) [Legitimacy]</p> <p>based on that the technical skills to be quite low don't know what they don't know so therefore they challenge they think the architect doesn't know what they know or knows less than they know. And, that becomes a challenge and depending on where the project manager comes from, um, they work with those developers and if they see tension quite often it's easy for them to say, to say okay will go with the people actually deliver the goods press the buttons(VN860006)</p> <p>sometimes they know that are not skilled so they hide information from people who are trying to be involved. (VN860006)</p> <p>complicating factor here is the architect with such a knowledgeable legacy based knowledgeable customers. And quite often customers can't see over the horizon can't see that their system isn't delivering. (VN860007)</p> <p>somebody must know that they exist and there is a central PMO that knows what all the projects agh, that we're all working and that's all well and good. (VN860005)</p> <p>there is no point at which the project is told you cannot proceed to the next step because you haven't got the signoffs. (VN860005)</p> <p>there's supposed to be, there's no point at which people say wait a minute there is no sign off on architecture for example therefore your project stops until you do that. (VN860005)</p> <p>it is by ignorance in other cases it is quite deliberate stealth. (VN860005)</p> <p>we couldn't, be looking of everybody's shoulder at once; we'll drowned in the fire hose if we try and review everything that everyone's doing. Just tell us about, involve us in the oversight of projects that are introducing new technologies or introducing new functions. Anything that is like a maintenance activity or just more of the same or just uses the same old stuff spare us the details we'll trust you. (VN860005)</p> <p>So what they did was, agh, when a function came along that would obviously be an off-the-shelf product as a solution they would go and write their own system to deliver it, because then they wouldn't have to involve us because it's not new using new technology its using the technologies but in an inappropriate way. So people would find would find ways around any freedom that we gave them, (long pause), to avoid their responsibilities. (VN860005)</p> <p>those PMs then set up their teams and set up the project accordingly. If, for example, if they believe in architecture then they'll put an architect on the project. If they don't believe in it, there's no mandate to make them do it. That's one problem is that we, we have here in the architecture group. (VN860006)</p>
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	<p>so you say to them well we can't do everything here are some criterion by which you can filter the fire hose, suddenly amazingly, there's nothing. (VN860005)</p> <p>They are all told, look we've got work to do, we've got a solution to deliver, just get on with, um, because the managers don't care either. So it's really, and that's part of a function of the managers themselves are all or mostly contractors. (VN860005)</p> <p>, it really comes down to the leadership need to make the call and say you know we have a level of governance in the organization and I want to see that followed but they don't say it they change the governance to suite the project depending on who the PM is, right so this leads back to then the PM choosing whether they want the architect or not they are not enforced to so they don't. (VN860007)</p> <p>I think it's that way because of churn in senior management as well as the not so senior management because; at one point there there was nobody permanent between me and the chairman. My manager had left his manager the CIO had left. (VN860007)</p> <p>there is now two managers in charge of the architecture area one of whom has been here six months if not more twelve months. The other one's been here three months and neither of them has yet seen or tried to look at our TO BE architecture and roadmap. They didn't even know they existed, yet they are managing the architecture and they've been here for a year, didn't know we had a target architecture or a roadmap for it, had not asked whether we had one, so that's the depth of the churn, the depth of the discontinuity. (VN860005)</p> <p>And we don't know what they are doing or what they want to do. My manger he's been back again now for six or more months I've spoken to him twice, in that time. The new manager who's been here three months I've spoken to him once, no twice. (VN860005)</p> <p>they are brought in to do a particular role and that is to deliver Project X. Um, by the time Project X gets in and is quite underway they are going to be long gone, off to their next organization; they don't care. (VN860005)</p> <p>there is no point in the cycle that you can get someone who actually has skin in the game and make them understand that hey your nuts are on the line here agh, this thing fails you're going to have to wear it because they say "I won't be working here anyway" because they're contractors.(VN860005)</p> <p>if you look at their business cases for the project plans, agh and a successful, they are all about, um, whether it's delivered on time and within budget and all these other good project manager things that are really indicators that the project manager has been successful. (VN860005)</p> <p>Yes! You've delivered the project that's fantastic, who cares how you did it or what the long-term result is going to be, but my God that's a tick. (VN860005)</p> <p>Because they don't know and they don't care on time on budget delivery even if that means sacrificing some if the features something in the future.(VN860016)</p> <p>the project itself can be a complete failure. It's not on there as a, as a criteria, so it's really the operation was successful but the patient died kind of thing. Where agh, the project manager goes I got it in on time and I got it in within budget what's the problem? (VN860005)</p> <p>but those people are too focused on counting beans, shuffling heads and watching calendars to be interested in the actual quality of the product or the architectural purity of it. (VN860005)</p>
