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## **Transformational Leadership, Design Thinking and the Innovative Firm**

Jochen Schweitzer

University of Technology Sydney Business School

City Campus Haymarket, PO Box 123 Broadway, NSW 2007 Australia

Tel.: +61 2 9514 3641

Jochen.Schweitzer@uts.edu.au

Lars Groeger

Macquarie Graduate School of Management

Macquarie University, North Ryde, NSW 2109, Australia

Tel.: +61 2 9850 9093

Lars.Groeger@mgs.edu.au

*In this chapter we discuss the intricacies of innovation leadership behaviour and design thinking as drivers and enablers of organizational innovation. We propose transformational leadership and design thinking capabilities as suitable for alleviating issues of business innovation. Managers and the processes they apply, the behaviours they exert and the work cultures they promote are shaping the organisational practices and culture in which innovation occurs. As we explore design thinking capabilities and further conceptualise and interpreted them in light of transformational leadership theory, we find that transformational leadership offers a theoretical lens through which the transformative power of design thinking can be explained. A conceptual design innovation leadership model is proposed and its theoretical and managerial implications are discussed.*

## **1 Introduction**

Building innovation capability and business excellence is important especially since current global business environments are characterized by increasing complexity and uncertainty. Recent developments in the Middle East, Asia and Europe have led to higher levels of uncertainty in a number of industries. In addition, there is a perceived lack of innovation capability ([IBM, 2012](#)) and CEOs generally express that their organisations are not sufficiently prepared for a business environment where ongoing need for improvement and innovation is needed.

Leadership has long been identified as a key driver for innovation and business improvement. Generally, leadership theories clarify and emphasize the consequences of behavioural, relational, and situational aspects of the leader–subordinate interaction at the individual, group, or organizational level. Leading for business excellence and innovation involves unique challenges because it is difficult to maintain organizational cohesion and purpose considering the often vague, many-sided, and incomplete nature of today’s business environments. Similarly, a manager might be engaged in leading multiple initiatives, facing different contingencies in every single one of them. In every given situation, aspects like performance objectives, innovation goals or characteristics of the team can change greatly and favour different leadership behaviours. Thus, leading for innovation is influenced to a great extent by the situational context. A leadership theory that explicitly accounts for the situational context and has been linked to innovation and creativity related outcomes is transformational leadership theory.

Transformational leadership (TFL) is charismatic, inspirational, intellectually stimulating, and individually considerate. This behaviour is particularly relevant in situations of change and has been linked to motivation and creativity ([Shin & Zhou, 2003](#)), organizational performance ([Jung & Avolio, 1999](#)), and innovation and effectiveness ([Jung, Chow, & Wu, 2003](#)).

Design Thinking (DT) is a recent concept entering the literature with much promise. DT is described as a successful tool for business seeking innovation, exploring greater synergies between business strategies as well as product and service innovation ([Martin, 2010, 2011](#)). For example, at P&G design moved from the “last decoration station on the way to market” ([Reingold, 2005](#)), to being embedded in the corporate culture of the entire organisation. Other examples of firms that followed a design thinking approach by which revenues and income increased includes software maker Intuit ([Martin, 2011](#)), furniture producer Herman Miller ([Brown, 2009](#)), online accommodation booking service AirBnB ([Barnes, 2013](#)), and Coca Cola ([Tischler, 2009](#)). Such companies apply DT to break through ‘wicked’ problems ([Buchanan, 1992](#); [Camillus, 2008](#)), to uncover a company’s potential through innovation in business strategy, new approaches toward customer engagement and marketing

strategies, and the development of new products and services in this pursuit. DT is as much a mindset as it is process. Both aspects have important implications for the improvement and innovation of businesses.

As a process DT informs and shapes the practices of how complex business problems can be solved. Applying the iterative stages of a typical DT process includes deep empathy with end-users, re-framing of the problem area, ideation, prototyping, and testing. As a mindset DT refers to the underlying values and beliefs that over time may find their way into an organisation's culture. It has been argued that the notion of 'design as a state-of-mind' implies that true innovation is a company-wide phenomenon and should not be left to marginalized functions within a company ([Venkatesh, Digerfeldt-Månsson, Brunel, & Chen, 2012](#)). While a firm can adopt the processes and learn new innovation practices over time, it is the mindset that will ultimately help achieve business excellence and innovation objectives at a deeper and more sustainable level.

TFL has the potential to positively influence a firms' ability to adopt a DT process and mindset. TFL emphasizes an individually considerate behaviour, which encourages innovation teams to share ideas and influences their decisions. It also emphasizes an inspirational and stimulating conduct, which empowers people to think critically and develop shared solutions. As such, transformational leadership supports not only the processes of DT but also the development of intrapreneurial behaviour and the cultivation of a DT mindset in organizations.

In this chapter we take the view that TFL is a suitable perspective to explain the transformational effect of DT on innovation processes and innovation culture in organizations. We will examine the conceptual underpinnings of TFL theory and design thinking to propose a framework of design-leadership behaviours that when applied can help achieve innovation objectives. We discuss the conceptual similarities of TFL and DT mindset and argue that TFL behaviours resemble and encourage a DT mindset to ultimately help firms drive design led innovation agendas.

