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The Silhouette of Digital Transformation Leadership: Theorising the Practitioner Voice

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for the degree of

Doctor of Philosophy in Management Information Systems

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Declaration

This is to certify that the work I am submitting is my own and has not been submitted for another degree, either at the University College Cork or elsewhere. All external references and sources are clearly acknowledged and identified within the contents. I have read and understood the regulations of University College Cork concerning plagiarism.

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Abstract

Transforming organisations is a multifaceted process, steeped with complexity requiring a lot of moving parts to align together so that the transformative process can be synchronised, gather momentum be understood and appeal to all groups of stakeholders. If that set of circumstances can be achieved, you have a good chance that it can be a be success. Digital Transformation has been around for a decade or so, and while it is difficult to put a universal description on it, we can say that because its transformative in nature it has the potential to affect organisations at a functional level and cross functionally whereby the impact is on people, processes, technology, and data. The implementation of Digital Transformation has created many challenges for all types of organisations in all sectors large and small local and global. While there is reasonable coverage relating to Digital Transformation, especially around technologies, architecture, and data, it is around Digital Transformation Leadership (DTL) and especially the key aspects associated with leading a digital transformation initiative that has posed difficulties for many organisations' leadership teams. We see when reviewing the current literature around digital transformation (DT) there is a lack of research into identifying characteristics and critical success factors (CSFs) associated with leading a Digital Transformation (DT) initiative and also around Digital Transformation Leadership (DTL) itself, where there is a complete absence of literature for academia and for practice concerning what a digital transformation Leader requires when leading out on a digital transformation programme. This research study is focused on identifying the defining characteristics and the critical success factors (CSFs) for leading a Digital Transformation (DT) implementation. Furthermore, this research focuses on the role of Digital Transformation Leadership (DTL) and the defining characteristics required for leadership for academia and practice when implementing a digital transformation programme. The research follows the building theory from using a grounded approach, involving the use of a key informant methodology. The data gathering method deployed is that of the 'key informant technique' to conduct open semi-structured interviews. The data is then analysed using open, axial, and selective coding (OAS) techniques in order to inductively identify the defining characteristics and critical success factors for implementing digital transformation (DT). Secondly the research also focuses on

identifying the defining characteristics for Digital Transformation Leadership (DTL) for both theory and practice. This study contributes to Digital Transformation research by providing a conceptual model of six defining characteristics for 'doing' Digital Transformation and nine CSFs for Digital Transformation (DT). It also provides a conceptual model for Digital Transformation Leadership (DTL) for theory and practice which illustrates the mapping of the eight defining characteristics of Digital Transformation Leadership (DTL) from literature to the ten defining characteristics of Digital transformation Leadership (DTL) from practice.

CHAPTER 1: INTRODUCTION

1.1 Introduction to the Study

This first chapter begins by presenting an introduction to this research study on digital transformation leadership. The focus of this Introduction chapter is to provide an overview of the research, the rationale and motivation and reasoning behind its purpose. It sets out the objectives of the research study and how the thesis is structured. It will also provide a summary of each of the chapters to follow, which form the basis of this research study. The study is consequently structured as a collection of research papers focused on how leadership should proceed when leading a digital transformation initiative in a pre-digital organisation. Complimenting the previous chapters is a conclusion chapter which focuses on a discussion around findings, recommendations for future further research in the area of digital transformation and digital transformation leadership.

This introductory chapter proceeds to set out the reasons behind the research study i.e. the Rationale of the Research (Section 1.2) and followed on by outlining the plan of the research, including research objectives, the research questions, an overview and structure of the thesis and a summary of the four papers presented in the research study (Section 1.3). A summary of the research contributions to information systems (IS) theory and practice are also highlighted in this section. The next section (Section 1.4) introduces the topic of digital transformation and leading digital transformations (digital transformation leadership) that sets out the scope for leading digital transformation, as identified in this research. Finally, the motivation behind the research is covered (Section 1.5) which presents the research approach used, including an introduction to the research strategy methodology (grounded approach), the data gathering approach used (key informant technique), and the data analysis methodology (OAS coding) that were used in the research study.

1.2 Rationale Behind the Research Study and Thesis Contributions

Digital Transformation has proved to be a 'difficult nut to crack' for most organisations, be they large or small, public or private. It's something that has challenged the leadership (strategic and operational) in trying to plan, implement and manage a digital transformation initiative. While academic and trade press research publications have tried to inform industry about digital transformation in general, i.e. 'what is involved in the digital transformation process', also 'how can digital transformation be achieved' ?, and finally 'who is required in the organisation to deliver it'?, it is difficult to find conclusive evidence as to what it means. Therefore it can be said that generally, IS scholars and practitioners still *"struggle to grasp what* [DT] *really is"* (Wessel et al., 2021, p.102). This is reinforced when articles published in journals i.e. (Sloan Management Review) such as *"Five Myths About Digital Transformation"* and *"The Nine Elements of Digital Transformation"*, these articles illustrate that implementing Digital Transformation (DT) is not a walk in the park for those faced with making such a decision and leading out such an initiative. Further evidence of this is present in a 2019 article published in Harvard Business Review, titled *"Digital Transformation is Not About Technology"*, which discusses why some DT efforts succeed and others fail highlighting the fact that *"70% of all DT initiatives do not reach their goals"* and of the $1.3 trillion spent on DT in 2018, estimates suggest that *"$900 billion went to waste"* (Tabrizi et al., 2019). The difficulty of planning, implementing, and managing a digital transformation initiative like many projects, tends to 'land at the door' of those in leadership positions. Therefore, with all this uncertainty around this concept, leading a successful DT initiative is a real present-day concern for both Business and IT practitioners alike. Even though the impetus in research has increased in recent times from both an academic and practitioner perspective around DT, not least in Information Systems (IS) research several gaps still exist in our understanding of this complex process. Following from this, there have been several calls for further research in areas such as: embedding and sustaining (normalising) a DT (Carroll, 2020); organisational

readiness for DT (Nguyen et al., 2021), impact of a CDO appointment on DT (Metzler et al., 2021), role of middle management in DT (Nadkarni and Prügl, 2021); leader attributes for a successful DT (Pabst von Ohain, 2019) and prioritising practitioner activities throughout DT phases (Berghaus and Back, 2017).

1.2.1 Research Objective and Research Questions

There currently exists a considerable absence of prior literature addressing the leadership role and the actual leading of Digital Transformation (DT) programmes. This research study looks to help bridge that gap for both theory and practice. Therefore the overall objective of this research is specifically centred around identifying the defining characteristics of Digital Transformation Leadership (DTL) in pre-digital organisations.

The following research questions have been created to address the overall objective of this research study as has been outlined above;

- *Research Question 1:* What are the defining characteristics of "doing" Digital Transformation (DT)?
- *Research Question 2:* What are the CSFs for Digital Transformation (DT) that impact positively on the outcome of a DT initiative within an organization*?*
- *Research Question 3:* What are the characteristics associated with Digital Transformation Leadership (DTL)?
- *Research Question 4:* What are the characteristics of Digital Transformation Leadership (DTL) that impact on the outcome of a DT initiative within an organisation*?*

1.2.2 Overview of the Main Contributions

Given that this study was conducted by following the approach of building theory from a grounded approach and using key informant method (c.f. Gioia, 2012). This research study offers contributions in the areas of leading a digital transformation programme and in digital transformation leadership for IS research and practice. In conducting this research study, the following conceptual theoretical models emerged:

1) a conceptual model of *nine critical success factors (CSFs) for doing Digital Transformation (DT)* (see chapter 3) based on defining digital characteristics of "doing" digital transformation (DT) (see chapter 2); which helps us understand what is required for implementing a digital transformation programme.

2) a conceptual model (Silhouette) of *ten digital transformation leadership characteristics* from practice (see chapter 5) mapped against *eight digital transformation leadership characteristics* from literature (see chapter 4) can be found in the conclusions (see chapter 6).

Further contributions were made as part of this research study such as in providing practitioner priorities across a group of *six defining characteristics of "doing" digital transformation* (see chapter 2), a taxonomy of Digital Transformation Leadership (DTL) characteristics to C-suite roles (see chapter 4) and a set of relationships to show the underlying practices associated with Digital Transformation Leadership (DTL) (see chapter 6).

1.3 Research Study Plan

The plan for this research study was created based on building theory from a grounded theory building approach using a key informant research methodology Gioia. The stages involved 1) Commencement Stage, 2) Exploration of the literature, 3)

Identifying a methodology and approach 4) Data Collection 5) Data Analysis 6) Comparison of Literature and Practice 7) Theory Building.

Table 1-1 illustrates the plan of this research and the way that theory can be built from a grounded approach using the key informant methodology.

