

Dynamic Capabilities for Nimbleness and Resilience in a Continuous Digital Transformation: Action Design Research in an Australian Financial Services Organisation

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Abstract

Purpose: The research aims to understand the co-existence of nimbleness and resilience in a continuous digital transformation, along with the dynamic capabilities needed to balance the challenges of their co-existence.

Methodology: The current study draws on Dialogical Action Design Research (D-ADR) to investigate interactions among practitioners and executives. Data is collected from a major Australian Financial Services Organisation (FSO) and many international experts.

Findings: The study presents a framework, the Continuous Transformation Model (CTM), to describe digital transformation within an FSO context, emphasizing nimbleness and resilience as its foundational pillars. This framework facilitates the identification of the critical role of organisational capabilities in managing continuous digital transformation, supported by dynamic IT capabilities. More importantly, the findings underscore how these capabilities enable managers to effectively balance the coexistence of nimbleness and resilience.

Research implications: The CTM contributes to the enterprise information systems literature by offering a coherent understanding of balancing resilience and nimbleness to succeed in digital transformation. In particular, the research model elucidates the relationship between dynamic capabilities and continuous digital transformations.

Practical implications: Digital transformations are not a one-off exercise. Managers in the FSO context must cultivate their organisational capabilities to achieve nimbleness and resilience during their digital transformation journey.

Originality: The relationship between dynamic capabilities and continuous digital transformation sheds light on establishing successful management processes within FSOs.

Keywords: Digital Transformation, Financial Services, Dynamic Capabilities, Organisational Nimbleness, Organisational Stability

Introduction

Organisations are constantly pressured to transform their business models, products, services, and processes due to digital technologies (Schwab, 2017). The increased pressure demands that organisations continuously evolve their dynamic capabilities (Osmundsen & Bygstad, 2021; Li & Chan, 2019; Vukšić *et al.*, 2018; Tan & Pan, 2003). Teece *et al.* (1997) describe these capabilities as the company's capacity to amalgamate, develop, and rearrange in-house and external skills to adapt to swiftly shifting surroundings. The literature underlines that organisations need to do things innovatively with more *resilience*, reflecting adaptability and *nimbleness*, corresponding to a high degree of flexibility (Goh & Arenas, 2020; Vial, 2019). However, the co-existence of nimbleness and resilience in the context of digital transformation has not been explored yet.

Digital Transformation entails an IT-enabled transformation of product and service offerings, processes, and business models to navigate the dynamic digital landscape (Hinings *et al.*, 2018; Nadeem *et al.*, 2018; Reis *et al.*, 2018). Such fundamental changes are occurring incrementally and have manifested themselves in different models and conceptualisations through technology-enabled business transformations such as digitisation, digitalisation, and, more recently, digital transformation (Mergel *et al.*, 2019; Reis *et al.*, 2018). However, the literature shows that in many situations, organisations often take digital transformation as a one-off opportunity (Ross *et al.*, 2016; Sebastian *et al.*, 2017), while there is a need for continuous navigation of the dynamic digital landscape, resulting in constant disruptions with no end on the horizon (Moellers *et al.*, 2019; Osmundsen & Bygstad, 2021). That is why the Information Systems (IS) literature calls for organisations to adopt dynamic capabilities to deliver on such ongoing transformations, called continuous digital transformation (Chanas *et al.*, 2019; Carcary *et al.*, 2016). Motivated by the calls in the literature, this research attempts to answer the following questions: (1) *What organisational factors compete during continuous digital transformation?* and (2) *Which dynamic capabilities enable organisations to balance these competing factors during continuous digital transformation?*

The research concentrates on Financial Services Organisations (FSOs) to answer these questions for two reasons. First, the digital age has resulted in unprecedented technology-enabled transformation pressures within pre-digital organisations such as FSOs (Chaniias *et al.*, 2019). Second, the adoption of digital technologies in FSOs differs from that in small-medium organisations or large public or private firms where dynamic capabilities have been significantly investigated (Sia *et al.*, 2016). As a result, FSOs would require the adoption of a novel and appropriate theoretical perspective. The study adopts a qualitative approach by selecting a major FSO in Australia as the data collection context for a typical day's FSO. Deep individual and group interviews were held with executive practitioners and field experts at the FSO and other worldwide FSOs in the industry.

The study offers a Continuous Transformation Model (CTM), a framework for understanding continuous digital transformation, clarifying how the continuity of transformation relies on the co-existence of resilience and nimbleness. The framework answers the first research question and helps respond to the second research question. In other words, the framework identifies a list of dynamic capabilities for FSOs to achieve nimbleness and resilience during their digital transformation journey. The expert-verified results indicate an increased need for dynamic IT capabilities to complement dynamic organisational capabilities to improve an organisation's responsiveness in digital transformation so that resilience and nimbleness can co-exist. Therefore, this research further expands the work completed by other researchers on the role of IT capabilities in digital transformation.

The paper proceeds as follows. The background literature is presented after this short introduction, followed by the methodology section. The findings section discusses the results in-detail. The paper ends with indicating contributions, limitations, and a summary.

Background

Digital transformation in Financial Services Organisations

FSOs are well-established and often large, pre-digital organisations that have been the source of financial services stability in the past decades. They provide payment, banking, wealth and investment, insurance, and advisory services across public and private sectors (Chantias *et al.*, 2019; Gill & Chew, 2018). Research shows that FSOs highly rely on IT to create a business advantage in response to disruptions while remaining the source of stability (Chantias *et al.*, 2018; Kostić, 2018; Mergel *et al.*, 2019; Nadeem *et al.*, 2018). This is significant as reliance on technology has resulted in a wave of digital transformation in FSOs, with increased research since 2014 (Reis *et al.*, 2018; Sebastian *et al.*, 2017; Vial, 2019).

Research in the digital transformation of FSOs still needs to be conducted in the literature (Chantias *et al.*, 2019; Gill *et al.*, 2016). Further work is required to guide the current digital transformation processes from various aspects (Nadeem *et al.*, 2018). While the present study focuses on a particular case, the aim is to generalise findings to other FSOs by interviewing FSO experts. To this end, experts from consulting firms were interviewed to ensure the results could be generalised beyond the case study FSO.

Dynamics Capabilities Theory

Dynamic capabilities are required to support a successful transformation by enabling an organisation to merge its tangible and intangible resources to create new services, build new products or develop new business models and processes (Helfat *et al.*, 2007; Teece & Linden, 2017). In particular, Teece & Linden (2017) discuss the role of dynamic capabilities in a continuous transformation since they allow an organisation to sense its needs, opportunities and threats, mobilise resources, and transform to create new services, products, business models and processes (Teece & Linden, 2017). They help organisations align their business strategy by combining existing ordinary capabilities and digital enabling platforms to succeed in the digital era (Reis *et al.*, 2018; Sebastian *et al.*, 2017).