## **2 Theoretic background**

### **2.1 Innovation leadership**

Conceptions of leadership explain the effects of social and situational aspects of the relationship between leaders and their subordinates. Leading innovation involves unique challenges because it is usually more difficult to maintain organizational cohesion and purpose considering the often vague, many-sided, and incomplete nature of today's business environments. An important characteristic of leadership is that managers might be engaged in leading multiple innovation initiatives, facing different contingencies in every single one of them ([Schweitzer & Gudergan, 2010](#)). In every given situation, aspects like strategic objectives and characteristics of the team can change greatly and favour different leadership behaviours. Thus, leading a single initiative is influenced to a great extent by the situational context. A leadership perspective that explicitly accounts for the situational context is full-range leadership theory. Full-range leadership theory comprises three distinct leadership behaviours.

The first leadership behaviour is Laissez-Faire or nonleadership behaviour. Nonleadership is not intended to apply to management or administrative functions; rather this leadership characteristic is intended to represent the absolute absence of leadership by a person in a leadership position. Leaders

who exhibit Laissez-Faire leadership make no long range plans, schedule no meetings with subordinate supervisors, and do nothing to develop their subordinates. The nonleadership factor is important because it rounds out the full range of behaviours displayed by the leader.

Second, transactional leadership motivates individuals primarily through reward-contingent exchanges and active management by exception. Transactional leaders set goals and articulate explicit agreements. In the context of innovation, transactional behaviours inhibit shared management of innovation initiatives and, particularly when cultural cohesion among followers is low, discourages the development of informal structures and cultures. Entrepreneurial behaviour amongst followers would be difficult to maintain when innovation leadership is transactional. Transactional leadership is, however, supportive of maintaining and improving established operational innovation processes, due to its focus on goal and task achievement.

Finally, transformational behaviour is charismatic, inspirational, intellectually stimulating, and individually considerate. This behaviour is particularly relevant in situations of change and has been linked to motivation and creativity ([Shin & Zhou, 2003](#)), organizational performance ([Jung & Avolio, 1999](#)), and innovation and effectiveness ([Jung et al., 2003](#)). It emphasizes an individually considerate behaviour, which encourages followers to share ideas and influences their decisions. It also emphasizes an inspirational and stimulating conduct, which empowers followers to think critically and develop solutions to problems. As such, transformational leadership supports not only an informal occurrence of leadership structures, but also the development of entrepreneurial behaviour amongst followers.

Despite full-range leadership's widely researched theoretical and practical relevance, related studies have not yet focused explicitly on examining how effective transformational or transactional leadership behaviour is an enabler of design thinking in organisations. What's more, no study has yet explained how these two (or three, including nonleadership behaviour) contrasting leadership behaviours are related to DT capabilities in organisations.

In conclusion, leadership behaviours generally have a systematic impact on various strategic, organizational, and individual processes and outcomes. Transformational leadership stresses a positive impact on innovation, entrepreneurship and learning. Transactional leadership, on the other hand, although not supporting innovative activity, supports the management of established innovation capabilities in organisations. Hence, we argue that full-range leadership theory, and in particular transformational leadership is an appropriate theoretical lens to explain the intricacies of different leadership behaviours with key DT processes, DT mindset and DT characteristics in the context of innovation initiatives.

## **2.2 Design thinking**

The recent innovation literature has placed increasing importance on design as an integral capability for firm innovation and adaptation ([Dodgson, Gann, & Salter, 2005](#)). Design within organisations has typically been characterised as a down-stream activity focusing on artefact and aesthetics within a narrow consumerist marketplace ([Brown, 2008](#)). However, designers, by the very nature of their professional practice, have mastered a set of skills that can be applied to a wider range of problems than has been in the past ([Brown & Katz, 2011](#)). More recently, organisations are increasingly trying to integrate the design approach and processes to solve complex social problems, issues of

organisational management, and strategic innovation ([Clegg, Carter, Kornberger, & Schweitzer, 2011](#)). Design thinking is the attempt at capturing this very process and presenting it as an approach to creative problem solving that can be applied more broadly by people who are not necessarily designers. As such, DT is described as a process to match people's needs with what is technically feasible and what a viable business strategy can convert into customer value that can be captured by the firm ([Brown, 2008](#); [Liedtka & Ogilvie, 2011](#)). DT is as much a state of mind as it is a process. Both aspects have important implications for the improvement and innovation of businesses and will be explained in more detail further below.

The design thinking concept itself dates more than 30 years back to [Schön \(1983\)](#) in education and [Lawson \(1980; 2006\)](#) in architecture who explain in detail how designers think. The notion of design can also be found in classical management studies. As such, [Mintzberg \(1990\)](#) called an approach that emphasises the conscious activity of developing strategic alternatives 'design school'; [Simon \(1969 p. 55\)](#) declared that 'Everyone designs who devises course of action aimed at changing existing situations into preferred ones.' However, Rowe's ([1987](#)) book *Design Thinking*, is viewed as the first attempt at a "generalised portrait of design thinking." (1987, p. 1). Since then interest in design thinking has been rapidly growing within popular management literature ([Brown, 2008](#); [Liedtka & Ogilvie, 2011](#)). The emergence of Stanford University's d-School, the Manage by Designing approach at the Weatherhead School of Business at Case Western Reserve University, and the Integrative Thinking approach used by the Rotman School of Business at University of Toronto are recent examples of how design is entering management education and practice.