Stage	Research Priorities	Thesis Section
Commencement Stage	Identify the gap in research, outline objectives, research questions	Introduction Chapter
Exploration of Literature	Exploring digital transformation and digital transformation leadership from the literature.	Paper 3 and Conclusion Section
Methodology & Approach	Identification of a grounded theory approach, use of Gioia methodology and key informant technique (Marshall 1996).	Introduction and Conclusion Section.
Data Collection	Data Gathering and preparation for data analysis, use of open semi-structured interviews with key experts.	Papers 1, 2 and 4
Data Analysis	Use of open, axial, and selective coding (OAS) to analyse data collected.	Papers 1, 2, 3 and 4
Comparison of Literature & Practice	Identify characteristics and of digital transformation leadership from the literature	Paper 3
	Compare characteristics of digital transformation leadership with those from the literature and practitioners (Paper 4)	Paper 4 and Conclusion Section
Theory-Building	Conceptual models of characteristics of DTL, presenting the interconnectedness of theory and practice.	Conclusion Section

Table 1-1 Research Study Plan

1.3.1 Thesis Structure

This research study is structured in the following manner, it is based on four papers which address the areas of leading a digital transformation programme and the characteristics of digital transformation leadership required to lead a digital

transformation programme. Complimenting the four papers included are an introductory chapter which introduces the thesis itself and a conclusion chapter which outlines and summarises the research findings and proposes, further future research opportunities in the area.

The introduction chapter leads off with the current chapter, which introduces the structure of this study as well as the study objective research questions. The remainder of this introductory chapter contains some introductory elements of the research background and methodology that aren't covered in the remaining chapters (papers) due to the limitations enforced because of page restrictions but are sufficiently covered in this chapter. Therefore what follows is a brief description of each paper followed by an outline of the discussion and conclusion of each paper.

The second chapter in this thesis, is comprised of one paper which comprehensively focuses on "doing" digital transformation, unearthing the voice of the practitioner in identifying what is required for implementing a digital transformation initiative, it therefore focuses on the key aspects and factors needed.

The third chapter looks at the theoretical underpinning of "doing" digital transformation, identifying a set of critical success factors that would be required when looking to implement a digital transformation programme.

The fourth chapter in this thesis focuses on digital transformation leadership, with the purpose of examining literature to identify the role of digital transformation leadership and in doing so extract what literature maintains is important for digital transformation leadership when implementing a digital transformation initiative.

The fifth chapter is focused on the role of digital transformation leadership, but in this case from what practice informs us a being important. on this occasion what action leadership must take when implementing digital transformation and how that action will be enabled?

The thesis concludes with a sixth chapter who presence is required for discussion and conclusions. The results of the study are presented and discussed as highlighted from the previous chapters and recommendations are outlined for theory and practice. Finally a number of conceptual models and taxonomies are highlighted for both theory and practice to assist leaders in leading out an DT initiatives in pre-digital organisations.

1.3.2 Paper 1: The Defining Characteristics of Doing Digital Transformation (DT)

Title: "doing Digital Transformation: Theorising the Practitioner Voice: The paper was presented at the IFIP 8.3 Conference June 2022, accepted, and published by the Journal of Decisions Systems.
https://doi.org/10.1080/12460125.2022.2074650

This paper explores the defining characteristics of "doing" Digital Transformation (DT) and presents a holistic account of the practitioner practices that characterise "doing" DT. This paper highlights a gap that exists in literature and practice on what is required to successfully implement a digital transformation across an organisation. The paper is one of the first to provide a "holistic categorisation" of the defining characteristics required for "doing" digital transformation which have emerged from an analysis of empirical data from data gathering of interviews with digital transformation leaders (sixteen key informants across four types of practitioner voices – e.g. IT Strategic, Business Strategic, IT Operational, Business Operational). The paper also describes the practitioner priorities associated with these defining characteristics of doing digital transformation, that were unearthed based on empirical data gathered and analysed. These defining characteristics and practitioner priorities sharpens the focus of academia and practice, highlighting the importance of the "role of people", "role of data" and "role of technology" when "doing" digital transformation (DT).

1.3.3 Paper 2: Practice inspired Critical Success Factors of "doing" Digital Transformation

Title: Practice inspired Critical Success Factors of "doing" Digital Transformation. This paper is being prepared to be submitted to Information Technology & People.

This paper highlights a gap in literature of what key aspects are required to successfully implement a digital transformation across a pre-digital organisation. The paper is one of the first to provide a a collection of critical success factors (csfs) for "doing" digital transformation (DT*)*, from either the academic literature or trade press. The paper illustrates results that have emerged from an analysis of empirical data from data gathering of interviews with digital transformation leaders (sixteen key informants across four types of practitioner voices – e.g. IT Strategic, Business Strategic, IT Operational, Business Operational) and advances a comprehensive conceptualisation of the CSFs for DT in a pre-digital context.

The papers research findings contribute to IS theory development by adding to our current understanding of DT and illustrating the usefulness of CSFs when evaluating such initiatives. This research also provides managers with a "CSF-based recipe" (see Figure 1) for achieving "transformation investment outcomes" which will also "increase the perceived usefulness of CSFs to managers in general"

1.3.4 Paper 3: Digital Transformation Leadership Characteristics: A Literature Analysis:

Title: Digital Transformation Leadership Characteristics: A Literature Analysis. Accepted and published by the Journal of Decisions Systems https://doi.org/10.1080/12460125.2021.1908934

This paper is focused on identifying the key attributes as outlined in literature of Digital Transformation Leadership (DTL) and what is needed when intending to

implement a digital transformation initiative and looks to address a shortfall that exists what is required to lead a digital transformation initiative so as to inform theory and practice. The research involves taking a comprehensive review of Information Systems literature, identifying research papers coded, as part of content analysis, resulting in the identification of excerpts capturing the 'who' and 'what' of DTL. It analysis and subsequently identifies a number of digital transformation leadership characteristics using an open coding process, whereby excerpts were extracted into emergent concepts were then further grouped into categories, thereby creating eight DTL characteristics. We also discuss an initial mapping of the DTL characteristics to c-suite roles and present a taxonomy emerging from the literature analysis. The research is of interest to both academics and practitioners, as it identifies research gaps and practical concerns on which ongoing and future research efforts can be focused.

1.3.5 Paper 4: The Characteristics of Digital Transformation Leadership: Theorising the Practitioner Voice

Title: The Characteristics of Digital Transformation Leadership: Theorising the Practitioner Voice. This paper has been accepted by Business Horizons.

This paper is focused on how Digital Transformation (DT) effects an organisation and what is required of digital transformation leadership when looking to implement a digital transformation initiative. It looks to address a shortfall that exists in trying to identify what is required for practitioners who are tasked with leading a digital transformation initiative. This paper presents a number of digital transformation leadership (DTL) characteristics to assist practitioners in implementing a digital transformation programme. The paper reflects the results that have emerged from an analysis of empirical data from data gathering of interviews with digital transformation leaders (sixteen key informants across four types of practitioner voices – e.g. IT Strategic, Business Strategic, IT Operational, Business Operational). These characteristics link "what" action a DT leader needs to take and "how" they enable that action, when they are striving for the best possible DT initiative outcome. Our approach strengthens the relevance for practitioners, where sixteen practitioner voices are central to the theorising output. Finally, prefacing each DTL characteristic with

"Are We…", affords DT leaders with the opportunity to start new conversations and build a shared understanding amongst key organisational stakeholders around the realities of their DT initiative. This checklist use case can serve as both a pre-commencement readiness check, or an in-progress reflective aid for practitioners.

1.4 Digital Transformation & Digital Transformation Leadership

1.4.1 Digital Transformation

Digital Transformation has received much attention in both the academic and practitioner communities over the past decade, especially in the past few years where the COVID-19 pandemic has accelerated its interest. One can ask why organisations want to digitally transform? It could say that its 'cool to go digital' in your organisation, but determining the 'why', it's unlikely that 'being cool or being fashionable, would be the only reason and instead it's likely that once the 'why' is understood the focus quickly moves to the 'what', i.e. What does Digital Transformation mean for your business.? There is no doubt that Digital Transformation (DT) is now something that captures, captivates but also creates concern amongst the leadership in most organisations as they are the ones tasked with its planning, implementation, and management. Despite the growing interest in Digital Transformation (DT), IS scholars and practitioners still *"struggle to grasp what* [DT] *really is*", (Wessel et al., 2021 p.102). In fact, (Tabrizi et al., 2019 p.1).

So, what of Digital Transformation (DT) as a concept, what is involved with an organisation who are focused on digitally transforming? How can that organisation make that transformation a success? We can be ascertained from literature, is that an all-encompassing definition of (DT) in either academia or trade press literature is almost impossible to find. What we can say is that evidence exists however what can be ascertained is that (DT) can be understood as altering the *people, process, technology and data* components of an organisation (Muehlburger et al., 2019, Matt et al., 2015).

The impact on an organisation when implementing a DT programme requires significant changes across multiple areas. These can involve organisational structure, enterprise architecture redesign, redefinition of business model, seismic changes in the

technology estate with emergent and emerging technologies being incorporated, and finally the use of data to serve existing customers more efficiently and to reach new customers more effectively (Haffke et al., 2017, El Sawy et al., 2016). To date, empirical studies in DT are focusing on specific areas, such as: *digital strategy* (c.f. (Matt et al., 2015, Bharadwaj et al., 2013) *effects on organisational structures* (c.f. (Sia et al., 2016, Maedche, 2016, Tumbas et al., 2015), *digitizing business processes* (c.f. (Baiyere et al., 2020, Markus and Loebbecke, 2013, Carlo et al., 2012), *designing digital platforms* (c.f. (Henningsson et al., 2021, Sandberg et al., 2020, Singh and Hess, 2017, Granados and Gupta, 2013), *effects on organisational culture* (c.f. Dremel et al., 2017, (Karimi and Walter, 2015) and *generating value* (c.f. (Svahn et al., 2017, Horlacher and Hess, 2016, Matt et al., 2015). Therefore, what we can say on good authority is that DT conveys an organisational message of acceptance of a need to find new ways to change and innovate using technologies. In fact, "*digital transformation is a company-wide phenomenon with broad organisational implications in which, most notably, the core business model of the firm is subject to change, by means of digital technology*" (Verhoef et al., 2021, p.891).