Dynamic capabilities theory provides a framework for organisations to continuously reconfigure themselves for changing environments. Dynamic capabilities are higher capabilities beyond an organisation's core competencies that enable coordination of its resources via sensing, seizing

and transforming to create new products and business models and align its plans with customer demands (Teece & Linden, 2017). These capabilities continuously create, expand, and sustain business value to respond to changing technology and customer demands in the environment (Teece, 2007).

Research has shown that organisational flexibility is the key to the success of digital transformation (Dery *et al.*, 2017; Nadeem *et al.*, 2018; Sebastian *et al.*, 2017; Uddin *et al.*, 2023). Other studies have discussed how dynamic capabilities have evolved for digital transformation (Warner & Wäger, 2019; Yeow *et al.*, 2017), as these capabilities enable organisational flexibility required to transform the organisation to respond to disruptions continuously. Some scholars have focused on the role of IT in creating strategic agility (Li & Chan, 2016; Mikalef & Pateli, 2017).

Dynamics Capabilities and Digital Transformation

Digital transformation is an enterprise mindset that organisations need to expand their focus beyond solely considering technology in isolation (Vial, 2019). Such expanded focus would include the underlying organisational capabilities necessary to be successful with the technology (Sandberg, 2014). However, few studies list vital capabilities that are the foundation for digital transformation and may differ depending on the sector and the organisation's specific needs. One such study (Carcary, Doherty & Conway, 2016) provides four capabilities, including (i) promoting and embedding an agile digital culture, (ii) developing effective digital leadership skills, (iii) building digital talent, and (iv) defining and implementing a transformative digital business strategy; the latter is the subject of the current study.

Many studies view organisational capabilities as a central means for organisations to master digital transformation. One study identifies a broad set of relevant organisational capabilities and introduces a conceptual framework in which organisational capabilities are clustered into seven relevant themes for managing digital transformation (Konopik *et al.*, 2022). These themes are summarised in Table I.

*** INSERT Table I: Organisational capabilities for digital transformation ***

Co-existence of flexibility and resilience in the digital era

While readily available ITs have enabled more organisations to innovate, organisational flexibility has been found critical to respond to technological changes and disruptions. Flexibility is generally considered a strategic response to the unseen (Eppink, 1978). In the traditional information systems literature, flexibility has primarily been studied in terms of infrastructure and built-in flexibility in various phases of systems development. However, more recent studies concern organisations' flexibility in responding to technological disruptions and changes (Kumar & Stylianou, 2014). Multiple alternative terms, such as *agility* and *nimbleness*, have been used in flexibility (Oosterhout *et al.*, 2007; Galliers, 2007). In this paper, we use *nimbleness* and *flexibility* interchangeably to demonstrate the ability to respond to change.

Past research shows that organisational flexibility drives innovation to create new products, services, and processes (Tushman & O'Reilly III, 1996; Uddin *et al.*, 2023; Utterback, 1995). Organisational flexibility is fundamental in responding to digital disruptions via rapid IT-enabled innovations. Well-established pre-digital organisations such as FSOs tend to be risk-averse, influencing organisational flexibility (Tate *et al.*, 2018). This creates a paradox to facilitate resilience (stability) and nimbleness (flexibility) simultaneously (Faro *et al.*, 2021). Kumar & Stylianou (2014) state that typically, if uncertainty is positive (e.g., it is an opportunity), then flexibility represents the relative ease of proactively seizing this opportunity. On the other hand, if uncertainty is negative (problems or threats), resilience describes organisations' dealing with uncertainty.

While many researchers point to the need for pre-digital organisations to transform in the digital era (Abedin & Babar, 2018; Fountain, 2008; Hinings *et al.*, 2018; Mergel *et al.*, 2019), there is little evidence that such need has sufficiently emphasised on the co-existence of resilience and nimbleness.

While there is a common understanding that IT is ingrained in digital transformation (Vukšić *et al.*, 2018), the role of IT capabilities in digital transformation is under-researched and more

research is required to understand how dynamic IT capabilities influence the organisation (Li & Chan, 2019). Therefore, in this research, we aim to explore the co-existence of nimbleness and resilience in continuous digital transformation, the dynamic capabilities that are instrumental in managing the co-existence, and our contribution to the digital transformation literature.

Methodology – Dialogical Action Design Research (D-ADR)

ADR Overview

ADR combines Action Research (AR) and Design Science (DS), sometimes called Design Research. ADR addresses criticisms about a lack of DS methodological rigour (Gill & Chew, 2018). ADR methodology is based on the premise that IT artifacts are ensembles shaped by the organisational context during development and use. The ADR methodology conceptualises the research process as containing a set of inseparable and inherently interwoven activities of building the IT artifact, intervening in the organisation, and evaluating it concurrently (Sein *et al.*, 2011). ADR is especially recommended for immersive industry-based projects (Mullarkey *et al.*, 2018).

To overcome the ADR's limitation in influencing the organisational decisions, which is especially true when it comes to the hierarchical decision-making process in FSOs, the study combined a dialogical dimension into the research, resulting in the method of D-ADR. Using this method, the influence of dialogues with organisations' leaders becomes the intervention method of this research. The intervention is evident in the researcher's observations and document analysis. This approach is similar to the work completed by (Mårtensson & Lee, 2004). The Dialogical Action Research method was also used by Yang *et al.* (2017) to have conversations with management and provide recommendations for action.

Another unique feature of this study, other than adopting the D-ADR method, is that the first author was an FSO case study organisation employee. Therefore, unlike other studies (e.g., Mårtensson & Lee, 2004; Yang *et al.*, 2017), the research took place mainly at the FSO's office, providing a rare opportunity to influence and observe continuously. This approach is increasingly being encouraged in IS research as a broader and more integrated approach to

design, which would include both the construction-centered and human-centered aspects of design, would ensure the design is viewed as an essential component of both research and practice (McKay, Marshall & Hirschheim, 2012). Given that the ADR in this research is applied only to a single organisation, the generalizability of findings has been assured by using literature review, observation, and document analysis from the ongoing assignment at the FSO, combined with industry expert interviews to verify the results of each ADR cycle. The expert verification ensures the results can be generalised and provides more rigour to the method.