The examples of IDEO and similar leading strategic design firms emphasise the ability of design to navigate complex and dynamic environmental challenges, but also find practical, human-centred innovations ([Leavy, 2010](#)). By orienting innovation toward the customers and people the organisation is attempting to design for, the firm is better able to create new market opportunities and competitive advantage.

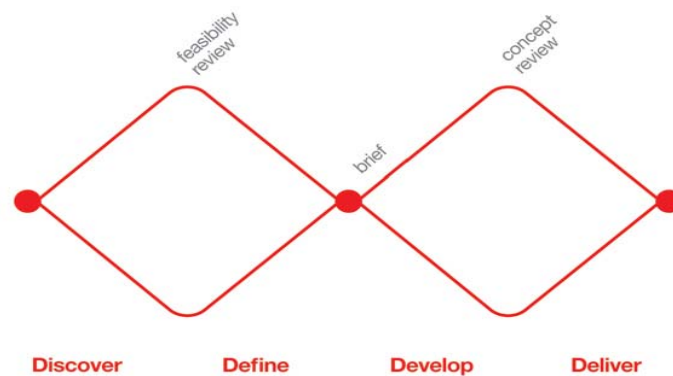
[Rittel and Webber \(1973\)](#) elaborated the features of wicked problems which, in summation, relate them as being indeterminate, ambiguous and defying of attempts to delineate their boundaries, identify their causes and expose their problematic nature. Wicked is not used to relate malice, but rather to illustrate their tricky nature. In the contemporary society, wicked problems are the norm and tame problems, those that are systematic and easily defined, are the deviation ([Coyne, 2005](#)).

[Martin \(2009a\)](#) views wicked problems as mysteries. He argues that for a company to successfully innovate, it must move through the knowledge funnel: from mystery (something we cannot explain) to heuristic (a rule of thumb that guides us toward solution) to algorithm (a predictable formula for producing an answer). These two different activities, moving from mystery to heuristic and from heuristic to algorithm, are related to March's ([1991](#)) differentiation between the exploration of new possibilities and the exploitation of old certainties in organisation learning. Both activities are critical to a company's success, but they are hard to engage at the same time. Organisational focus during exploration is on experimentation and innovation whereas the administration of business, refinement and increasing efficiency, is at the core of exploitation activities. DT unfolds its full potential during exploration activities that deal with the unknown and are characterised by uncertainty and ambiguity ([Cooper, Junginger, & Lockwood, 2009](#)). How design thinking is implemented within organisation is explored in the next section.

### 2.3 Design thinking as a process

There is no one best design thinking process. DT is described as an exploratory process ([Brown, 2009](#)) that usually begins with an initial defining of the problem, followed by exploration of the user and the design space, generating possibilities through brainstorming, building prototypes that are then tested, often a number of times, and the findings used to refine the problem resolution. It is argued that the notion of a DT process is paradoxical, as there is a conceptual conflict between design thinking principles and a normalisation of workflows as suggested by such models ([Lindberg, Gumienny, Jobst, & Meinel, 2010](#)). Thus, instead of referring to a ‘process’ design thinkers are thought to navigate through various phases or modes ([Brown, 2008](#); [Brown & Katz, 2011](#); [Nelson & Stolterman, 2003](#)). These phases are distinct from steps as they do not have specific boundaries or protocols of a scientific approach to problem solving ([Brown & Katz, 2011](#)). Design teams will go through these phases repeatedly, simultaneously and at different times in a nonlinear fashion, in order to deal with the complexities of wicked problems ([Jakovich, Schweitzer, & Edwards, 2012](#)).

The [Design Council UK \(2005\)](#) suggest that a design process involves two separate phases of divergent and convergent thinking, which are represented in their ‘double diamond’ design process (see *Figure 1*). Every design thinking process goes through a first divergent phase of discovering new opportunities, then going through a convergent phase of analysis and synthesis to define the findings into a number of opportunity areas ([Design Council UK, 2011](#)). Following the definition of opportunities, the design process then attempts, through a divergent mindset, to explore and develop a broad range of potential solutions, before then converging upon those solutions that can deliver value to the end user and organisation.



*Figure 1: The ‘Double Diamond’ Design Process Model (Design Council UK, 2005)*

Discovering, defining and framing the design problem are viewed as a key aspect of creativity ([Dorst & Cross, 2001](#)). Traditional analytical approaches to problem solving start out with a more or less well-defined problem, and then spend their resources on identifying one final solution. Thus, less time is spent on defining the problem and more on generating the solution, often by splitting up the problem in its parts, thereby reducing complexity. Problem setting is neglected and problem solving becomes the main activity. By contrast, for ill-defined, so-called ‘wicked problems’, the problem in itself is not a given. Rather, problems “must be constructed from the material of problematic situations which are



puzzling, troubling, and uncertain” to ([Schön, 1983 p. 40](#)). The validity of the solution is paramount and therefore requires substantial time during the phase of defining the problem, which should ultimately reduce the time spent in developing the right solution. Hence, DT is developing and refining both the definition of a problem and ideas for a solution, with constant iteration of analysis, synthesis and evaluation processes between problem space and solution space. During this period of exploration problem and solution spaces are evolving until problem–solution pair is framed ([Dorst & Cross, 2001](#); [Schön, 1983](#)).