1.4.2 Digital Transformation Leadership

Whilst Digital Transformation (DT) has received much coverage in literature and practitioner outlets, the same can't be said of the role leadership plays in Digital Transformation. Where studies have been undertaken Digital Transformation Leadership (DTL) is focused on *"doing the right things for the strategic success of digitalization for the enterprise and its business ecosystem"* (El Sawy 2016, p.142). The role of a digital transformation leader has appeared in new and existing leadership formats (Haffke et al., 2016; Horlacher et al., 2016), an extension of the CIO role and including the creation of a specialist Chief Digital Officer (CDO) position (Horlacher et al 2016; Singh and Hess, 2017). In fact classifications of the type of Digital Leaders that organisations might employ in this leading role have mentioned this CDO role (c.f. Haffke 2016, Singh & Hess 2015). However it must be acknowledged that this particular position is still in its infancy and not widely available (Wade & Shan, 2020; Barthel et al., 2020; Wade et al., 2017) therefore it is left to existing c-suite roles, like

the CIO, CEO and CTO etc to lead the digitalisation in organisations. This isn't an ideal situation for these strategic leaders and because of this many executive leadership teams see the emergence of the CDO as allowing these organisations, the opportunity to appoint a ' digital transformation specialist' to take charge of digitally transforming the business (Haffke 2017). This would to elevate the need for a digital agenda and have it aligned with the strategic objectives of the organisation to have a mindset change that highlights the importance of the role of people and not just technology, "*put simply digital transformation needs transformational leaders"* (Ure 2018 p.1).

All organisations strive for improvement, to change for the better, to get to a stage whereby they incorporate change that allows them to evolve to a different level in their industry. When considering the transformative nature of digitalization on processes, technology, data and people, the role of leadership affects and influences the pace at which an organisation is able to transform. Every organisation wants to be successful when it comes to implementing something new, therefore we can say that Digital Transformation Leadership (DTL) maturity is synonymous with being *"Digital Masters"* (c.f. Westerman et al., 2011). Where *Digital Masters* excel in two critical dimensions: *"the what of technology (which we call digital capabilities) and the how of leading change (which we call leadership capabilities)"* (Westerman, 2012 p.13). In fact, taken together, these two capabilities enable organisations to *"transform digital technology into business advantage"* (Bonnet & Westerman, 2021 p.1). Therefore, irrespective of who leads on a DT initiative, as regards their role or title, it is more important to appreciate the DTL that is required to drive DT in organisations. Despite the growing volume of academic research, it is still hard to find comprehensive coverage of the underlying practices of DTL (even in the trade press) that are linked to *"what"* action a DT leader needs to take and *"how"* they enable that action, where they are striving for the best possible DT initiative outcome. This takes on a "must know" significance for the IS field when we consider that DT is a complex and multidimensional phenomenon (c.f. Porfírio et al., 2021; Tabrizi et al., 2019), and the DT process *"is not well understood"* within an IS context (Carroll, 2020 p.1). For many organisations, DT begins with trying to identify the 'what' and 'how'; in other words being able to understand what is required and consequently how to implement those requirements (Ure 2018). As suggested by McCarthy et al (2021, p.28) *"the leadership required to lead a* [DT] *programme is perhaps greater than is anticipated,*

simply because, in many cases, the volume of changes within the business is unprecedented".

1.5 Motivation Behind the Study Methodology

1.5.1 Grounded Theory Approach

Grounded Theory Methodology (GTM) is a qualitative methodological approach developed by Glaser and Strauss (1967), its described as an innovative approach to taking on qualitative research, whereby a Grounded Theory Methodology is defined as '*one that is inductively derived from the study of the phenomenon it represents*' (Strauss & Corbin, 1990, p.23). Grounded Theory Methodology (GTM) is built upon two key important concepts: *"constant comparison"*, in which data are collected and analysed simultaneously, and *"theoretical sampling"*, in which decisions about which data should be collected next are determined by the theory that is being constructed (Glaser & Strauss, 1967). It has become a theoretical approach that has been adopted in areas such as design science research and also where researchers are concentrated on providing contributions to both theory and practice in their qualitative research studies.

Grounded Theory Methodology (GTM) is focused on developing and incorporating inductive theory to provide a basis to build theory, where it is known to be grounded in empirical observations or in the data gathered in a qualitative research study (c.f. Yetton et al., 2017; Dunne, 2011., Martin & Turner, 1986, p. 141). This incorporates an approach concentrated on probing and uncovering new understandings about patterned relationships between social actors and how these relationships and interactions actively construct reality (Glaser & Strauss, 1967). Grounded Theory Methodology (GTM) is very effective for research where the focus is to *"develop theory from data"* (Glaser & Strauss, 1967p.1), in otherwards, to build from the ground up using critical insights that have been unearthed through a process of systematically gathering and analysing data (Suddaby et al., 2006 p.636). This

building theory approach involves generating *'theory from data'*, as leading to the *'discovery'* of Grounded Theory and also the dynamic interplay of data *'collection and analysis'* (Glaser & Strauss, 1967; Dunne, 2011; and Payne, 2007, p. 68). A Grounded Theory Methodology is an organic process for constructing theory, with a focus on how data best fits 'conceptual categories' as observed by the researcher and through a process of systematic data collection which provides the base to develop theories (Glaser and Strauss, 1967). Furthermore, its success is influenced by how well the categories explain or predict ongoing interpretations, and by how relevant the categories are to the core issues being observed (Glaser and Strauss, 1967).

When it comes to building out a grounded theory approach there are key stages in the process itself. It's important, from a researcher's strategy and their intention to operationalise a Grounded Theory Methodology (GMT), that they have decided on how and what they will use to collect their data (data gathering approach) and also how and what they will use to extract the insights from their data (data analysis approach) so that they can build out the theoretical constructs and provide the foundations for a grounded theory contribution. When undertaking a data gathering approach in GTM the researcher can have previous knowledge of the area (including the research already published in the literature), as the grounded approach is not based on the researcher being without knowledge or experience in the area (Yetton, 2017).

The first step in operationalising a GTM is to identify and develop a suitable and comprehensive data gathering approach so as to gather the necessary data required to satisfy the construction of a grounded theory contribution. Such a suitable approach involves using a data gathering approach (e.g., open semi-structured interviews with key informants) to extract the knowledge, critical insights, and breadth of experiences from a sample selection of an appropriate population (e.g. the Gioia Methodology). Following a recognised Grounded Theory approach like Gioia, the most effective way of capturing the informant's voice is through direct quotation of these 'key informants' and illustrating these key insights throughout the reporting of findings. Tin this way you are using a *"systematic inductive approach to concept development"* (Gioia et al., 2012, p.17) which is inclusive of the assumption that *"the organisational world is socially constructed"* (Gioia et al., 2012, p.17), which therefore, allows us to extract

and conceptualise the key informant (practitioner) voice and not *"substitute practitioners' understandings for theory"* (Markus and Rowe, 2021, p.273).

The second step in operationalising a GTM is to code the data gathered (using the semi-structured interviews) in order to examine and extract the insights in a comprehensive fashion. This involves using a three-level coding approach, very widely used in qualitative research studies, called Open, Axial and Selective (OAS) coding (Glaser, 1978; Strauss and Corbin, 1998). Using this type of coding approach allows the researcher to concentrate on concept development whereby the intention is to use the process of line-by-line coding of all data, thereby extracting excerpts from the key informant interviews and formulating those excerpts into concepts and those concepts into categories. By undertaking this approach researchers can maintain *"the integrity of 1st order (informant-centric) terms"* during initial data coding, and further *"organise 1st-order codes into 2nd-order (theory-centric) themes"* (Gioia et al., 2012, p.26). Incorporating this open coding process enables researchers to follow on by using 'axial coding' (Smolander et al. 2008) and therefore allowing the researcher to present the properties of the categories and to develop a deeper knowledge of all categories. The final step in the coding process is to apply a 'selective coding' process whereby researchers provide examples and explain the reasons for conducting certain steps in abstraction (Lee, 2001) as they identify relationships between categories that are associated with a core category.

The next two sections concentrate on the use of the Gioia methodology as a grounded theory approach (key informant) and Marshall 1996 & Tremblay 1957, approach to data gathering using the 'key informant' technique.

1.5.2 Gioia Methodology

Deciding on the most appropriate research study methodology is a considerable challenge when conducting a research study. Choosing whether to incorporate a quantitative approach or that of a qualitative methodology for a research study is difficult. While both are worthy approaches it comes down to a matter of choice as to which type to adopt depending on the subject of the research in question. Leaving aside choosing a quantitative research approach and the merits of it, choosing a qualitative research approach is best suited to certain types of research studies whereby the researcher wishes to unearth the personal experiences of individuals and present those findings to a practitioner-based audience.