D-ADR Procedure

The organisation under study, the FSO, provides multiple services to Australia's public, government, public sector agencies, and financial institutions. To provide various services, the FSO is structured into numerous departments responsible for policy, business services, and operational tasks. The FSO heavily relies on complex technologies to achieve its goals, maintaining its brand, service quality, and consistency. On top of its policy and financial markets-related operations, the FSO is core to national financial services as a financial platform provider. It is the financial service provider for many public sector organisations. The support for complex technologies in the FSO has resulted in multiple transformational activities occurring in the past years to the point that it facilitates most tasks.

The FSO, like many other FSOs, has a rigorous process for approval of core artefacts involving a walkthrough, review, and feedback before approval. Therefore, the ADR process of this research was required to adhere to the existing processes. A similar approach was taken by Gill & Chew (2018), where they developed the artefact in the format and process that the FSO required.

The use of D-ADR in this research is significant because the first author encountered a practical issue in discussions with the FSO's senior executives: The FSO required guidance on its journey of continuous technology-enabled transformation. The organisation leaders had realised digital transformation is not a one-off event and requires continued investment, strategic planning and decision-making. The FSO needed to better understand the necessary capabilities for its ongoing transformation needs.

Since the nature of the study was an industry practice problem and the subject was a continuous process, D-ADR, as a subset of ADR, provided an opportunity to continuously study the case and provide feedback to the organisation to meet their current needs and capture the learnings for the research. D-ADR investigates various interactions among practitioners and executives to reveal the need for organisations to go beyond traditional dynamic capabilities by incorporating dynamic IT capabilities for a continuous digital transformation (Mårtensson & Lee, 2004). ADR has been used at the FSO to solve a different real-world problem (Gill & Chew, 2018; Yang *et al.*, 2017), providing the organisation with an understanding of action design research methodology and its benefits. Therefore, D-ADR was selected as the method of this research and provided the ability to study the organisation and intervene iteratively; the use of D-ADR is part of the methodological contribution of the current research. Furthermore, in the paper's unique addition to ADR, we involved a mix of internal and external industry experts as end-users. The input from external industry experts helped generalise our findings to other FSOs. This also provided the FSO with more confidence that the required capabilities are being studied with other similar organisations. Figure 3 shows the research design process in detail, including the ADR cycles discussed in Table II and findings as the iterations and interventions occurred.

In this study, we started at the pre-paradigm stage and developed a raw research problem/question. We then recursed through phases of observation, analysis, and evaluation (Roberts, 2000) and conducted a preliminary review to select a suitable theoretical perspective. At this stage, we developed a newer version of the problem statement and formulated an enhanced research question related to the continuous nature of digital transformation. Discussions with practitioners and the FSO's CIO further refined this newer version. The problem was presented to the FSO's executives to be considered for formal support. Once support was granted, problem formulation continued by focussed literature review and dialogues with practitioners to generalise the business problem.

Considering the hierarchical structure of the FSO, it became critical to carefully select a sample with the appropriate level of authority and responsibility. Consequently, this research employed dialogical action research by engaging key decision-makers within FSO. The CIO, responsible for overseeing IT operations, played a pivotal role. Additionally, the head of innovation, an

expert in digital innovation, collaborated closely with FSO's CIO on the organisation's digital transformation journey.

The first author asked FSO's CIO and Head of Innovation to nominate experts using the following criteria to ensure field experts are interviewed: have gone or are going through a formal transformation program in the past few years, employed resources with expertise in transformation, and an optional criterion: appointment of a role responsible for digital transformation, digital innovation or digital operation activities.

Also, the study approached experts from other organisations, including the private sector, consulting and academics that have practical experience or publications in technology-enabled transformation based on the snowball approach. This provided a comprehensive view of how continuous transformation is perceived in the digital era. A round of interviews with internal and external industry experts followed the above process of formulating refined research questions. Combining the data collected from practitioners, literature review, and industry experts formed cycle one, resulting in the Alpha version of the continuous transformation model. The results of the Alpha version were published as a work-in-progress (Faro et al., 2022).

The Alpha version underwent multiple iterations within the ADR cycle two, resulting in the Beta version. The end of the ADR cycles resulted in the final artefact. The artefact generation process over two cycles for Alpha and Beta versions followed by a half cycle for finalising the artefact was similar to the organisation-dominant Building, Intervention, and Evaluation model (Sein *et al.*, 2011). This artefact-making process is also identical to the approach identified in research on 'digital transformation strategy making' by Chaniyas *et al.* (2019) and Mullarkey *et al.* (2018). Some minor changes were made to the ADR diagram compared to the proposed model by Sein *et al.* (2011) to depict our research method. For example, we added the details of findings and outputs in each stage to our ADR model. We also showed version 0 and our contributions more clearly.

*** INSERT Figure 1 - Research method ***

To conduct this research, our method adapted key stages of the ADR process from Sein et al. (2011) and Gill and Chew (2018), as described in Table II.

*** INSERT Table II - The D-ADR stages ***

ADR Team

The ADR team consisted of the first author, practitioners and experts distributed in the FSO and similar organisations in other countries, and consulting firms focusing on digital transformation. Table III provides more details on the team member type, their role, organisation, and location.

*** INSERT Table III. ADR Team members ***

Previous researchers have already used the interview method (e.g. Mergel *et al.*, 2019) in the context of digital transformation. In the initial round of interviews, the practitioners were asked: *What do organisations need to prepare for continuous digital transformation?* Results were then presented to experts in and outside the FSO. They were presented with findings to date and asked: *what do you think of the results?* This process was repeated in the second phase of the ADR, and the experts were asked to comment on the framework resulting from the previous ADR cycle. Their view is provided in the Findings section.

Data Collection and Analysis

Data was collected from observations, informal individual dialogues, and semi-structured interviews using open-ended questions. Transcription was performed based on the guidelines provided by Mergenthaler & Stinson (1992). According to this standard, speech markers and punctuations were observed, and the transcript was an almost exact reproduction of the sources, all in common English. Throughout the conversations, we showed interest in responses and used the language used by the experts to provide an environment for practitioners and industry experts to share their views. Every effort was made to capture the notes from interactions accurately. Enough time was allocated after each meeting for immediate documentation of meeting notes to complete the notes taken in the meeting inspired by the work of other researchers who completed notes after the expert meetings, such as Mårtensson & Lee (2004), Chantias *et al.* (2019),

Tumbas, Berente & Brocke (2018) and Schultze (2000). Where possible, quotes were reviewed by the respondent experts to ensure sufficient accuracy, as conversations were not allowed to be voice recorded. For reporting of the results, a final summary of notes and quotes was prepared by the first author and further verified by the co-author.