During the development and deliver stages the solution space is extended, using brainstorming sessions to create and consider many options. Mentally it represents a process of going broad, diverging in terms of concepts and outcomes. Ideation provides the fuel for building prototypes. Prototyping is the iterative development of artifacts – digital, physical, or experiential – intended to elicit qualitative and quantitative feedback from customers and users. Prototypes such as sketches, mock-ups, stories, role-playing or storyboards make the intangible tangible and enable a deeper understanding. Finally, a test phase is another iterative mode of develop and deliver stages in which usually rather low-resolution artifacts are placed in the user context. During this solution-driven phase, the solution space is further narrowed down ([Brookes et al., 2011](#)).

The specific phases of a design thinking process are open to debate within design communities and there is no one best way, but all approaches incorporate similar, founding principles ([Brown & Katz, 2011](#)). Yet, the progression of design mindsets, portrayed in the ‘double diamond’ model, is an important insight which can be overlaid over design processes to represent the nature and mode of thinking that designers need to use at various phases. ([Design Council UK, 2005](#))

## 2.4 Design thinking as a mindset

Describing design thinking by means of phases and modes illustrates the various activities that a team is engaged in. These activities are guided by a set of principles or mindsets that recur in any of these modes. These principles are viewed to be a condition for sustainable cultural change that leads to successful innovation ([Liedtka & Mintzberg, 2006](#)). While a firm can adopt the processes and learn new innovation practices over time, it is the mindset that will ultimately help achieve innovation objectives at a deeper and more sustainable level.

Following a DT approach without establishing the necessary culture and mindset might lead to failure. Recent studies have reported that companies were so fixated on the process, that they turned DT into a rigid plan, implemented like any other efficiency-based process that they know well ([Nussbaum, 2011](#)). Hence, it is the design state of mind that enables the process and activities successful practitioners of design thinking employ to create true impact and value to a firm.

A typical set of capabilities used in training and practice at Stanford Universities’ [d.school \(2011\)](#) includes a focus on human values and need finding, where design thinkers are requested to gain a deep understanding for people through conversation, observation and experiencing, first hand. Another principle is the one of radical collaboration, where team composition is intentionally diverse and radical in terms of the experience that each team member brings to the table. Diversity also means including many relevant parties and end-users to represent real and valid stakeholders of the problem-space. A bias towards action is a further principle. DT teams are urged to create a bias towards action and trying things out, promoting early failure to gain important experience and iterate in a safe

environment ([Jakovich et al., 2012](#)). This mindset goes along with an attitude of experimentation and prototyping, where low fidelity but life-sized representations are encouraged as early as possible in the process and real users are engaged to provide feedback. Also a habit of ‘show don’t tell’ stands for a mindset of preferring visual language and story-telling over analytical reports and factual accounts. Lastly, a preference for producing a coherent vision out of messy problems via synthesis, interpretation and simplicity as well as an overall mindfulness of the DT process itself are further beliefs commonly found in DT practice.

[Baeck and Gremett \(2011\)](#) too suggest a list of seven core attributes of DT: Ambiguity: Being comfortable when things are unclear or when you don't know the answer; Collaborative: Working together across disciplines; Constructive: Creating new ideas based on old ideas, which can also be the most successful ideas; Curiosity: Being interested in things you don't understand or perceiving things with fresh eyes; Empathy: Seeing and understanding things from your customers' point of view; Holistic: Looking at the bigger context for the customer; Open mindset: Embracing design thinking as an approach for any problem regardless of industry or scope.

Further indication of an underlying DT capability can be found in Brown’s account of the design thinker’s personality ([2008](#)). Brown stresses that DT practitioners have the ability to imagine the world from various perspectives, taking a "people first" approach, using observation and empathy to notice what others do not see and use those insights to inspire innovation. Design thinkers apply integrative thinking ([Martin, 2009a](#)); they not only rely on analytical thinking but also absorb and process the salient – occasionally contradictory – aspects of a confounding problem. Furthermore, design thinkers are optimistic in that they assume that regardless of how challenging the problem, at least one possible solution is better than the present one. Experimentalism too is a personality trait in Brown’s account, posing that disruptive innovations don’t usually stem from incremental improvements but bold steps in entirely new directions. Finally, the ability to collaborate also makes Brown’s list of personality traits for design thinkers.

[Sobel and Groeger \(2012\)](#) too discuss a range of specific DT capabilities, some of which referring to personality traits or beliefs underlying the application of DT practices. They, for example, include the ability to deal with ambiguity, an enquiring mind, a deep understanding of the creative process and an appreciation of diversity in team constellations.

[Leavy \(2010\)](#), who examines the process and culture of design thinking draws upon ([Martin, 2009a](#)), when suggesting the design thinking as the productive combination of the inductive and deductive logic of analytical thinking with the abductive logic of intuitive thinking. This definition more precisely builds on design thinking’s role as a third culture within the business management mindset by suggesting it combines analytical and intuitive schools of thought. It essentially seeks to integrate managing and leading ‘by gut’ with the scientific and quantitative approach for the purpose of finding creative solutions ([Martin, 2009b](#)). Martin suggests that design thinking managers and firms are willing to iteratively redesign their business, thereby creating a significant advantage and advances in innovation efficiency. [Clark and Smith \(2010\)](#) echo Martin’s point, suggesting that design thinking both, as a process and as a capability is a remarkably, under-utilised management practice that can help business leaders make their intentions real.



### **3 Conceptualizing the relationship between design thinking capabilities and transformational leadership behaviours**

In what follows we develop and conceptually link a consolidated list of DT capabilities to TFL behaviours. What emerges is an initial framework of design innovation leadership.