Extracting the personal stories and opinions using a qualitative methodology *allows the reader gets up close and personal with the ideas, the people, and the events that stimulated the researcher's curiosity and see how the researcher captures the informants' experiences* (Bansal & Corley, 2011). There are choices available when it comes to using a qualitative methodology in a research study. One such approach is the case study methodology (Eisenhardt, 1989) where the focus is on abstracting the views and stories from experienced individuals from within a single organisation depth so as to extract key insights from their experience, which shows a degree of depth. While the case study methodology is widely used and has its advantages it doesn't always fit the type of qualitative research study that is to be undertaken. For example, the case study methodology isn't necessarily the most effective approach when you want to look for critical insights gained by key experts beyond an individual organisation. individual cases have been viewed as idiosyncratic and, as having few implications generalisable beyond the specific case studied about its legitimacy and credibility and have also been viewed as less rigorous and more "impressionistic" whereby it's seen that "*you cannot generalize from a sample of one!"* (Gioia, 2021, p22). The limitations of the case study approach are very apparent especially for research studies whose focus is on acquiring a breadth of knowledge that can only come from experts, having had multiple experiences (industry or sector wide). These key experts have personal stories, critical insights and specific knowledge to impart to researchers and fellow practitioners So, when you wish to go beyond a single case study approach, to unearth a greater breadth of information, you need to find an

alternative approach in qualitative research that will provide such an opportunity, where the study goes beyond a single organisation and involves highlighting the role of the critical expert, based on the breadth of experience that they have attained over time, such is the Gioia Methodology. Choosing the Gioia Methodology, the focus of the researcher is to find a means of highlighting or illustrating the voice of the 'key expert'. These being individuals with the necessary understanding, experience, and knowledge of an area that allows them to be elevated to an exalted state of, 'one who should be listened to and followed', if success in delivering a specific initiative is to be achieved. Honouring the Gioia approach as researchers means that, '*we should not presumptively impose our understanding on their understanding (and we do that every time we invoke prior theory as a starting point for understanding informant experience".* (Gioia, 2021, p.22). But instead offers the researcher a pathway to follow to delve deep into the minds of these practitioners, extracting a thought process, a depth of knowledge, an instinct as to what works and what doesn't work, and in doing so translates these insights into key findings through a combination of data collection and data analysis.

When using Gioia the selection process of choosing the key expert (key informant) is critical. The researcher(s) must be convinced that when making the choice that they have the necessary levels of expertise required to be interviewed, based on their previous experience(s), gained intrinsically by working on single or multiple initiatives, so they have the requisite level of understanding, interpretation and presentation of that knowledge and wisdom accrued from the experience of working on these initiatives. In adopting Gioia as a methodology, not only does it provide a suitable data gathering and data analysis structured approach but also provides the researcher with a means to execute a grounded theory approach. Here the researcher outlines the Gioia methodology in a number of steps from the initial stage of describing the criteria for a key expert, to identifying these knowledgeable key informants, conducting appropriate data collection with key informants along with a thorough data analysis of the insights unearthed, to building out a data structure to illustrate 1st and 2nd order themes and dimensions and to finally generating a Grounded Theory, by positioning the emerging concepts and categories into a comprehendible narrative.

1.5.3 Operationalising the Gioia Methodology

In pursuing the Gioia Methodology in this research study, the researcher examined a sample of the published papers on operationalising Gioia (c.f. Gioia et al., 2012; Gioia et al., 2021). This afforded the researcher the opportunity to identify the individual steps that need to be followed when adopting this methodology. Therefore, where the focus of this research study is to unearth the defining characteristics of Digital Transformation Leadership (DTL) through understanding "doing Digital Transformation" (DT) from a leadership perspective in a pre-digital organisation. Using Gioia we therefore undertook a selection process of identifying the 'most suitable subjects' to engage with, those who would fit the profile of being 'key experts' based on having the necessary extensive knowledge in Digital Transformation implementations across single and multiple organisations that were either local or globally based. These 'key experts' had held multiple roles as Digital Transformation leaders (affording them an extensive portfolio of skills, competencies, and experience in Digital Transformation implementation at functional and at organisational levels). Their understanding of what it would require a leader to have 'in their locker' to lead a Digital Transformation set them apart from others, as being the cohort of practitioners required for the data gathering process. Keeping in mind that for this research the researcher was cognisant of raising the importance of the voice of the practitioner to gain the necessary insights required so as to inform both theory and practice, "*people at work are knowledgeable, they know not only what they are doing, how they are doing it and why they are doing it, but they can tell us researchers all these things in clear terms*" (Gioia, 2021, p.20).

The researcher ascertained that these 'key experts' would be the type of individuals or practitioners who would be in the know, have the required level of wisdom to advise someone in practice who would be tasked with trying to lead out a successful Digital Transformation initiative across an organisation. The researcher wanted to engage with them, highlight their inner voice, extract the experience and insights that had been accumulated from time spent, what they had successfully achieved, having previously held such a position(s) whereby they had to execute a Digital Transformation implementation. The modelling of the 'key experts' experience afforded the researcher the opportunity to identify the key traits that define them as experts in their field and

bring those key insights into the foreground. By highlighting these key expert voices, the researcher could create a structure to council or advise fellow practitioners in Digital Transformation leadership roles who are tasked with a similar undertaking to that of the key experts the researcher had engaged with.

Having completed the identification and modelling phase of operationalising the Gioia methodology for the research study, the researcher compiled a list of key experts (key informants) that had satisfied the criteria outlined for the subjects which would make them suitable for interview. The researcher proceeded to follow the Gioia Methodology by firstly identifying an approach for data gathering which would give the best insights into how to implement Digital Transformation from a leadership perspective and what to consider as critical when leading out on a Digital Transformation programme. The method chosen was the 'key informant' technique (Marshall, 1996 and Tremblay, 1957) which would allow the researcher to identify and select the best individuals to engage with and who in turn would provide, through their knowledge and experience, key insights into Digital Transformation Leadership and leading Digital Transformation implementations. As part of the data gathering process, the researcher selected sixteen key informants based on their organisational perspective (Business or IT) and role (Strategic or Operational). All of the experts (key informants) satisfied the criteria outlined as part of the selection process, whereby they were and had been Digital Transformation leaders within their respective organisations (both present and past) and furthermore, their voices reflected those of their industry peers, illustrating the breadth of experience required for the research study (as is outlined by Gioia). Therefore the researcher conducted a series of open semi-structured interviews (four per practitioner voice type), where each key informant reveals their experiences (positive and negative). These took place over sixteen months (between November 2018 and February 2020) and ranged in duration from 35 to 75 minutes with an average interview duration of 60 minutes. The researcher constructed a set of core questions that focused on Digital Transformation implementation and how to lead a Digital Transformation programme from a leadership perspective. The focus of this data gathering was to get the key experts to delve deep into their own personal experiences with Digital Transformation programmes, in their respective leadership roles. The researcher asked them to speak and highlight what they believed was important for Digital Transformation leaders to

be aware of when leading a Digital Transformation initiative and how best to 'do' Digital Transformation (from a leaders' perspective). During the data gathering process (following the Gioia Methodology), the researcher deliberately did not impose their understanding of what they believed would be or should be the key insights, concepts, attributes, or criteria to be used. The researcher instead saw their role as researchers and interviewers (as that of a 'storyteller') and not that of a Digital Transformation Leadership expert, the researcher left that to the key experts. The researchers compiled a list of thought-provoking questions to challenge the research key experts, allowing the researchers to showcase them as guru's and encompassing highly respected sources ('knowledgeable agents') in the researcher's data gathering. The researchers' intention was to carry this onto the researcher's data analysis phase. The researcher focused on carefully listening and understanding and interpreting what was being said, conducting a thorough data collection of the details of the conversation by using a recording device, taking notes, and identifying some follow up questions to gain as much of an insight into the mind of the interviewee. The researcher's knowledge of digital transformation and the role of digital transformation leadership increased with every key expert that the researcher interviewed as did the data gathering approach, whereby the researchers were able to exhaust all areas of digital transformation implementation that a leader or leadership need to be concerned with and would be required to incorporate. Therefore, *the acceptance is that when you talk to them and treat them as knowledgeable, you find that they can render an informative account of their experience in terms that are meaningful to them*. (Gioia, 202, p.22). Once completed the researchers were prepared to undertake a transcription of the dialog including editing of the transcript so as to avoid any misinterpretations when it came to conducting the data analysis in the research.

After following Gioia's methodology in collecting the data for the research, through audio recorded semi-structured interviews of the key experts chosen. The researcher proceeded to analyse and process the information conveyed by the 'key expert' (key informant) voices so as to make an accurate interpretation of the facts. The researcher completed this by a thorough analysis of the interview transcripts, conducting a line-by-line examination of the dialogue of each transcript. The researcher also took on board some advice regarding how to approach data analysis in qualitative research, where the focus was on "sense making" (Bhattacherjee et al., 2012). Following the

Gioia methodology and his recommendations the researcher chose to use a coding process to our interview transcripts. Why, because coding, "*allows the researcher to communicate and connect with the data to facilitate the comprehension of the emerging phenomena and to generate theory grounded in the data*" (Basit, 2003).