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<p>so that's in fact one of the issues they we highlight as architecture is the PM who put the project in will eventually cut scope get it in on time. (VN860007)</p> <p>know what the previous one did because there's been no handover. All of them start from scratch and make the same mistakes. Spin the wheels and don't know that there is an architecture oversight function that they need to involve. And so it becomes all very, agh, loose. (VN860005)</p> <p>If the PM gets the power or is prematurely engaged they be driven to a delivery and they will dive into the solution and they'll try and guide that without consideration of all these other things and often run into trouble. Senior management control, HR systems Job descriptions performance measures governance activity and consequences if you don't follow. (VN860016)</p> <p>It's the whole organization, because we found recently that parts of the business are going and hiring solution architects themselves to produce their systems because they don't want to involve us. (VN860005)</p> <p>It's a question of empowerment and the balance of power in that relationship. If the PM has more power than the architect then you get individual solutions that are not optimized.(VN860016)</p> <p>the PMO itself is more a governance body than a strategic body, but it's the main checkpoint in the organization for change.(VN860013)</p> <p>project prioritization is done at budget time and that's it then that it they don't really come back and if a new project comes in that that wasn't on the pipeline um, the prioritization someone might make that prioritization but it's not agreed across all the project teams and project management managers and stuff and then they end up fighting each other for resources.(VN860007)</p> <p>So often the programme management side of things will create a challenge to successful architecture in the sense that they don't hold that same long-term holistic, total portfolio over the life of the assets view. And they tend to want spot solutions at best a programme of work.(VN860016)</p> <p>Solution Architect hands down a solution design to a PM for delivery. I think it's dangerous to have an IT delivery manager prematurely involved. That's a seed for failure. There is a need for a business PM to be involved earlier because they are involved in the business initiative right.(VN860016)</p> <p>They'll edit the material to present how they want to do it. They'll skew the business case to make it easy for them. We have had situations we've recommended look at a thing, it's going to be a temporary thing hey I can build this for 200K its going to meet all your requirements plus more. (VN860016)</p> <p>They don't need to involve us because we are not there to watch them because it's in YYY you see, even under the IT auspices this is an organization within IT that manages a particular system that is housed down there. (VN860005)</p> <p>then the PM comes along I don't want this new technology I don't like it. I've got to deal with new people lets go with the old thing that I know. \$1M and then in the end only a fraction of it gets delivered anyway. (VN860016)</p> <p>there is an organization, there is another IT organization within XXXX called forensics support and they are the guys you know who when the guys go into an HIH and kick the doors down and walk out with bundles of PCs under the arms collecting as evidence, these are the guys who then take those disks apart and decrypt passwords and find data on</p>
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	<p>arcane partitions and generally make all, get all the data off them and people sift through it looking for evidence of things. Um, and they are actually part of the business not part of IT and the business ah well, these guys don't have to follow the rules of XXXX IT because they are our organization we'll get them to deliver something for us because it's quick and easy and it avoids oversight. (VN860005)</p> <p>it was a long-term plan it involved about 25 mill for each part of the plan and we don't in this organization get through money in one large slab. We always have to break it down, draw down against a treasury allocation limits. (VN860020)</p> <p>they add value and that, they might get you know to do more and more but if you are SMEs don't give you the information you need they hide information from you.(VN860005)</p> <p>sorry more than informed actually dictated the funding allocation for the investment programme programme we have a strategic investment prioritize that are occurring now the IT strategy directly informed what is the funding profile(VN860022)</p> <p>A alignment to the strategy in terms of timing in terms, in terms of actual whether its aligned or contrary to the IT strategy and also contention if individual business unit silos request (pause 2 seconds) for immediate access to a large amount of funds (pause 2 seconds) the human resources may not be available to execute it. (VN860022)</p> <p>So, my plan would have chunks of say 5 million dollars lots. And they you spend more time actually thinking about how do you get your frameworks right. (VN860020)</p> <p>We started to count what is the residual cost avoidance to those business cases. So now we find after four years we've returned about 100 million dollars after four years of cost avoidance. (VN860020)</p> <p>I guess that's what I mean by clout. It's having the support. Is clout formal authority ... No I won't say so it's not, it's definitely not reporting lines. It's not even controlling budget, or anything like that the sort of things that architects don't do a lot of it's really it's about organizational power structures, influence and politics and all those things that you need to have aligned to make a difference in any reasonably sized organization. (VN860013)</p> <p>a weakness I have is in the beginning