Similar to the research by Yang *et al.* (2017), the action research phase of this research had multiple cycles for data collection, which took about three years. The action research data was continuously analysed based on the proposed model, literature reviews, and pilot expert interviews. All the actions and learnings were categorised into supporting areas in the model.

Given that the first author was an employee of the studied organisation, there was an opportunity to capture the direct observations related to the research. These are the observations from outside interviews, similar to the work completed by Mårtensson & Lee (2004). In particular, the company CIO provided a transcript of his interview with other researchers on digital transformation as input to this research. Also, the CIO shared his notes from meetings with other FSOs on digital transformation. These records generated further dialogue and interventions.

After each interview, the notes were categorised by each corresponding interview question, followed by data mapping and analysis to form themes for subsequent expert interviews. As per Green *et al.* (2007), the coding technique for qualitative data analysis was used to code, categorise, and identify themes using interview notes. Preliminary codes were developed after each interview, and categories (final codes) were developed using initial codes **Error! Reference source not found.** This approach is similar to concept-driven coding (Gibbs, 2007), as the literature review informs the data analysis coding. This ensured *theoretical integration* (Lo, 2016) that further integrates our study with the current body of literature. The collection of the interviews resulted in final codes, which were grouped by interview questions to identify common themes about organisational forms in continuous digital transformation and their influencing factors. Like other researchers studying digital transformation and dynamic capabilities (Li & Chan, 2019), NVivo software was used to note and analyse themes, as shown in Table IV.

*** INSERT Table IV. Themes ***

The first author sought a final round of feedback on the model from the FSO. Early in the ADR process, the IT strategy manager stated that the organisation would benefit from a model that guides its digital transformation journey. The CIO also highlighted the value of the model to the organisation in the final conversation. Therefore, the FSO found results obtained throughout the development of this artefact useful in developing their understanding of continuous digital transformation and appreciating the role of dynamic capabilities in changes to organisational forms. To assist FSO with its ongoing digital transformation journey, the researcher developed an organisation-specific model based on and parallel with the CTM final artefact. This was aligned with our planned research method approach to provide an FSO-specific model based on the final artefact.

Findings

Organisational flexibility is a fundamental dimension of digital transformation (Hinings *et al.*, 2018; Kohli & Melville, 2019; Kostić, 2018). Hence, we discussed the need for organisational flexibility with the Head of Innovation at FSO. We discussed how the innovation team embeds agile working to ensure flexibility in their problem-solving approach. We further discussed how this could be expanded to the entire organisation. In particular, the CIO provided views on how an initial artefact should look (a two-by-two model). The visuals of the artefact may appear trivial; however, selecting a format that the organisation's practitioners and industry experts were already familiar with helped with their understanding. The two axes of the model were (flexibility/nimbleness and stability/resilience) as per our findings from the literature. Our D-ADR method evolved through version 0 to the final version of the artefact, as shown in **Error! Reference source not found.**, namely the CTM.

*** INSERT Figure 2 - CTM Artefact Iterations ***

We used CTM version 0 as a guide for the interview, asked interview questions and sought feedback on the questions, the interview format, and the model. The results are captured in Appendix 1 for cycle one. Interviews highlighted that organisations carve out resources to work on innovative activities or bring consultants in, but more tangible results are needed. Innovation

often occurs in incremental experiments that come together for an improved and novel outcome. The FSO practitioners felt the disruptions mainly come from the digital era. They also identified a need to respond to transformation drivers. Also, it was highlighted that the existing ordinary capabilities for operation should be included. This may mean FSOs need to be both flexible and stable.

The FSO IT interviewees indicated that their organisations have become more flexible as more work is required to deal with disruptions. This was observed in other FSOs. For example, the CIO of a US FSO said:

'The flexibility required is best described as nimbleness. Our organisation has moved to the operating model of products and platforms to increase responsiveness.'

The same organisation's head of strategy agreed and discussed that the organisation is developing a strategy to move to a more flexible approach by adopting cloud and artificial intelligence technologies. Interviewees from Canada, France, Japan, New Zealand (NZ), and Australia agreed that nimbleness is a better way of describing the needed trait because iterative changes must be small. Therefore, the findings show that nimbleness is key to continuous digital transformation. As several FSO employees said:

'It is important to innovate when disrupted rapidly.' The experts in the Canadian FSO highlighted the difference between nimbleness and flexibility: *'You could be flexible, for example, take on a different approach to delivery, but that doesn't make you fast.'* *Responding to digital transformation requires you to quickly deliver, learn, and pivot.'*

In the Introduction chapter, we discussed that the CIO raised the same theme in the Singapore FSO based in China. In their experience, the ability to act quickly is essential as organisations in China have many human, technological, and capital resources to perform tasks quickly. The head of data at the FSO said:

‘Very few have taken a startup approach to this as they felt they can't wait for the entire organisation to come to the journey. This includes building pilots on stand-alone laptops and USB storage’.

Therefore, rapid experimentation and a fail-fast approach to responses become essential. The expert in Japan highlighted that the situation is changing as Japanese leaders tend to make decisions slowly. Now, they have realised that it is important to move quickly in digital transformation; hence, the expert has been engaged to perform digital transformation consulting. The expert in NZ discussed how nimbleness required changing the operating model, which was the most challenging part of digital transformation. The NZ expert added:

‘Most people didn't understand their role in this digital operating model. The technology part was easy, but getting the operating model right to bring everyone together to deliver things quickly is hard.’

The expert provided a suitable operating model for the organisation and its partners to understand the staff clearly. The expert added:

‘Let's look at startups in Silicon Valley. The most common reason for their success is that there is no bureaucratic and traditional structure. It's all a flat structure. Anybody can talk to anybody.’

The expert from French FSO mentioned a similar comment:

‘Middle management has become irrelevant during digital transformation, and as an organisation, it has become agile. It is truly a new way of working. This is because the business needs to allow fast-paced delivery. Some call it agile, but you must design your organisation to respond quickly and decide quickly. This is beyond a traditional IT agile structure; even marketing and sales need to be agile and make a decision faster.’

When asked how this is possible in the FSO context, the expert thought that the trend of *digital ventures within organisations helps organisations* become nimble and faster. These findings related to the nimbleness align with the result of a comprehensive, structured literature review

that digital technologies are required to respond to pressures to renew and transform contemporary business models (Kohli & Melville, 2019).