The implementation of coding in the data analysis came in three levels, *open*, *axial* and *selective* (OAS). This allowed the separation from the interview transcripts the excerpts from the key informants which focused on specific themes and aspects in digital transformation. The initial use of coding was '*open coding'*, a very effective technique often applied in analysing qualitative data in order to build theory (Buchwald et al., 2014; Tallon et al., 2013). An example of this was outlined (Table 1-2 Sample Coding for Digital Strategy (Category)) where the researcher created the concept of 'create and communicate the digital strategy' from analysing the excerpts from our four practitioner voices who all identify digital strategy and how it is devised and explained throughout the organisation as being important for digital transformation to know. The researcher continued to operationalise the Gioia methodology as the researcher examined the interview transcripts *to look for explanatory concepts and themes that might provide deeper insight into the informants' experience* (Gioia, 2021 p.6). Conducting our 'open coding' initially allowed us to unearth from the transcripts, excerpts from the conversations with our key informants that informed us on areas or aspects associated with undertaking a digital transformation, such as (digital) strategy, (digital) technologies and (digital) culture and how they influence an organisation looking to digitally transform.

Moving on from the inductive 'open coding' approach, which facilitated the emergence of concepts from coded excerpts of the interview transcripts and having unearthed the following concepts 'create and communicate the digital strategy' and 'underpin the strategy with digital capabilities' from the excerpts in the transcripts the researcher began seeing the emergence of categories i.e Digital Strategy. Following on using the Gioia approach, the purpose was to "*distill the categories*" (Gioia, 2012 p.24) and make them more manageable for the research study. Continuing the coding process and following Gioia we began using '*axial coding'* (Corbin and Strauss, 1990) along with '*open coding'* which allowed us to reduce the categories down to more meaningful categories. This process involved examining what the key experts (key

informants) had expressed in the interview transcripts, and trying to make sense of their responses, disseminating the information also identifying where the categories that were found had similarities and but also were quite different. As mentioned the focus is to *give germane categories memorable labels or descriptors* (Gioia 2012, p.25). It was a consolidation stage in our data analysis as we now had managed to evolve our analysis of the process of taking excerpts, making concepts, identifying similarities and also differences, creating categories from the concepts and building out a reduction of categories. As the researcher looked to progress the coding and data analyses further we now contemplate thinking systematically about the data in order to relate them, the categories are refined in order to be linked in the form of relationships (Alhassan et al., 2019).

The final level of coding used in this research was that of '*selective coding'* where the researchers start to formulate relationships based on a potential core category (Tan et al., 2015). Our purpose in *'selective coding'* is being able to concentrate analysing the core categories and related categories that accrued in the '*axial coding*' process of our coding. This involves comparing the core categories with the raw data by telling the story of the core categories that emerge (Corbin and Strauss, 1990). We illustrate in (Table 1-4) the relationships between core categories such as *Digital Strategy* and *Culture Change* and how they be highlighted as a single relationship a *Clearly Communicated Message to ensure Buy-in*, meaning that unless those involved can identify with and understand the strategy and recognise the need for a deviation away from the existing culture then the required change in the organisation will not happen and therefore putting in jeopardy the entire digital transformation initiative for digital leadership.

GIOIA Research Methodology Steps	Operationalising GIOIA in This Research Study
Outline and model the selection criteria for finding the Key Informants to engage with in the research.	• DTL experience in strategic and operational roles • Global and/or Local organisations • Business/Technology functions
Gather Data from chosen key informants (key experts) using open semi-structured Interviews	• Open semi-structured questions • Core questions on DT & DTL • Audio recording of interview • Transcribe and edit the conversations
Conduct Data Analysis of the key informant insights using an Open Coding approach that will enable the creation of a data structure.	• Analyse interview transcripts using line-by-line coding approach • Extract key excerpts from transcripts using an open coding approach • Identify concepts from open coding excerpts extracted from transcripts
Create a data structure to connect 1st order (informant centric) & 2nd order (theory centric) analyses from the open and axial coding process.	Created a data structure for the following. • (350 Excerpts, 95 Concepts and 14 Categories) for doing Digital Transformation (DT) • (558 Excerpts, 165 Concepts and 10 Categories) for Digital Transformation Leadership (DTL)
Report Findings by giving voice to informants so as to illustrate data-to-theory connections	• Uncovered the connection for (Excerpt to Concept to Category to Relationship) thereby creating CSFs of doing (DT)
Illustrate first-order (informant-centric) and a second order (theory-centric) analyses for data structure and a dynamic grounded model.	Illustrate the following. • A Conceptual Model – The CSFs for "doing" (Digital Transformation) • A Conceptual Model – The Silhouette for Digital Transformation Leadership (DTL)

Table 1-2: Operationalising the Gioia Methodology

Voice	Key Informant Excerpt	Concept
BS	*the vision of the company should come from top down, as in where they want to go. What's the objective of doing all of this? What's the holy grail of the new business model going to look like*	create and communicate the digital strategy
ITS	*start with the aligning of the business strategy then see how digital becomes a key enabler for it*	
BO	*organisations need to understand how the strategy gets down to them and how they fit into the strategy*	
ITO	*to understand the strategy as to what they want to transform and how they feel transforming helps everybody and grows the company*	
BS	*you have a vision of what your future digital capabilities are going to be like as is outlined in your digital strategy*	underpin the strategy with digital capabilities
ITS	*you've got to underpin the digital capabilities that will make that happen, that's obviously a function that the business must carry*	
BO	*an understanding of what you need in place to implement your digital strategy requires the support from those in operations so that it will be successful*	
ITO	*an acknowledgement of what they want to transform and how they feel transforming grows the company by using digital capabilities*	

Table: 1-3 Sample Coding for the Digital Strategy Category

KI	Key Informant Coded Excerpt	Concept	Category	Relationship
BS	*you have a vision of what your future digital capabilities are going to be like as is outlined in your digital strategy*	underpin the strategy with digital capabilities	Digital Strategy	*A Clearly Communicated Message (the Purpose of the Strategy) to Ensure Buy-In* **(CSF#1)**
ITS	*you've got to underpin the digital capabilities that will make that happen, that's obviously a function that the business must carry*			
BO	*an understanding of what you need in place to implement your digital strategy requires the support from those in operations so that it will be successful*			
ITO	*an acknowledgement of what they want to transform and how they feel transforming grows the company by using digital capabilities*			
BS	*it thrives on support from the top of the company to create the vision and the mission of its digital future*	acquire top level sponsorship for cultural change	Culture Change	
ITS	*digital transformation needs executive level sponsorship for it to be successful to get through to the ranks of the organization*			
BO	*you need to empower people to be bold, I think that's key as well, we're all afraid of transformation and ultimately everybody's afraid of change*			
ITO	*So I think it has to be a partnership, where it works, really well is where we have leadership from IT and leadership from the business coming together to set-out how the transformation will be implemented*			

Business Strategic (BS), *IT Strategic* (ITS), *Business Operational* (BO), *IT Operational* (ITO)

Table 1-4 Sample Coding of the Relationship between the Categories for CSF#1

1.5.4 Key Informant Technique

In the previous section the researcher introduced Gioia as the methodology that was chosen for this a qualitative research study. Continuing with the Gioia philosophy, the data gathering method proposed involves highlighting the role of the 'key expert', a source of knowledge, someone with vast experience, worked extensively in a particular area, and can tell the whole the story positives and negatives of their involvement in a single or multiple situations. These key experts are labelled as key informants. *A key informant is an expert source of information* (Marshall 1996 p.92), they are *"natural observers"* (Tremblay, 1957) who "*as a result of their personal skills, or position within a society, are able to provide more information and a deeper insight into what is going on around them"* (Marshall, 1996, p.92). What makes their views significantly important is that *they are interested in the behaviour of those around them, they observe the development of their culture and often speculate, or make inferences about both* (Marshall, 1996, p.92). To outline the persona of the key informant, it can be summed up by description, an extremely valuable resource for organisations and their opinions are held in the highest of esteem*, all key informants are regarded as extraordinary by those around them and usually, but not invariably, occupy a position of responsibility and influence* (Marshall 1996, p.92). Therefore, the researcher saw the suitability of using the key informant technique (Marshall, 1996; Tremblay, 1957) as strong data gathering approach for this qualitative research study on digital transformation leadership and leading digital transformations.