in the role 10 or so years ago now. Was well I kind of a belief that if I explain things logically and put the case down for people surely they'll see that this is the way to go? And you put an honest case, but then you have to realize that politics of it all. (VN860016)</p> <p>That balance of power is critical and if it is tilted the wrong way you'll get the short term view and you won't achieve the objectives I described earlier. How do you ensure that that power balance is correct? That comes back a number of ways it's a good question. (VN860016)</p> <p>and every year above and beyond that we've gone about 50 million extra so we started with 100 after 4 and I think it's now 200 or 250 which is where we are (unclear) and we do that every year. (VN860020)</p> <p>Our inspirational leader has made the decision to move on. To take a delivery role because it is perceived that to be a general manager that he needs to have a delivery program under his belt. (VN860017)</p> <p>every 18 months we do a whole benefits realization and we've also pick up what I call an intellectual capital statement where we are looking at the skill set growing and changing. Looking at how many people have studied formally the matrix across the organization gauges the complexities of what's happening and is seeing that our staff numbers are actually staying static in fact becoming a lot less because freezes recruitment in this are</p>
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	<p>but our costs do not balloon because the benefits have accelerated. (VN860020) So, you are exercising power through third parties? Yeah. And this is where the soft skills are required? That's part of it yeah. (VN860013)</p> <p>to win that trust and gain that influence, but because you are influencing people you are not telling them, to be helping them and not just setting up rules and saying thou shalt not, whatever, you know. (VN860013)</p> <p>You just said you weren't part of the team! Not formally no, you can have teams that aren't all in the same reporting structure. (VN860013) I want an architect telling me if I should even be looking at this business strategy. Tell me better ways of doing it. (VN860017)</p> <p>Without a leader who inspires confidence where people feel comfortable giving up some of those capabilities (power) is another question, that's the challenge we've got. (VN860017)</p> <p>So if the business felt comfortable with the long-term technology strategy was actually implementing what they wanted from a business perspective they were more likely to cede control, cede governance to a group that was testing for alignment to that technology strategy. (VN860017)</p> <p>When the business sees that the technology plan is delivering outcomes that they benefit from they are more likely to cede dominance control to a group that's managing the achievement of that long-term technology plan. (VN860017)</p> <p>what we are seeing is you need to have a technology strategy that the business can understand end to end because it's the delivery capabilities that they will benefit from. (VN860017)</p> <p>Except now we can go from an SSI to SLA where as when you started off with the original SLA it was so limiting in what we must do, it really limited us. It really just kept us bound and we were endlessly chasing our tail. There was no innovation at all and it was very punitive as a statement. (VN860020)</p> <p>think that's part of the things we were constantly doing all the time with the business working hard to improve the relationship always accepting the fact that we are equal partners, yes they are funding us, but they are going to get something back from us, they're going to get a system solution that we are working together, we can understand their business, we can you know see the business we can share the technology path with them. We didn't necessarily see them as having an exclusive market place on all business ideas. (VN860020)</p> <p>Now it's almost the longevity of managing that, it's one thing to create it it's another thing to sustain it. (VN860017)</p> <p>That's historical as well. 20 years ago we had developers who became analysts and systems analysts. The system analyst was a mixture of a BA and an architect. We've split the roles apart. (VN860016)</p> <p>be one of the challenges we have which is a good thing to do, but establishing a career path out of architecture. (VN860017)</p> <p>Not formally no, you can have teams that aren't all in the same reporting structure. A team that you know, forms for a project that has different reporting lines to different</p>
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	<p>parts of the organization that comes together to solve something or to do something and then you disband. (VN860016)</p> <p>Once again these sorts of decisions rights and communication needs to happen if that doesn't happen then you get individuals kind of like soldiers sent out into the field and they have a battle rather than know the terms of engagement and so on. (VN860013)</p> <p>I don't see teams as something that is necessarily reflected in an org chart. (VN860013)</p> <p>There are some battles you can't win as an architect, and that's one where you have to pick your fights and try to limit the damage and try to learn something from it so it doesn't happen again, but what have I learnt from that? (Long pause sigh) I'm not sure yet. Apart from shit happens! (VN860013)</p> <p>We're not at that level of sophistication or power I guess, the power to actually take money out of budgets to deploy for architectural remediation. (VN860013)</p> <p>We could say you have to set aside whatever it is and then we are going to go and rewrite the web with different technology just to make it compliant. I can't see how I could make that stack up with someone in the business. (VN860013)</p> <p>I was recently appointed group architect by the managing director who said yes architecture is important to us. But at the same time not that important. (VN860013)</p> <p>If we were empire builders then