#### **3.1 A capabilities perspective of DT**

As the review of the literature demonstrates, academics and practitioners alike highlight the importance of particular design thinking values, attitudes, principles, personal traits and mindsets. Irrespective of the particular term used, each of the mentioned principles is often described in the context of an idealised behaviour that can be applied and exploited for successful DT projects. Innate characteristics of DT are accentuated from a particular perspective. A common set of capabilities that are underlying exhibited behaviour across aforementioned perspectives is still missing. Precisely because a theoretical and ultimately practical understanding of what DT practitioners do and how they act upon their knowledge is missing, DT is often perceived as vague in nature.

However, despite the differences in the theoretical realm, there seems to be agreement on certain idealised behaviours that allow us to infer underlying DT capabilities. In what follows we propose an initial set of representative DT capabilities, which combine and synthesise the current body of academic and practitioner oriented literature. The following capabilities are neither exhaustive nor mutually exclusive; they provide a useful heuristic and systematic basis for comparison and enable us to explore the associations between DT capabilities and transformational leadership behaviour. We suggest the following capabilities that DT practitioners would typically draw upon over the course of managing and leading a design-led innovation process:

##### ***Empathetic towards people's needs***

Taking a human-centred perspective is at the heart of design thinking capabilities. ([Leavy, 2011](#)) contends that the advantage of design-led innovation is its creation of new market opportunities based on emotion-rich innovations in product meanings. The capability of being empathetic towards people's needs requires DT practitioners to observe, interact with and understand the problems consumers have, examining needs, dreams and behaviours of the people for whom a solution is sought. The purpose of being empathetic, observing and engaging is to see problems with a fresh set of eyes, by seeing the physical manifestations of behaviour along with interpreting the stories that people tell ([d.school, 2011](#)). This capability enables the design team to conceptualise the problem and solution that people desire.

On a broader level, focusing on humans and their immanent needs, allows scaling up an initially small and specific solution to one that addresses a bigger picture problem. The objective is to make people the source of inspiration and direction for solving design challenges. By applying a human-centred capability the DT practitioner allows for problems to be tackled in small digestible parts – parts that matter to humans. The key to this capability is ensuring that solution ideation addresses the smaller scale while linking back to the larger problem. While this allows first solutions to be nimble, furiously user-centric, immediately relevant and instantly adaptable, it provides a step towards an ultimately larger goal.

### ***Holistic and accepting of uncertainty***

DT teams are often charged with creating solutions for a future that is very different from the present: “creating something that isn’t” ([Liedtka & Ogilvie, 2011 p. 7](#)). In the context of complex situations and convoluted user needs, there is hardly ever a single piece of data or mono-causal relationship that explains the innovation dilemma and leads to a great solution. Rather, it is the DT practitioner’s capacity to accept and embrace such uncertainty over extended periods of the creative process that sets a DT approach and its core capabilities apart from other innovation methods. By taking a holistic approach and accepting uncertainty the DT practitioner is able to consider simultaneously numerous factors including customer needs, technological feasibility, organisational constraints, regulatory implications, competitive forces, resource availability, strategic implications as well as costs and benefits of various solution proposals. The ability to consider a problem as a whole and to be playful with uncertainty rather than being restricted by it enables the DT practitioner to create innovations that are not mere incremental improvements but have the potential to be disruptive.

### ***Embracing diversity and radical collaboration***

In order to deal with the multiple facets and interdependencies of innovation projects, the use of interdisciplinary teams is common to all DT projects. Radical collaboration is built upon the idea that diverse multidisciplinary teams will lead to greater innovations than teams that come from the same discipline. For example, teams might be composed of psychologists and ethnographers, writers and film-makers, marketing and business experts, stressing the importance of diverse perspectives. Examining and confronting team dynamics, embracing the diversity of each individual’s personality, expertise and working style is an essential component of radical collaboration and a necessary capability to exploit the advantages of multi-disciplinary teams. The capability to withstand and resolve the issues and conflicts that purposely diverse teams can have is of utmost value when going through the DT process. DT practitioners are aware of the transformational power that diverse teams can bring to the process and they encourage radical collaboration beyond the usual disciplines to tap into knowledge and experiences that may provide the missing piece to the innovation puzzle.

### ***Inquisitive and open to failure and feedback***

While managing high levels of uncertainty, DT practitioners follow a continuous learning approach by exploring, experimenting, testing and gathering feedback from multiple stakeholders ([Plattner, Meinel, & Leifer, 2012](#)). This capability is often fueled by curiosity and accelerated by leading multiple small tests that engage people with artifacts and prototypes to test assumptions and features in action and to solicit feedback. Even when results do not match assumptions, when prototypes fail to convince and when ideas disappoint, valuable data is captured and processed to further iterate the solution. It requires an inquisitive, open and positive mindset to engage stakeholders, lead through the process of generating and developing new assumptions and ideas, managing mutual interest and processing failure and feedback to become the seed for better solutions.