When it comes to the selection process of the key informants there were certain characteristics that researcher needed to be familiar with so as to be able to determine who fitted the role of a key informant, what are the requirements that need to be satisfied for us as researchers to incorporate them into our research as we look to unearth what are the key aspects of implementing digital transformation from a digital transformation leaderships perspective. On examination of the literature (Marshall, 1996) the selection process involved identification, profiling, and ultimately selecting individuals based on what makes them unique to engage with so as to ensure that when applying the key informant technique, the researcher will adhere to the process outlined, so the key informant's eligibility is completely dependent on satisfying the

this set of characteristics as outlined by (Marshall, 1996 p.92). Examining this set of criteria, only the informant's role in the community can be determined with certainty in advance. Once individuals who perform key roles are detected, the other four criteria should be considered in order to ensure that only the most productive informants are interviewed. The extent to which each of the criteria are met is likely to determine the usefulness of the information gained by the interviewer. The characteristics are outlined in (Table 1-3). At this stage it is important to know that like all methodologies and research approaches there are upsides as well as downsides. While the key informant technique presents the researcher with a very effective method of identifying very suitable candidates for gathering and analysing data enabling a researcher to present findings to assist practitioners and researchers alike. It is important that the researcher understands clearly the *key informant technique* has its advantages and disadvantages as a qualitative research approach. The advantages of the key informant technique include that *it excels at how high quality data can be relate to the quality of data that can be obtained in a relatively short period of time* (Marshall 1996, p.92). Furthermore it is able to *get that level of key insights from in-depth interviews with other members of a community can be prohibitively time-consuming and expensive* (Marshall 1996 p.92). In our adoption of the key informant technique and all the advantages that brings, the researcher however needs to be mindful of potential risks at its application, when the "*identification of key informants may be in error because some societies may attract people who wish to improve their status but do not have the necessary skills of a true key informant" (Marshall 1996, p.92).*

1.5.5 Operationalising the Key Informant Technique

In focusing on the operationalising of the key informant technique, as the selected data gathering approach in this qualitative research study, the challenge centred on being able to outline a comprehensive set of selection criteria to be able to identify suitable key informants. The research required the type of individual who would give the best and the deepest insights for practice and theory and allow the researchers to highlight those key insights in the outcomes of the research. It was imperative that the process as outlined in literature (Marshall, 1996) was followed completely so that all the key informant technique characteristics were adhered to (see Table 1-3).

The selection criteria chosen for the research required the selected key informants to be practitioners, who had held at least one but in many cases multiple roles in organisations who implemented digital transformation programmes, i.e. digital transformation leaders (DTL). The data gathering approach involved selecting sixteen of these key informants based on their organisational perspective (Business or IT) and role (Strategic or Operational). We wanted people who had 15+ years of industry experience in the area of Business and IT Transformation who had in depth experience of working in many roles in either single or multiple organisations and who would have the knowledge, expertise and familiarity of how organisations operate, transition and develop. The research study required a good representation of all practitioner types with multiple 'key informants' chosen representing four types of practitioner voices (e.g. *IT Strategic*, *Business Strategic*, *IT Operational, Business Operational*). This range of criteria allows us to *"capture the consonance (or dissonance) between plans* [strategic] *and their implementation* [operational]*"* (Day et al., 2009, p.641). The focus of the research study here was to obtain a holistic view of what happens when you implement digital transformation as a leader in an organisation with both business and technology functions but also at strategic and operational levels. Other criteria included working in digital transformation leadership roles in different organisations globally or locally, whether those roles were in single or multiple organisations. Further criteria were the following, whether they were in the public or private sectors or both in different sectors, the types of industries and organisation types and sizes (see Table 3-1). The research study was also interested in examining the significance of the role leadership in a digital transformation implementation, the researcher was

not only focused on those in technology based positions but were also focused in the business functions also, *"leadership has also a critical role in engaging information system leaders and business leaders"* (Porfírio et al., 2021) because the *"impact of digital transformation (DT)"* on the *"business"* is *"technology-enabled"* (p.616). The research study continued to embrace the key informant approach as outlined in the literature (Marshall, 1996) who advocates the use of open semi-structured interviews as a very effective data gathering technique for collecting rich and detailed data from industry experts (Koh and Tan, 2011) and are a typical data gathering technique with the key informant approach (c.f Whittaker, 2012; Barker et al., 2005).

As part of the data gathering process the researcher undertook a series of open semi-structured interviews (four per practitioner voice type), where each of key informants interviewed were able to relate to us their experiences of doing digital transformation (see Table 3-1 for a list of the interviewees and their respective backgrounds). The timeframe and length of interviews took place over a sixteen month period (between November 2018 and February 2020) and ranged in duration from 35 to 75 minutes with an average interview duration of 60 minutes. To assist in the accuracy of the data analysis which would come later, all interviews were audio recorded and subsequently transcribed verbatim to give the researcher a full understanding of what the key informants had discussed and the points they wanted to raise. The researcher also took detailed notes to help with the transcription and with the coding during the data analysis, which was conducted as soon as the interview had finished. In preparation for the interviews the researcher set out a strategy, which was to have a core group of questions that were put to the key informants covering the topics of digital transformation (DT) and digital transformation leadership (DTL). This involved asking them about aspects, influences and areas that they believed were important for consideration when looking to implement a digital transformation initiative. The key informant had the flexibility to elaborate on aspects of digital transformation that they believed were important and also areas that leadership should be focused on when deploying a digital transformation programme. The researcher followed the process by applying some latitude to each key informant so as to cover completely the topic under analysis which allows the researcher to selectively sample specialised knowledge of the characteristics (c.f. Tremblay, 1957 p.9). The researcher built on

these core group of questions for subsequent interviews based on the issues that the key informants raised at the initial data gathering stage, what they saw as important to consider during digital transformation implementation. For example, when asked about the importance of Digital Strategy as part of the digital transformation, some of our key informants discussed the need for a digital vision that could be communicated and translated to all stakeholders so that it was understood and where acceptance of it could be achieved. The researcher took this feedback on board so that for the next interview in the research study, the next key informant could be asked about 'how best to deliver a digital strategy to stakeholders' across the organisation and what would be needed from those stakeholders. The researcher was able to begin subsequent interviews by identifying issues raised by other informants and used terms generated by informants to frame questions (Corley & Gioia, 2011) so as to increase the depth and breadth of the key insights that were coming from our key informants with every interview completed. The objective therefore was to collect as much information from the key informants, get them to reveal their deep insights on digital transformation topics, reflect on their experiences of undertaking such a difficult initiative and with a focus on unearthing key aspects, characteristics needed, critical success factors around digital transformation implementation and furthermore leading a digital transformation initiative. With this in mind the researcher would put themselves in a stronger position to begin conducting our data analysis of the transcripts and to begin disseminating and deconstructing the information from the key informants interviewed. This reflects the strength of the key informant technique as a data gathering approach to our qualitative research study, an approach that allows us to extract key insights from the breadth of critical experts who have the necessary experience, knowledge, instinct to convey to practice and theory alike what it takes to lead the delivery of a digital transformation initiative.

The key informant technique is outlined in (Table 1-5), which includes its key characteristics (Marshall, 1996; Tremblay 1957) and also how it was operationalised in this research study on Digital Transformation Leadership (DTL).

Key Informant Technique Characteristics (Marshall 1996, Tremblay 1957)	Operationalising the Key Informant Technique
Role	their function as a digital transformation leader, the approach they take in transformation and the priorities they see as being catered for.
Knowledge	the information, insights and key aspects on digital transformation leadership that are required for those in practice but also can be conveyed in theory
Willingness	engage fully in the interview process and subsequent follow up, be forthcoming with answers and helpful in conveying the message around leading digital transformation programmes, what it takes, how to do it when and where to begin.
Communicability	translate the key aspects of digital transformation and digital transformation leadership clearly, so it's understandable and can be relayed by the researcher.
Impartiality	be agnostic and take the industry or sector view rather than their own company on why digital transformation benefits all, what needs to change to make it happen and how best to go about achieving digital transformation from a leadership perspective.

Table 1-5 Key Informant Technique Characteristics

1.6 Classification of Digital Transformation (DT) Leaders

When it comes to the implementation of a Digital Transformation (DT) programme, it is apparent that that changes need to *"occur at various levels within the organisation"* in order to *"achieve a successful DT outcome"*, and one such change is *"adjustments in leadership"* (Nadkarni & Prügl, 2021). To advance this research and to identify the characteristics of DTL this research study follows the example of a well-respected model of DTL, proposed by Haffke (c.f. Haffke et al., 2016). In particular, (Haffke et al 2016) developed a DTL model based on the role of the Chief Digital Officer (CDO). Their analysis is based on the idea that the CDO falls into one of the following categories: *Digital Innovator*, *Digital Evangelist*, *Digitization Coordinator*, and *Digital Advocate*. These four categories of DT leader highlight the primary area of focus for each type, which are outlined in the descriptors for each leader type as seen below;

1.6.1 Haffke's DT Model (Leader Types)

Digital Innovator

Digital Innovators *"act as a catalyst for digital innovation, leading the company's digital workbench, as a hub for experimentation and prototyping of digital innovations"* (Haffke et al., 2016 p.9). These DT leaders focus on designing a digital business strategy to enable digital services, building out digital channels to improve digital customer touchpoints, and supporting the IT function with digital laboratories.

Digital Evangelist

Digital Evangelists *"take the organization on a digital change journey and sensitize people that the world as we know it will not exist for long"* (Haffke et al., 2016 p.10). These DT leaders advise top management on how digitalisation disrupts and the

impact of the implications, opportunities and threats that it brings to an organisation. These DT leaders are also tasked with identifying the required digital talent, knowledge, and capabilities to create an organisation which is prepared to implement DT successfully.