yeah, I reckon so. Are we empire builders? Personally no, I don't want to run IT operations and IT delivery, I've done people and team management and things like that, but I don't see architecture as being on top of that universe. I see it as separate and keeping those other team; honest, I don't know. (VN860013)</p> <p>Do I manipulate them, do I tell them a half truth? No, do I have integrity I like to think I do. Does that mean I can't be as effective as people who don't seem to care about that stuff. Maybe? That's the sort of compromise I'm prepared to make (VN860013)</p> <p>A lot of the people I work with day to day know that I add value and that feeds up. There's a reputational element to it, rather than directly demonstrating (unclear). Well I hear good things about this. He's obviously done good things in the past blah, blah, blah that sort of thing. So, sort of the doona effect, just give me the something nice and warm so that I can go to sleep and not have to worry. (VN860013)</p> <p>I could say I don't want to deal with you, now piss off and do whatever you want or I can take an opportunity to engage and at least know what's going on and at least give strong steering on options where he hasn't already made his mind up I can still change the outcomes of how they are going to approach things. So any influence is better than none? Yeah. (VN860014)</p> <p>not everyone is convinced by cogent well thought out arguments. 30% of the decision process is rational and 70% of the iceberg is emotional historical influence and all the other things that come into play that you don't really directly control (VN860014)</p> <p>But ... in this organization there is another ... number it's ... the CEO shiny thing... factor. (VN860014)</p> <p>It doesn't matter how many pretty diagrams you draw, your organization the true structure is something in the complexities and it's something very different to what an analytical mind would be able to come up with. (VN860015)</p>
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	<p>A lack of courage, it's not acceptable, but it's a lack of courage on my part and a lack of courage on other peoples parts to take it on. I think being brutally honest. (VN860015)</p> <p>Oh look he rubbed a lot of people up the wrong way. He has virtually no friends in the organization ... but he has the support in the right place. (VN860015)</p> <p>Based on delivery? Yeah, but based on a perception of delivery. Which presumes the rest of you never deliver, which obviously cannot be true? Obviously not no. (VN860015)</p> <p>There is a formal governance group (Truncated) there is architectural sign off if there is architectural content depending on how far the project has gone. If there's a heavy IT component to the project then usually they'll be a solution design or some picture of what it is they are trying to build. Which has founded the basis of high level estimates basically resource plans and so on. (VN860013)</p> <p>Generally, by the time it reaches that board it's been past my desk and I've had a chance to review it and change the direction of things or at least ask some questions. (VN860013)</p> <p>So, there's a lot of cooperation in this model? I guess so yeah. (VN860013)</p> <p>because projects realize they will get that extra level of scrutiny if they get a flagged project from an architecture certification they actually work very hard to avoid that in the first place (VN860017)</p> <p>We also say the opposite if what you are doing is accelerating the long-term target then achieving your target's but also laying the foundation for three other projects behind you we'll definitely point that out and we won't just say it's good enough we'll say it's accelerating the long-term strategy. Those projects normally get through a lot more effectively because they are seeing the bang for the buck for the business is greater so it works in both ways. (VN860017)</p> <p>The outputs of architectural governance is creating insight which is then going to be added to the Board technology report. (VN860017)</p> <p>In this instance there don't seem to have been decision rights infused in the governance mode, it seems to have been a cooperative model ...</p> <p>That's right,</p> <p>Were people agreed to do the right thing and a party comes along who doesn't agree to do the right thing so would a stronger governance model have helped?</p> <p>Yes ... I think that when this project came in the organization was in a bit of a, we'd just come through a major core system migration it was all battered and bruised teams were downsizing, managers were departing you know, everything was in flux so in that sort of maelstrom this sort of thing has emerged, if I'm not mixing my metaphors. (VN860014)</p> <p>Is it really governance if you reserve the right to over ride it at any point in time, I don't know where you draw the line. (VN860014)</p> <p>There's governance and there's governance isn't there? But I think for governance to really work people above that need to imbue it with full authority for it to work. (VN860014)</p>
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	<p>there was a weakness in my confidence back then to be able to speak up and ... make my point clear and not be worried about contradicting the chosen one. (VN860014)</p> <p>If you can't execute then it's just shelf ware I wouldn't mind seeing a rotation of architects from the EA level down to see through execution and take ownership of it all the way through. (VN860016)</p> <p>Some of the techniques I've tried and they don't always work. One is a top level education and endorsement of what you are doing. Clear roles and responsibilities and decision rights; making them very clear and enforcing those. That's through governance activities and basically senior management endorsement and making sure that it's built into people's measurements. However the organization measures their performance and that there are consequences for not following them. (VN860016)</p>
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