In addition, the interviewees highlighted the need to retain stability, meaning sometimes skipping responses to disruption and being a 'late adopter.' The FSO's senior application manager highlighted the organisation's need for adaptability and resilience. The expert added: *'Our response needs to be quick but at the same time a strategic response.'* The FSO's CIO presented the concept of resilience to the leadership teams on multiple occasions. The key message was that *'we must be resilient to respond to the disruptions ahead.'*

Many other experts highlighted resilience as the critical need for FSOs in the digital era. The expert from the French FSO said:

'The expectations of stability in FSOs are not going away. To achieve this, we established a completely separate entity that deals with digital innovation and takes the fail-fast approach. This is to ensure we don't damage the stability image of the organisation in public. This creates the feeling that the institutions don't want to change'. 'we don't always have to change the organisation. We experiment and learn quickly before applying things organisational wide'.

This means FSOs must continue focusing on day-to-day operations, security, and resiliency while detecting disruptions and opportunities, mobilising resources, and responding using digital technologies. Therefore, uncovering how FSOs support the co-existence of nimbleness and stability in continuous digital transformation is important.

Overall, the results show that experts agreed on the need for organisations to form flexibility that allows resilience and nimbleness to co-exist. The CTM alpha version showed that resilience and nimbleness are two axes driving organisational forms flexibility in the digital era. The two axes together form four focus areas depending on how resilient and nimble the organisation needs to be during the continuous digital transformation.

To develop the final version, the alpha version of CTM was presented to practitioners for feedback. FSO head of innovation said, *‘The two dimensions make sense, more than anything else I have seen,’* and added, *‘The model should show how the organisation operates in all areas simultaneously.’* The model was then discussed with the FSO and CIO, and the dimensions made sense. The fact that an organisation puts a greater focus on one quadrant and does not forget about others has been observed at FSO. We also discussed the model with the FSO manager of IT strategy, who could relate different departments to each quadrant. He added, *‘While it makes sense, it is good to know what capabilities the organisation needs to operate like this.’* The matter will be further discussed in the Discussion section.

At this point, we turned the dialogues towards the required capabilities for the co-existence of nimbleness and resilience. In particular, the discussion with the head of innovation pointed to ‘sense and respond’ capabilities that need to be focused on key trends and big questions. The practitioner highlighted the role of the section in experimenting. She added: *‘I am encouraging the executives to think about the big questions.’* The researcher and practitioner agreed that there is not enough sense occurring in the FSO. We identified pockets of sensing capabilities such as the FSO innovation lab, enterprise architecture and IT software development, and security teams. The practitioner believed sensing needs should be embedded and distributed in the business units. FSO CIO stated that mobilising resources is as important as sensing. Considering the FSO’s response to a recent cybersecurity event, the CIO thought that mobilising the resources from business and IT areas to work together was an important factor. Other experts also emphasised the importance of sense and response. In particular, the expert from Japan touched on transforming aspects and said:

‘Building an organisation structured for agility is key to digital transformation. You need the right flexible structure to move between different forms and structures. This should allow organisations to have more cross-functional teams created and dissolved depending on the needs.’

Therefore, the findings from the practitioners were very much aligned with the literature on dynamic capabilities for sensing, seizing and transforming (Teece *et al.*, 1997). Multiple ex-ante studies identify the need for dynamic capabilities in digital transformation (Carcary *et al.*, 2016;

Warner & Wäger, 2019; Yeow *et al.*, 2017). Specifically, dynamic capabilities are used to create organisational agility, which would foster nimbleness (Teece *et al.*, 2016). However, it was still unclear how FSOs would retain their stability and adaptability while becoming flexible and agile. Therefore, we looked for information about digital transformation capabilities in our first round of interviews, which pointed to specific IT-related capabilities to co-exist with other dynamic capabilities. The experts from Canadian FSO highlighted the need for IT capabilities to increase *organisational resilience*. For example, the director of IT discussed the IT infrastructure transformation, the ability to implement business applications quickly, and the flexibility to deploy multiple data centres to ensure business products and processes are resilient. The experts also discussed their technology integration capabilities with distributed access to staff across different areas. In addition, the Canadian FSO experts highlighted that the cloud is used for activities requiring nimbleness, such as business self-service software development and data analysis, and resilient services, such as storing and processing highly secure data. The company CIO mentioned the important role of digital platform capability in digital transformation. When discussing dynamic capabilities with the FSO senior information manager, the expert said: ‘Technology-related *capabilities are as important in digital transformation.*’ This was an essential comment as other researchers have also observed a lack of IT focus in the dynamic capability theory (Carcary *et al.*, 2016; Li & Chan, 2019). The expert from NZ provided a detailed view of the digital platform capability developed for a client’s digital transformation.

The experts also highlighted the need for digital leadership and talent to navigate digital transformation in line with recent research (Mergel *et al.*, 2019). Interviewees highlighted that leadership, mainly at the executive level of FSOs, differs from those in other sectors because the goals and motivations vary. The results show that leadership and talent factors play an important role in decisions about the level of responsiveness required in the organisation. These factors help focus most of the organisation’s resources on a priority. Experts highlighted that even when new executives are appointed, it is difficult to change the FSO as there could be resistance based on the dominant culture that has been formed over the years. For example, an FSO expert highlighted that risk aversion culture is embedded in the organisation’s DNA, making fail-fast and experimental approaches difficult. Results show that with executive sponsorship and the

right skills, the organisation can navigate the dynamics of continuous digital transformation by continuously changing its focus (CTM quadrant in Figure 2) to match its strategic priority.

Findings show the importance of dynamic capabilities in creating a flexible, speedy, stable, and adaptable organisation for a continuous digital transformation. The identified dynamic capabilities are digital sensing, seizing, responding, digital platform, digital leadership, and digital talent. Therefore, we answered our research question regarding the dynamic capabilities required to prepare FSOs to respond to digital transformation. We reflected this finding in CTM and created a CTM beta version (Figure 2), which was presented to practitioners to seek feedback and to finalise the artefact. The key discussion was that given that digital transformation is continuous, some parts of the organisation are always focused on stability. In contrast, others concentrate on the nimbleness of the organisation to focus their resources on the required direction. The FSO's Head of Innovation referred to it as a '*dialer*,' and the manager of IT strategy as a '*dimmer switch*,' meaning leaders increase or decrease pressure to develop stability or nimbleness depending on their strategy for digital transformation response. We discussed this feedback with the senior manager of applications at the FSO, given the expert's background in visualising strategy at the FSO. The expert feedback was to use arrows to clearly show how dynamic capabilities result in a move from one form to the other. The feedback from the head of innovation at FSO was that the '*dialer*' needs to be round-shaped to reflect that '*leaders can shift gears with the dialer.*' The final version of CTM was based on feedback from practitioners and experts at FSO.