### ***Action oriented***

An orientation towards action or "bias toward action" means that a DT practitioner chooses action-oriented behaviour over discussion and conceptual or analytical behaviour. It is a preference and the capability to get out into the real world and engage users, do prototyping and test ideas as a manner of

getting a team unstuck or inspire new thinking. Yet, such action orientation does not mean DT is not based on “thinking things through”, rather it means that decisions are not only based on discussion and thinking processes but on first-hand experiences and experimentation that happened much earlier and more frequently compared to more traditional problem solving. Similarly, action orientation refers to an ability of dissecting big tasks and picking a starting point. This might mean to quickly build one of the many possible solutions as a prototype and to get feedback on that one option, since data on one option is better than no data on many options. Action bias is a core capability for DT practitioners in that it drives the process of DT and encourages experimentation.

### ***Encouraging visual storytelling***

Encouraging visual ways of documenting is not only about the skill to draw. As a capability it is viewed as a way of identifying, organizing and communicating ideas so that the ‘right brain’ is accessed and used for visual thinking. Visual storytelling is about creating physical images, artefacts and pictures while avoiding a reliance on words, numbers or language alone. Visualization in a DT context evokes mental images, vivid representations of ideas and detailed customer insights. These images make ideas tangible and thus facilitate the collaborative process of sharing and further developing ideas to make them feel more real and compelling ([Liedtka & Ogilvie, 2011](#)). Weaving these images into a coherent story that includes data and information not single points, but as part of a particular context, enables DT practitioners to better communicate ideas and problems and evoke an important sense of empathy. The design thinker’s ability to tell stories stems from synthesis of information, which is gathered in empathy and testing phases. Conveying of events in words, and images, often by improvisation or embellishment is a means of learning about moral values from a particular perspective. Hence, a capacity to tell stories visually not only triggers the creative mental processes but also is an important way to enrich the understanding of users and to express their unique point of view.

### ***Mindful of process and thinking modes***

Being mindful of process and thinking modes is the capability of being aware about the work that one does, how one does that work, why one does it in a particular way and about how one will improve the methods being used. Mindfulness means being keenly aware of what stage of the design process the team is engaged in and what behaviours and goals it may have at any given moment. Most importantly, this capability refers to awareness about when a team needs to be highly generative vs. when it needs to converge on a solution single path. [Flavell \(1976\)](#) defines this as the ability to ‘know what you know’. [Brown and Katz \(2011\)](#) argue that when engaged in a design process, the phases will require participants to utilise divergent and convergent thinking at different times. Divergence and convergence best relate to the conflict between creating choices and making choices. They contend that most people will analyse and then converge upon a single outcome, but DT practitioners know when and how to utilise divergent thinking to first create diverse options before converging and moving toward a single option. The many tools and practices of DT generally support either a divergent mode (e.g. brainstorming) or a convergent mode (e.g. clustering information or creating a persona).

### 3.2 Linking TFL behaviours and DT capabilities

[Bass \(1985\)](#) proposes four dimensions of transformational leadership: (1) idealized influence (charisma), (2) inspirational motivation, (3) intellectual stimulation, and (4) individual consideration. We argue that these behavioural sub-dimensions, directly or indirectly, support previously defined DT capabilities because they facilitate innovation, learning, and/or the creative use of existing knowledge, all of which underlie capability building. Our model incorporates multiple levels of analysis given that we are linking individual behaviour of managers to individual and organizational level capability development. To support our view, we utilize research that not only documents the direct and indirect effects of transformational leadership but also clarifies how individual characteristics influence innovation and creativity at the individual, group or organizational level.

#### *Idealized influence*

Idealized influence or charismatic behaviour, as the first dimension of transformational leadership, is demonstrated by a clear vision and sense of purpose, and is represented by a charismatic role model. It includes sacrificing for the group, demonstrating a high ethical standard, displaying conviction, emphasizing trust, taking stands on difficult issues, presenting important values, and emphasizing the importance of commitment and the ethical consequences of decisions. Charismatic behaviour of a transformational leader makes followers support a shared purpose. Jung and co-authors ([2003](#)) argue that transformational leaders actively foster a collective identity for their organization, its vision and values, hence, supporting a collaborative approach. Moreover, [Shin and Zhou \(2003\)](#) show that the relationship between transformational leadership and creativity is mediated by the intrinsic motivation of followers. Intrinsic motivation is also an integral aspect of entrepreneurial and intrapreneurial behaviour and a prerequisite for organizational learning ([Osterloh & Frey, 2000](#)). In pursuing this view, we argue that the extent of charisma displayed by a manager influences a follower's intrinsic motivation, the ability to collaborate and deal with uncertainty. Further, aligning followers' personal values with the leader's vision and goals supports internalization, collaboration, and congruence among followers ([Shamir, House, & Arthur, 1993](#)). The consequential shared vision results in superior group cohesiveness and collective identification.

The extent to which a transformational leader exhibits charismatic behaviour also affects the innovation team's collectivist culture and its communicative interaction and creativity. [Zollo and Winter \(2002\)](#), for example, argue that both vibrant communication among team members and a collaborative culture support learning aspects like tacit accumulation of past experience and the articulation of knowledge, both of which are essential for innovation capability development. Vibrant communication includes alternative ways of communicating like visual storytelling, role-play and enactment.

Following the above we posit that idealized influence behaviour resembles the DT capabilities of embracing diversity and radical collaboration, holistic and accepting of uncertainty, and encouraging visual storytelling.