Digitization Coordinator

The Digitization Coordinator *"is an orchestration function aligning various digitization initiatives in different business units and functions of the organization"* (Haffke et al., 2016 p.10). These DT leaders concern themselves with implementing the digital strategy, *"managing partnerships, digital and innovation incubators sponsored by executives across the company to foster digital innovation"* (Haffke et al., 2016 p.10).

Digital Advocate

Digital Advocates *"act as a liaison between business functions to offer digital services to the company's customers, primarily due to changes in customer behavior and disruptive digital mobility"*(Haffke et al., 2016 p.10). These DT leaders evaluate and promote delivering digital services to customers on a legacy IT infrastructure, so changing the view of IT being a cost, and instead being a value creator.

As we examine the 16 key informants (Digital Leaders) in this research study, the researcher uses the DTL Model proposed by (Haffke et al. 2016) as an analytical framework to capture the DT leader types that best reflect the key informants within each practitioner voice quadrant. When mapping the practitioner voice quadrants to the DT leader types certain patterns emerge. For example, not surprisingly, in the Operational quadrants, key informants primarily see themselves as a *'digitization coordinator'* DT leader type; while in the Strategic quadrant, key informants primarily see themselves as a *'digital advocate'* and *'digital innovator'* DT leader type (IT quadrant), or a *'digital advocate'* and *'digital evangelist'* DT leader type (Business quadrant). This suggests that Operational DT leader types see themselves as chiefly

coordinating (functionally or organisation-wide) the DT implementation, whereas, more Strategic DT leader types do not. In comparing the Business and IT leadership quadrants, the IT (Strategic quadrant) key informants are the only DT leaders to see themselves as a *'digital innovator'*, whereas, the Business (Strategic quadrant) key informants are the only DT leaders to see themselves as a *'digital evangelist'*

1.6.2 Haffke's DT Model – Classification of the Practitioner Voice

IT Strategic Practitioner Voice (Digital Innovator & Digital Advocate)

As a key informant the IT Strategic DT leader is a *'digital advocate'* bridging the communication gap between business and IT, in the context of DT. Fostering the required buy-in from both the business and IT side, through collaboration, for a more seamless implementation, is also a feature, as a *'digital advocate'*. The IT Strategic DT leaders also see themselves as being a *'digital innovator'* managing DT initiatives by having an innovative mindset and attitude towards change, and being able to ascertain the appropriate innovations to include along the transformation journey.

Business Strategic Practitioner Voice (Digital Evangelist & Digital Advocate)

As a key informant the Business Strategic DT Leader see themselves as a *"digital evangelist"*, who advise top management on the benefits of digitalisation and communicate these benefits throughout the organisation. These key informants also highlight developing their employee skillsets, through education, so the organisation can grow the necessary talent inhouse, and very importantly changing the culture for a successful DT initiative. These Business Strategic DT leaders also see themselves as a *'digital advocate'* communicating the organisational digital vision through an aligned business and IT strategy, therefore, bridging any communication gap between business and IT.

IT Operational Practitioner Voice (Digitization Coordinator & Digital Innovator)

As a key informant the IT Operational DT Leaders see their role as predominantly that of a *'digitization coordinator'* possessing the skills to centralise cooperation for digital initiatives among multiple functional units. By doing this in a collaborative way these DT leaders ensure that the digital strategy and vision, outlined by top management, is followed and implemented. These IT Operational DT leaders also see themselves as somewhat of a *'digital innovator'* coordinating DT initiatives through having an innovative mindset and attitude towards change.

Business Operational Practitioner Voice (Digitization Coordinator, Digital Innovator & Digital Advocate)

As a key informant the Business Operational DT Leader see their role as predominantly that of a *'digitization coordinator'* but also show characteristics of a *'digital innovator'* and *'digital advocate'* DT leader type. As a *'digitization coordinator'* they prioritise cross-functional collaboration between business units and assist in the execution of the business/IT aligned digital strategy of the organisation. They are also active in changing the organisational culture, to increase the likelihood of a successfully DT outcome. These Business Operational DT leaders also show attributes (to a lesser extent) of a *'digital advocate'*, being able to work closely with both business and IT functions, and being able to identify the digital needs and opportunities that can be delivered through DT. Finally, these key informants also show attributes that align to those of a *'digital innovator'*, whereby, as DT leaders, they adopt an innovative mindset and attitude towards change, and collaborate with IT on identifying suitable digital capabilities and innovations toward a successful DT outcome.

		HAFFKE DT LEADER TYPE			
		Digitization Coordinator	**Digital Innovator**	**Digital Advocate**	**Digital Evangelist**
PRACTITIONER VOICE QUADRANT	**IT Strategic**		*Primary*		
	Business Strategic			*Primary*	
	IT Operational	*Primary*	*Secondary*		
	Business Operational	*Primary*	*Secondary*		

Table 1-6 Key Informant Classification using the Haffke DTL Model

1.7 Conclusion

This introductory chapter formulates the research scope and boundaries of this research study. This chapter introduces the main elements of this research study by outlining the research objective and research questions, as well as a summary of the study contributions. This chapter also introduced the concepts of digital transformation and digital transformation leadership along with the research approach that was used. This includes the key informant strategy, data gathering, and data analysis techniques that were followed in the research.

The remainder of this thesis is structured as a collection of papers that outline the story of the research, including a review of the literature around digital transformation leadership, the "doing" of digital transformation including outlining the defining characteristics and critical success factors associated with digital transformation implementation and the defining characteristics of digital transformation leadership.

CHAPTER 2: "DOING" DIGITAL TRANSFORMATION: THEORISING THE PRACTITIONER VOICE

Abstract

The objective of this theory-building research is to explore the defining characteristics of "doing" Digital Transformation (DT) and present a holistic account of the practitioner practices that characterise "doing" DT. For the purposes of this research "doing" DT is defined as leveraging digital technologies to significantly alter an organisational design in order to enhance customer engagement. To fulfil this objective, we select 16 key informants (digital transformation leaders) based on their organisational perspective (Business or IT) and role (Strategic or Operational), which facilitates hearing 4 types of practitioner voices. Following an inductive open coding approach, 350 excerpts were coded, leading to the emergence of 95 concepts, which were further grouped into 14 categories. In this paper we focus our write-up on the 6 most frequently occurring categories that are shaped by all four key informant groups (practitioner voices). This paper is unique in providing a holistic categorisation of the defining characteristics of "doing" DT, while also providing 24 "Practitioner Priorities". These "Practitioner Priorities" sharpens the focus of academia and practice, highlighting the "role of people", "role of data" and "role of technology" when "doing" DT.

2.1 Introduction

Digital Transformation (DT) has generated much research and curiosity in recent years from both an academic and practitioner perspective, not least in Information Systems (IS) research. The pace of DT is accelerating within organisations of all types and sizes, across all industry sectors, and this has led to a significantly increasing commentary around what we refer to as "doing" DT. For the purposes of this research "doing" DT is defined as leveraging digital technologies to significantly alter an organisational design in order to enhance customer engagement. To date, reviews of the literature, focusing on DT, have been conducted (e.g. (McCarthy et al., 2021, Vial, 2019, Morakanyane et al., 2017, Gerster, 2017, Piccinini et al., 2015, Henriette et al., 2015, Besson and Rowe, 2012)). Despite this growing research focus, it is hard to find a universally shared definition of DT from either the academic literature or trade press. Like all types of change programmes, DT can be understood as altering the *people*, *process*, *technology,* and *data* components of an organisation (Muehlburger et al., 2019, Matt et al., 2015). The motivation for undertaking a DT programme can be multi-faceted, but many DT programmes are centred around changing the organisation's structure and business model to serve existing customers more efficiently and to reach new customers more effectively (Haffke et al., 2017, El Sawy et al., 2016). Therefore, DT is seen as something that invokes change or creates an evolution in an organisation (Dremel et al., 2017, Hansen and Sia, 2015, Fitzgerald et al., 2014). DT conveys an organisational message of acceptance of a need to find new ways to innovate using technologies. In fact, "*digital transformation is a company-wide phenomenon with broad organisational implications in which, most notably, the core business model of the firm is subject to change, by means of digital technology*" (Verhoef et al., 2021, p.891).

To date, empirical studies in DT are focusing on specific areas, such as: *digital strategy* (c.f. (Matt et al., 2015, Bharadwaj et al., 2013) *effects on organisational structures* (c.f. (Sia et al., 2016, Maedche, 2016, Tumbas et al., 2015), *digitizing business processes* (c.f. (Baiyere et al., 2020, Markus and Loebbecke, 2013, Carlo et al., 2012), *designing digital platforms* (c.f. (Henningsson et al., 2021, Sandberg et al., 2020, Singh and Hess, 2017, Granados and Gupta, 2013), *effects on organisational*

culture (c.f. Dremel et al., 2017, (Karimi and Walter, 2015) and *generating value* (c.f. (Svahn et al., 2017, Horlacher and Hess, 2016, Matt et al., 2015). However, despite this comprehensive research coverage around the elements of DT, a gap still exists whereby a more holistic coverage of these elements, within our empirical studies, has not been progressed. For example, (Mergel et al., 2019, p.12) calls for further research in DT, due to its comprehensive nature, "*to consider not only the process and impact of transformation but emphasizes the need for a holistic approach to digital transformation*". This is further illustrated by (Verhoef et al., 2021, p.891) where they state that "*treating digital transformation - as existent research has done - in functional silos would potentially lead to ignoring relevant aspects or not optimizing cross-fertilization opportunities*". Furthermore, the absence of a more holistic organisational perspective on "doing" DT in practice is also highlighted by (Matt et al., 2015) where they conclude that "*digital transformation strategies have a cross-functional character and need to be aligned with other functional and operational strategies"(Matt et al., 2015, p.7)* In fact, (Sia et al., 2016) state that "*a more holistic and integrated approach is needed if companies are to respond effectively to the threats and opportunities arising from digitalization*" (Sia et al., 2016, p.106). Therefore, the objective of this research is take a more holistic view of the practices that characterise "doing" DT. In order to fulfil this objective, we pose the following research question.