Discussion

Overall, the findings indicate a consensus among experts on the necessity for organisations to develop flexibility that supports the coexistence of resilience and nimbleness. This aligns with literature suggesting that innovative organisational structures are essential for success in the digital age (Faro et al., 2021; Hinings et al., 2018). Practitioners from the Financial Services Organisation (FSO) also emphasized the importance of a model that guides the organisation towards a repeatable process for evolving its structure. Such a model would ensure that responses to disruptions are systematic rather than chaotic. Consequently, the authors have developed an initial version of this model (Figure 2), intended as a work-in-progress. It

visualizes digital organisational forms based on cycle one research findings, aiming to gather feedback from FSO practitioners and experts (BLINDED).

Furthermore, and as briefly discussed before, the CTM alpha version showed that resilience and nimbleness are two axes driving organisational flexibility in the digital era. The two axes together form four focus areas depending on how resilient and nimble the organisation needs to be during the continuous digital transformation (as explained in detail by Faro *et al.*, 2021): a ‘Responsive state’ that supports the requirements for a high-level of resilience and nimbleness; ‘Resilient state’ that supports the requirements for a high level of resilience and low level of nimbleness; ‘Reactive’ state that supports the requirements for high-level nimbleness and low level of resilience; and the ‘Rigid’ state that supports the requirements for the low level of resilience and nimbleness.

The FSO manager of IT strategy noted that ‘... *it is good to know what capabilities the organisation needs to operate like this*’. The ability of the organisation to perform in different modes of operation has already been studied in many organisations in the past (e.g., Sebastian *et al.*, 2017). Overall, findings from the practitioners were closely aligned with the literature on dynamic capabilities for sensing, seizing and transforming (Teece *et al.*, 1997).

Looking from the lens of dynamic capabilities and their ability to create organisational responsiveness via digital transformation, several studies have confirmed such effects. It has been shown that organisations require sense, seize, and transforming capabilities to change and make the best use of their operational capabilities (Carcary *et al.*, 2016; Collis, 1994; Laaksonen & Peltoniemi, 2018; Teece *et al.*, 2016; Teece, 2007; Teece & Linden, 2017; Warner & Wäger, 2019; Winter, 2003). However, the current study shows a need for dynamic IT capabilities to complement the organisation’s capabilities in the digital era. Almost all experts thought of ‘considered’ digital and business. This is a significant finding as research has previously shown that there is a common view that IT on its own does not have an inherent value unless it is combined with business capabilities (Carcary *et al.*, 2016). Therefore, we consider dynamic IT capabilities to be part of ‘digital’ capabilities, meaning there is a fusion between IT and business, and the former should simply be called a set of dynamic capabilities enabling continuous digital

transformation. Further, our observations on capabilities indicate that leaders in an organisation enforce different levels of stability and nimbleness during continuous digital transformation. We specifically call this *digital leadership* related to technological and non-technological digital transformation management. For example, FSOs use digital leadership extensively in their communications and adopt a collaborative approach to leadership. While the need for IT management capabilities has been identified as key to dynamic IT capabilities (Li & Chan, 2016; Li & Chan, 2019; Mikalef & Pateli, 2017), our research shows that leadership in the digital era is beyond IT management, and also encompasses the business aspects including executives. IT leaders, business leaders, and executives need to work collaboratively to prepare and support the organisation during continuous digital transformation. This finding is aligned with the proposed ‘digital leadership’ capability in the work of (Carcary *et al.*, 2016) on dynamic capabilities for digital transformation.

Contributions

The study contributes to the enterprise information literature by offering the CTM as the design artefact for pre-digital organisations such as FSOs that could help these organisations understand and manage the key role of co-existence of resilience and nimbleness during digital transformation. The methodology provides a detailed account of the influencing effects of the organisation’s decisions on the developed artefact. Such organisational effects have been explored through the Diagonal mechanism of the D-ADR research methodology and have been applied innovatively to the case study organisation.

The CTM shows the central role of dynamic capabilities in managing the tensions for the co-existence of resiliency and nimbleness during a continuous digital transformation. Our findings underline that FSOs need to build dynamic capabilities to balance resilience and nimbleness and move from one form to another, depending on the required response driven by the ‘sense and response’ features in dynamic capabilities. Stability and adaptability are built by having a resilient and extensible digital platform. However, resilience goes beyond technology platforms and is built into people and leadership. Our results show that digitally-savvy leaders are as influential as digital platforms for building resilience without being stuck in rigid technologies, processes and people behaviour, as characteristics of many FSOs. Hence, we argue that

identifying these vital dynamic capabilities could enhance the current literature by shedding light on continuous digital transformation. This is done by expanding the set of capabilities with digital capabilities, comprising IT capabilities and digital leadership. This practical contribution is key for FSOs, whom our study shows traditionally focus on technology investments as part of digital transformation projects and less so on building and sustaining dynamics capabilities that are needed for a continuous digital transformation journey.

Research limitations and directions for future studies

Multiple research limitations resulted in challenges during this research. Firstly, the practitioners were from the IT department of FSO, although the head of innovation has a business background. Selecting practitioners from a mix of business and IT or just from business areas could have resulted in a different outcome. Furthermore, we interviewed many experts only once. This research would have benefited from multiple interviews with the same individual by allowing the latter further to clarify hidden assumptions and/or moderate their views. Alternatively, an additional survey with quantitative analyses could have partially achieved this goal.

Future research is needed to examine the human-fatigue aspect of digital transformation, as the CIO stated that *'the research should highlight the human-fatigue element of continuous transformation.'* Similarly, an expert in Japan said, *'in my experience, the digital transformation started ten years ago and never finished.'* This aligns with the FSO architecture manager's comment, who had concerns about the human elements of a continuous transformation as it requires a continuous shift in priorities: *'I'm not sure how sustainable it is to be responsive all the time. Would the staff still be engaged or get burned out.'* Investigating the sustainability of dynamic capabilities in a continuous digital transformation was beyond the scope of our research. However, this research and the views from the experts indicate that investigating a sustainable ongoing digital transformation could be an area of further investigation. So more work is required to study the people aspects of digital transformation with questions such as: *'What's the cognitive impact of continuous digital transformation on staff? What's the impact on staff engagement level? What's the impact on staff retention or talent attraction?'*

Finally, our results show that almost all interviewees regarded organisational culture as a significant factor in FSOs' digital transformation success. The experts highlighted that changing culture is a top-down approach and, therefore, interrelated with leadership. They pointed out that culture is related to the organisation's business context. For example, a financial organisation with many economists may have a high tolerance for disruption and perform exhaustive analysis before making decisions. Other influences on organisations' culture were mentioned during the interviews, such as market competition. Regional cultural factors were mentioned; for example, interviewees suggested that Asian, North America and Europe organisations tend to be more risk-tolerant and adaptive than those in the Pacific region (including Australia). Therefore, future studies can focus on the role of culture in continuous digital transformation.