#### *Inspirational motivation*

Inspirational motivation, the second dimension of transformational leadership, refers to energizing followers by articulating a compelling vision of the future. When exhibiting inspirational motivation, leaders challenge followers with high standards and provide encouragement and meaning for both

what needs to be done ([Hater & Bass, 1998](#)) and what can be done. The former relates to action-orientated behaviour, where followers are inspired to do test and try and do, rather than conceptually think and ponder. The latter encourages followers to experiment with alternative approaches of addressing the task at hand. The extent to which a transformational leader encourages, motivates, and inspires followers affects both followers' intrinsic motivation and their interaction within the innovation team. Communicative interaction supports learning mechanisms ([Lyles, 1988](#)) and associated relational capability and, as we suggest, the presence of the DT capabilities of being action oriented.

### ***Intellectual stimulation***

The third dimension of transformational leadership is intellectual stimulation, which involves inspiring followers to be creative and innovative. Intellectually stimulating leaders encourage followers to challenge their beliefs and values, to question assumptions, and to challenge the status quo. Intellectual stimulation inspires followers by encouraging problem reformulation, imagination, intellectual curiosity, and novel approaches, leading followers to think critically and to develop their own solutions to complex problems. Hence, the extent to which a leader intellectually stimulates followers, influences their critical thinking. Critical thinking and strong communication are vital behaviours underlying entrepreneurial and intrapreneurial conduct within innovation projects as these qualities reflect the ability to think cogently and to put thoughts into action.

In addition, transformational leaders seek followers' involvement by stressing the importance of co-operation in performing tasks, providing the opportunity to learn from shared experience, and delegating responsibility to followers. The resultant work environment empowers followers to seek innovative approaches when doing their work. [Howell and Avolio \(1993\)](#) suggest that in a climate that supports innovation, there is a positive relationship between the intellectual stimulation provided by the leader and the resulting performance. [Dvir, Eden, Avolio, and Shamir \(2002\)](#) argue that followers with a transformational leader have high self-confidence and take critical and independent approaches toward their work. Thus, when transformational leaders stimulate followers by questioning their assumptions, reframing problems, and approaching situations in new ways, they exhibit and help establish DT capabilities that value creative thought processes, risk taking, and innovative work approaches. We therefore contend that intellectually stimulation relates to DT capabilities of inquisitive and open to failure and feedback and action oriented. All such orientations permit the facilitation of innovation capabilities within the organization.

### ***Individualized consideration***

As a last dimension of transformational leadership, individualized consideration refers to leaders who treat their followers in a caring and unique way by paying attention to their needs and showing empathy, appreciation, and support for individual initiatives and viewpoints. With the leaders' understanding, support, and encouragement, followers are likely to focus on their tasks and to take risks when experimenting with ideas ([Shamir et al., 1993](#)).

In addition, individually considerate leadership behaviour focuses on the development of followers' competencies in providing feedback, information and resources and giving followers discretion to learn and act. As a consequence, followers who are encouraged are more likely to engage in new and different approaches to their work, to operate independently, and to develop the capacity to think on

their own. This implies an influence of the extent to which a leader shows individualized consideration on followers' job autonomy. Job autonomy is another integral part of understanding the necessary processes and practices of getting a task done as well as innovative behaviour.

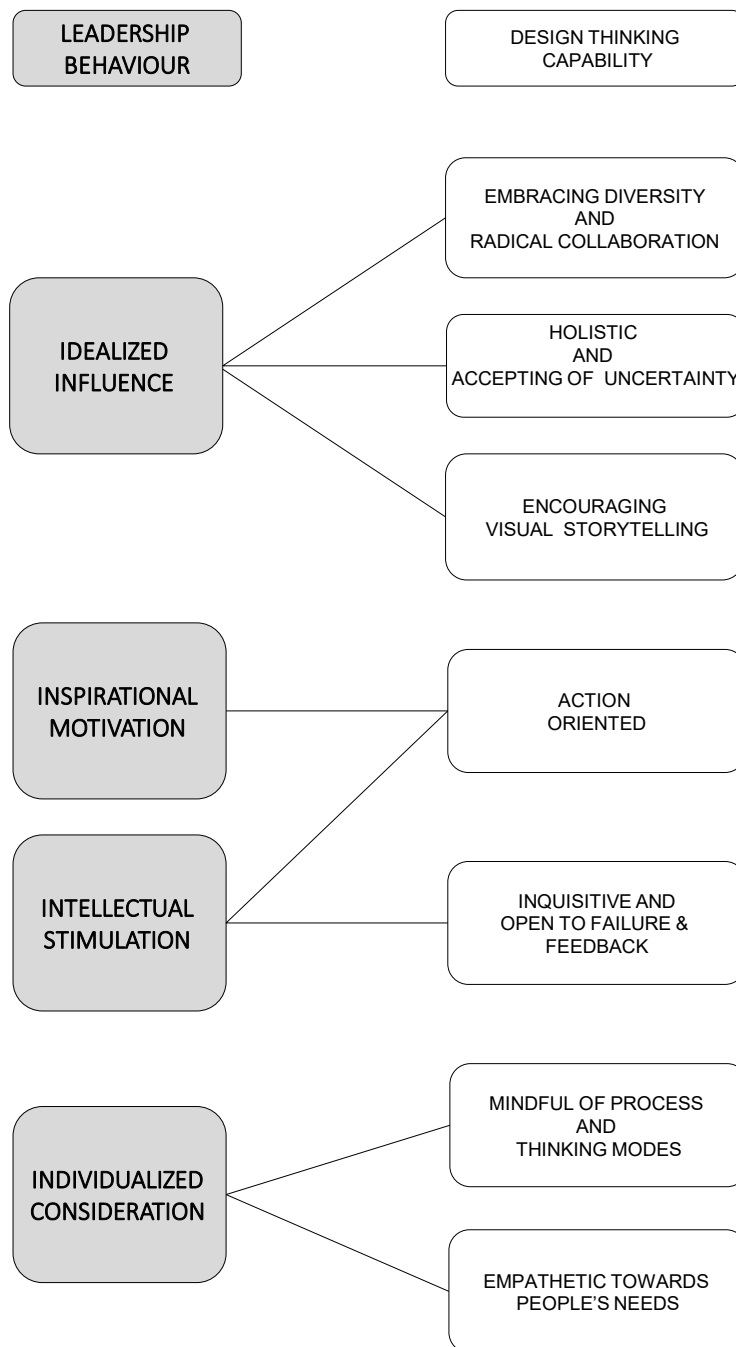
[Avolio and Gibbson \(1988\)](#) propose that transformational leaders aim to develop followers' self-management and self-development skills by letting them implement actions without directly supervising or intervening. Hence, we argue that the extent to which a transformational leader individually considers followers increases their awareness and mindfulness of people and process. By giving followers sufficient freedom to empathetically explore and develop ideas, the transformational leader also supports entrepreneurial behaviour and promotes the sharing of power and responsibility.