Conclusion

This research conducted Action Design Research (ADR) within a Financial Services Organisation (FSO) to gain insights into the ongoing digital transformation within their context. The ADR carried out with FSO practitioners and through interviews with industry experts worldwide, identified a need to transcend traditional notions of flexibility and stability. This is due to FSOs facing pressures to become more adaptable and to deliver outcomes swiftly. Experts highlighted the critical coexistence of nimbleness and resilience and the varying degrees of these qualities needed at any given time. These insights led to developing the Continuous Transformation Model (CTM), our response to the first research question, which identifies resilience and nimbleness as critical components of digital transformation.

Subsequently, the research delved into understanding the dynamic capabilities (Collis, 1994; Teece, 2018) necessary for sustaining digital transformation in FSOs, aiming to balance resilience and nimbleness. Our answer to the second research question emphasizes capabilities that function as a 'dialer,' enabling organisations to adjust their levels of resilience and nimbleness as needed. While non-technological aspects have been explored in previous studies (Sia *et al.*, 2016) or in the context of dynamic capability theory more broadly (Warner & Wäger, 2019), research on the technological facets of capabilities for continuous digital transformation has been limited. Existing literature has predominantly focused on dynamic IT capabilities that are not specific to digital transformation (Carcary *et al.*, 2016; Djaja & Arief, 2015; Forough

Karimi-Alaghehband, 2020; Li & Chan, 2019; Mikalef & Pateli, 2017; Tai *et al.*, 2019). Thus, our findings potentially extend the theory of dynamic capabilities about digital concerning digital transformation (Warner & Wäger, 2019) by pinpointing digital platforms, leadership, and talent as additional dynamic capabilities integral to ongoing digital transformation. These capabilities foster resilience and nimbleness and serve as a 'dialer' for leaders to adjust their strategic priorities. Therefore, managers at FSOs should increasingly focus on these essential dynamic organisational capabilities to respond effectively to digital transformation challenges.

Disclaimer

Views expressed in this paper are those of the authors and not necessarily those of the FSO and experts. Use of any results from this paper should attribute the work to the authors and not to the FSO and experts.

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Table I: Organisational capabilities for digital transformation

Strategy and Ecosystem	Capabilities relating to the strategy and ecosystem of the organisation.
Innovation Thinking	Capabilities relating to the emergence of innovation in the organisation, focusing on open innovation and co-creation.
DT (Digital Transformation) Technologies	Capabilities relating to new and/or disruptive technologies.
Data	Capabilities relating to the handling, security, and capitalization of Data.
Operations	Capabilities relating to ordinary business activities and value creation.
Organisational Design	Capabilities relating to the design of the structural and procedural organisation.
DT Leadership	Capabilities relating to the management and culture of the organisation.

Source: Adopted from Konopik et al., 2022

Table II - The D-ADR stages

<i>Stages</i>	<i>Principles</i>	<i>Practices</i>	<i>Artefacts</i>
Stage 1: Idea and problem formulation	<i>Principle 1: Practice Inspired Research</i>	<ul style="list-style-type: none"> • Project initiated by an employee of FSO (who became the researcher). • The problem was formulated working with the practitioner (FSO's CIO) and through the FSO research approval process 	<ul style="list-style-type: none"> • Research proposal agreement
Stage 2: Building, Intervention and Evaluation	<i>Principle 2: Theory- Ingrained Artefact</i> <i>Principle 3: Reciprocal Shaping</i> <i>Principle 4: Mutually influencing roles</i> <i>Principle 5: Authentic and Concurrent Evaluation</i>	<ul style="list-style-type: none"> • Selection of Dynamics Capability Theory • Dialogical ADR resulting in mutual enlightenment • Iteration of artefacts based on feedback 	<ul style="list-style-type: none"> • Continuous Transformation Model (CTM) version alpha and beta
Stage 3: Reflection and Learning	<i>Principle 6: Guided Emergence</i>	<ul style="list-style-type: none"> • Presentation of results to the FSO leadership team • Review of papers by FSO CIO • Review of findings with Head of Innovation 	<ul style="list-style-type: none"> • Updated model
Stage 4: Close (Formulation of Learning)	<i>Principle 7: Generalised Outcomes</i>	<ul style="list-style-type: none"> • Final review, handover of artefacts and closure 	<ul style="list-style-type: none"> • FSO CIO industry speech and publication on digital capabilities, acknowledging the researcher's contribution • Final Model • Extension of dynamic capabilities theory for continuous digital transformation • ADR Principles

Source: Authors' own

Table III - ADR Team members

#	Role	Section	Organization	Org's Industry	Expert Location	Number of Interactions/ Interviews
1	Chief Information Officer	IT	FSO	Finance	Australia	Multiple-Monthly During ADR -
2	Head of Innovation	IT	FSO	Finance	Australia	Multiple-Monthly During ADR -
3	Manager of IT Strategy	IT	FSO	Finance	Australia	Three
4	Senior Manager of Information	Business	FSO	Finance	Australia	Three
5	Chief Technology Officer	IT	FSO	Finance	Australia	Once
6	Head of Data	Business	FSO	Finance	Australia	Once
7	Applications Senior Manager	IT	FSO	Finance	Australia	Two
8	Solution Architecture Manager	IT	FSO	Finance	Australia	Once
9	Chief Information Officer	IT	Other FSI	Finance	US	Once
10	Head of Architecture	IT	Other FSI	Finance	US	Once
11	Chief Strategist	IT	Other FSI	Finance	US	Once
12	Director	Business	Other FSI	Finance	US	Once
13	Director	IT	Other FSI	Finance	Canada	Once
14	Head of Innovation	IT	Other FSI	Finance	Canada	Once
15	Head of Digital Operation	IT	Other FSI	Finance	Canada	Once
16	Head of Innovation	Business	Other FSI	Finance	France	Once
17	Chief Information Officer	IT	Other FSI	Finance	China	Once
18	Digital Transformation Senior Consultant	Business	Consulting firm	Consulting services	Brazil	Once
19	Digital Transformation Senior Consultant	Business	Consulting firm	Consulting services	Japan	Once
20	Digital Transformation Senior Consultant	IT	Other FSI	Finance	Australia	Once
21	Head of Business Innovation	Business	Other FSI	Public sector services	Australia	Once
22	Digital Transformation Senior Consultant	Business	Consulting firm	Consulting services	New Zealand	Once

Source: Authors' own

Table IV – Themes

Theme	Categories (Final Codes)	Preliminary Codes
Nimbleness	Flexibility	Organisational agility, agile delivery, adapt, iterative change
	Speed	Sense, respond, fast adopter, fast follower, move fast, fail fast
Resilience	Stability	Sustain operation, secure, available, gold standard, can't fail, perfection
	Adaptability	Ability to sustain, adapt, respond
Dynamic Capabilities	Digital Sense, Seize, Transform	Sense, respond, agile strategic planning, flexible structure
	Digital Platform	Flexible infrastructure, integration, extensible platform, resilient platform
	Digital Talent	Skills, knowledge, experiment, people
	Digital Leadership	Direction: prioritisation, lack of direction Hierarchy: Top-down approach, too many layers Collaboration: partnership

Source: Authors' own

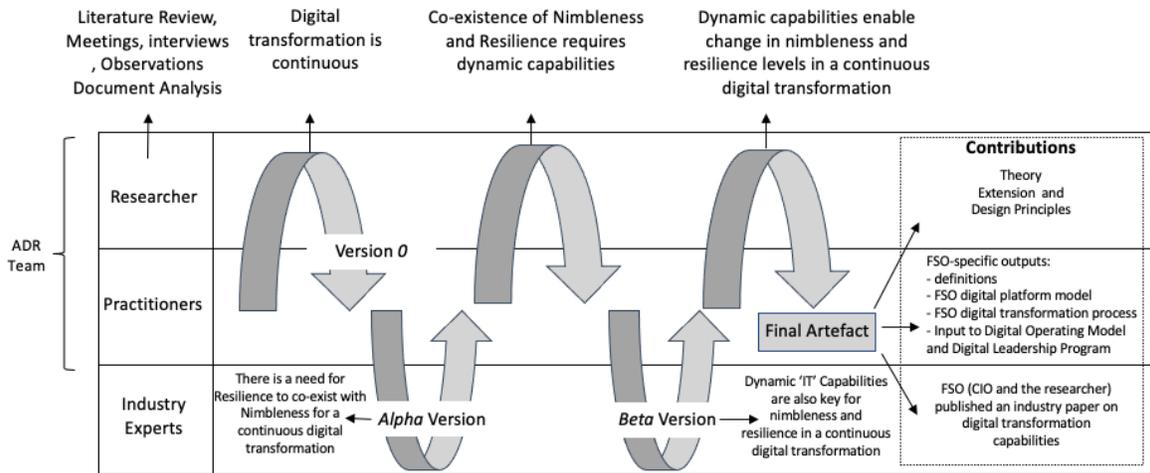


Figure 3 - Research method

Source: Adopted from Sein *et al.* (2011)

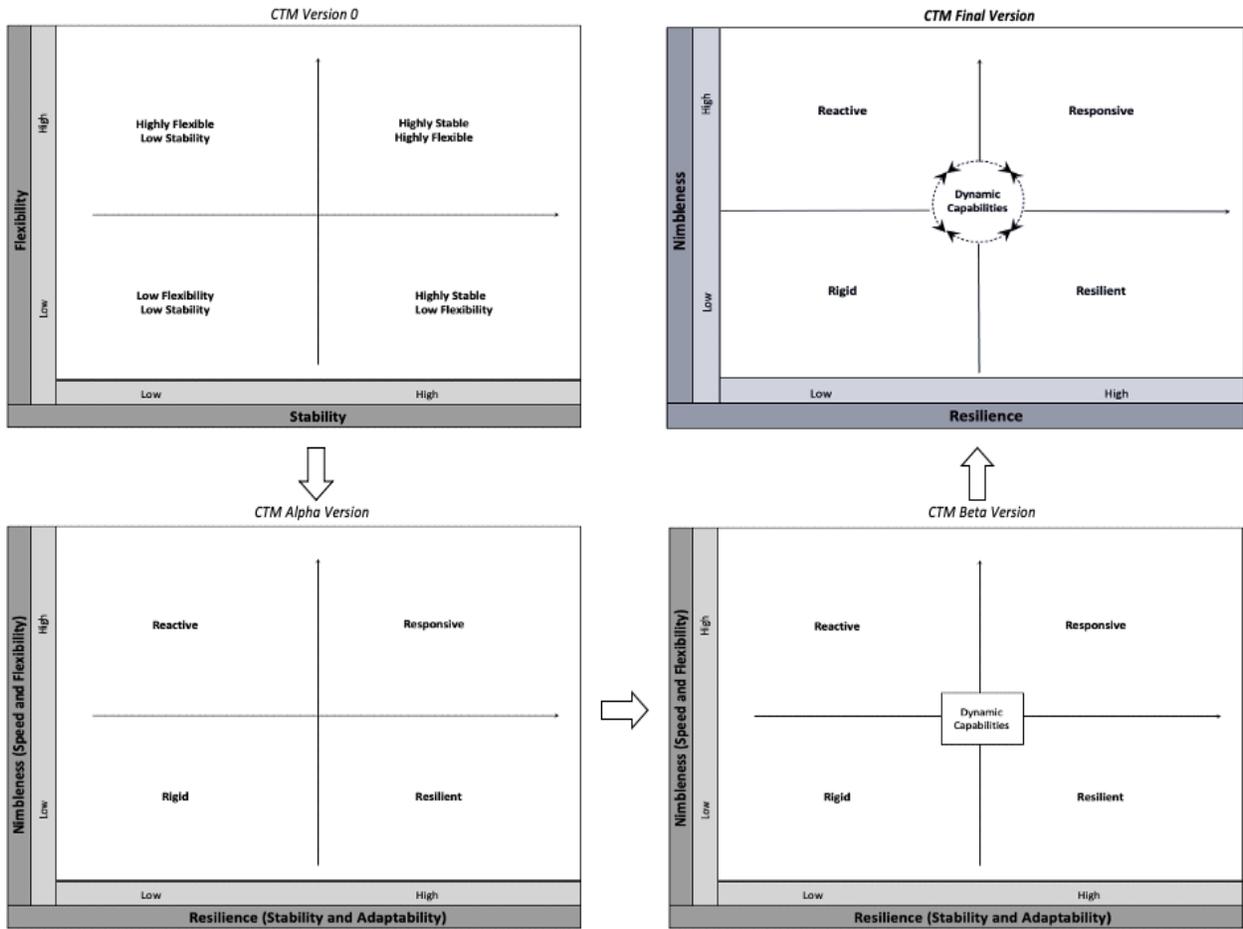


Figure 4 – Continuous Transformation Model Artefact Iterations

Source: Authors' own