In sum, individualized consideration helps in growing diverse ideas. It is similar to intellectual stimulation behaviour in that a leader's recognition of individual capabilities motivates followers to make unique contributions to solving the task ([Sosik, Avolio, & Kahai, 1997](#)). The leader's cooperative and supportive participation, feedback and questioning of other team members' contribution promote the development of inductive and abductive thinking competencies, which in turn facilitate DT capabilities, in particular, as we argue, empathy towards people's needs and mindful of process and thinking modes.

Further, overall support for the relationship between transformational leadership behaviours and DT capabilities can be found in the organizational creativity and innovation literature. Creativity among members of the organization is the foundation that supports the recombination of resources and the innovative use of existing knowledge resulting in new competences. Although many variables are known to influence creativity and innovation in organizational settings, researchers believe that leaders and their behaviour represent a particularly important influence ([Dess & Picken, 2000](#); [Mumford, Scott, Gaddis, & Strange, 2002](#)), particularly because leaders can control organizational influence factors ([Damanpour & Evan, 1991](#)) and contribute to the work environment through explicit leadership behaviour ([Amabile, Conti, Coon, Lazenby, & Herron, 1996; 2004](#)). In conclusion, we find a lot of support in the management literature for linking the behavioural dimensions of transformational leadership to predominant DT capabilities.

This fundamental influence of transformational leadership on the development of dynamic and operational capabilities leads to the conceptual model shown in Figure 1:





*Figure 1: Conceptual model of design innovation leadership*

#### 4 Contribution and future research opportunities

In this chapter we have taken a capabilities and leadership perspective on DT. Particularly, we have identified that DT, when viewed as a set of underlying capabilities, refers to knowledge, skills, experiences and, most notably, behaviours that over time will shape and define design-led innovation culture in firms. Previous research has focused on the processes, tools and methods of DT, but neglected the role of the DT capabilities. While a firm can adopt the processes and learn new innovation practices rather quickly, it is the staff's capabilities and exhibited behaviours that will eventually help achieve innovation objectives with long-lasting strategic impact.

In a first step towards integrating the literatures around the DT mindset and leadership, we found that TFL theory is a useful lens to explain how the leadership behaviour of DT practitioners resembles their capabilities. We argued how the four key underlying TFL behaviours relate to DT capabilities and proposed a framework of design innovation leadership.

Further research needs to be done to advance this model and empirically test it. There is an increasing number of organisations seeking to implement DT practices and aiming at developing a design-led innovation culture. In this context, we advocate to study the extent to which DT capabilities and leadership behaviour jointly affect the achievement of innovation objectives, how DT capabilities affect leadership behaviour and vice versa how leadership behaviour affects capability development. The causality of such relationships has long been vague in both leadership and capability research and further research is recommended.

The here proposed conceptual relationships between leadership behaviour and innovation capabilities and future empirical research has potential practical implications for the management of innovation in firms. For example, previous research has shown that it is insufficient to run a few design thinking workshops and expect employees to build up the individual design thinking capabilities that will make the entire organization an design-led company ([Howard, 2012](#)). While design thinking as a concept is often easily comprehended, research suggests that it is extremely challenging for participants to apply DT. Sustained programs comprising both skill development and experiential learning with the support of experience and practiced design thinking professionals have been advocated ([Howard, 2012](#)). However, the role of leadership has so far been neglected in this context. The transformational leadership perspective followed here appears to be fertile ground to develop a systematic, theoretically sound and pragmatic approach for developing design thinking capabilities and to meet the challenge of building innovation capability in a global business environment that is characterized by increasing complexity and uncertainty. In addition, developing DT capabilities in leaders also assist with re-focusing away from solely engaging in business ventures with near-term viability, towards creating new opportunities that are more forward looking ([Kurucz, Colbert, & Wheeler, 2013](#)). The capability demonstrated by design thinkers of taking a holistic approach and accepting uncertainty enables inquisitiveness leaders to drive organisations towards disruptive rather than incremental innovations.

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