Research Question 1: What are the defining characteristics of "doing" Digital Transformation (DT)?

The remainder of this paper is structured as follows. In the next section we focus on the research approach being followed. This is followed by a presentation of our observations (presented taxonomically) gained through coding sixteen key informant interviews (those operating as DT leaders in their respective organisations). The paper concludes with a model of "Practitioner Priorities" and opportunities for further research.

2.2 Methodology: Data Gathering & Data Analysis

For the purposes of this research we follow a theory building research strategy where our ambition is to build theory, and in so doing, we embrace an approach aligned with *"concept development"* as opposed to *"construct elaboration"* (c.f. (Gioia et al., 2012, p.16).Therefore, being inspired by features of the Gioia Methodology, which is positioned as a *"systematic inductive approach to concept development"* (Gioia et al., 2012, p.17) and assumes that *"the organisational world is socially constructed"* (Gioia et al., 2012, p.17), we aim to conceptualise the practitioner voice. As a result, in data collection there is a need to *"give extraordinary voice to informants, who are treated as knowledgeable agents"*; while in data analysis there is a need to maintain *"the integrity of 1st order (informant-centric) terms"* during initial data coding, and further *"organise 1st-order codes into 2nd-order (theory-centric) themes"* (Gioia et al., 2012, p.26).

To answer our research question, we select sixteen key informants based on their organisational perspective (Business or IT) and role (Strategic or Operational). These key informants are considered DT leaders within their respective organisations and their voices reflect those of their industry peers. On average these key informants have 15+ years of industry experience in the area of business/IT transformation. Our approach to key informant selection allows for four types of practitioner voices to be heard (e.g. *IT Strategic*, *Business Strategic*, *IT Operational, Business Operational*) as we theorise about the defining characteristics of "doing" DT. Interviews are considered the most appropriate data gathering technique for collecting rich and detailed data from industry experts (Koh and Tan, 2011) and are a typical data gathering technique with the key informant approach (c.f. Whittaker, 2012, Barker et al., 2005). In this study, we conduct a series of semi-structured interviews (four per practitioner voice type), where each key informant reveals their experiences (positive and negative) with "doing" DT (see Table 2-1 for a list of the interviewees and their respective backgrounds). Interviews took place over sixteen months (between

November 2018 and February 2020) and ranged in duration from 35 to 75 minutes with an average interview duration of 60 minutes.

Key Informant Position	Informant Quadrant	DT Initiative	DT Classification	Experience (years)	Sector	Industry	Org Type	Org Size (employees)
IT Services Director	ITS	Single	Local	20-25	Public	Higher Education	SME	2500 >
Chief Information Officer	ITS	Multi	Local	15-20	Private	Agriculture	SME	200 >
Global Director of Digital Services Platform	ITS	Multi	Global	25-30	Private	Energy	MNC	10000 >
Senior Software Development Manager	ITS	Single	Local	20-25	Private	Software	MNC	2000 >
Chief Executive Officer & VP	BS	Multi	Global	25-30	Private	Energy	MNC	10000 >
Director of Academic Affairs & Digital Services	BS	Single	Local	20-25	Public	Higher Education	SME	2500 >
Chief Information Officer & VP	BS	Multi	Global	25-30	Private	Technology	MNC	50000 >
Senior Global Business Transformation Director	BS	Multi	Global	20-25	Private	Technology	MNC	50000 >
Senior Digital Solutions Engineering Manager	ITO	Single	Global	15-20	Private	Technology	MNC	15000 >
IT Manager	ITO	Single	Local	15-20	Public	Higher Education	SME	1800 >
Chief Technology Officer	ITO	Single	Local	15-20	Private	Agriculture	SME	150 >
Lead Digital MIS Analyst	ITO	Single	Local	10-15	Public	Higher Education	SME	2500 >
Business Transformation Officer	BO	Multi	Global	15-20	Private	Technology	MNC	50000 >
Director Of Operations & Global Support Services	BO	Multi	Global	20-25	Private	Technology	MNC	15000 >
Business Transformation Director	BO	Multi	Global	20-25	Private	Healthcare	MNC	80000 >
Business Transformation Manager	BO	Multi	Global	15-20	Private	Technology	MNC	15000 >

Table 2-1 Key Informant Overview

The emphasis of qualitative data analysis is on "sense making" (Bhattacherjee et al., 2012)) and coding is one of the techniques widely used in analysing qualitative data in order to build theory (Buchwald et al., 2014, Tallon et al., 2013). For this research, after preparing our sixteen interview transcripts, the data analysis commenced by reading each transcript sentence-by-sentence and following an inductive open coding approach. Open coding is a process that aims to identify the concepts or key ideas that are hidden within data, where the concepts that appear to be similar are then grouped together under a higher-order, more abstract concept, called a category (c.f. (Alhassan et al., 2019). Therefore, "*what coding does, above all, is to allow the researcher to communicate and connect with the data to facilitate the comprehension of the emerging phenomena and to generate theory grounded in the data*" (Basit, 2003).
Following an inductive open coding approach, facilitates the emergence of concepts and categories from coded excerpts of the interview transcripts. We organise the results of our analysis using four quadrants (as in Figure 2-1) to represent each of the four key informant groups (practitioner voices). In this research 350 excerpts were coded, leading to the emergence of 95 concepts, which were further rolled up into 14 categories. See Appendix A for the list of coded categories across the practitioner voices. For the purposes of this paper we focus our write-up on the six most frequently occurring categories, as follows: *Digital Strategy*, *Customer Focus*, *Culture Change*, *Digital Platform*, *Data Driven*, and *Value Creation*. These six categories are shaped by all four key informant groups. In the next section we present our data analysis and findings.

2.3 Findings and Discussion

In this section we will present our findings. In each sub-section we present a sample of our inductive open coding of key informant interviews across the four quadrants (see Tables 2-2 to 2-7 for illustrative examples). These coded excerpts underpin the emergence of the concepts and the overarching categories (the defining characteristics of "doing" DT). In this section we report on a cross quadrant analysis where we compare and contrast the practitioner voices based on their organisational perspective (Business or IT) and organisational role (Strategic or Operational). In Tables (2-2 to

2-7) we represent the practitioner voice as follows: *Business Strategic* (BS), *Business Operational* (BO), *IT Strategic* (ITS), *IT Operational* (ITO).

2.3.1 Digital Strategy

Based on our analysis of the sixteen practitioner voices, a broad consensus emerges that "doing" DT needs to begin with designing the "right" *Digital Strategy*, where a successful *Digital Strategy* is centred around how it is formulated, implemented and managed. Accordingly, the core parts of this "right approach" involve creating a vision and fostering a digital mindset. Interestingly, this vision and mindset must be created by the executive or senior leadership and that message needs to be conveyed effectively right throughout the organisational levels. In essence, *Digital Strategy* is seen as enabling the selection of the appropriate technology (*Digital Platform*).

Voice	Key Informant Excerpt	Concept
BS	*the vision of the company should come from top down, as in where they want to go. What's the objective of doing all of this? What's the holy grail of the new business model going to look like*	create and communicate the digital strategy
ITS	*start with the aligning of the business strategy then see how digital becomes a key enabler for it*	
BO	*organisations need to understand how the strategy gets down to them and how they fit into the strategy*	
ITO	*to understand the strategy as to what they want to transform and how they feel transforming helps everybody and grows the company*	
BS	*you have a vision of what your future digital capabilities are going to be like as is outlined in your digital strategy*	underpin the strategy with digital capabilities
ITS	*you've got to underpin the digital capabilities that will make that happen, that's obviously a function that the business must carry*	
BO	*an understanding of what you need in place to implement your digital strategy requires the support from those in operations so that it will be successful*	
ITO	*an acknowledgement of what they want to transform and how they feel transforming grows the company by using digital capabilities*	

Table 2-2 Sample Coding for the Digital Strategy Category

The Practitioner Voices

Business Strategic key informants highlight the importance of how the *Digital Strategy* is defined and how the strategy is communicated throughout the organisation. They see the positioning of people to be at their best, when "doing" DT, as being something that should be part of the *Digital Strategy*. These key informants also see the importance of cultivating an environment conducive to fostering collaboration and encouraging innovation. While the IT Strategic key informants speak of "doing" DT as beginning with designing the "right" *Digital Strategy*; they do so in order to understand what digital capability investments and initiatives are needed to deliver the transformation. From an IT Strategic perspective, identifying how your digital capabilities can deliver your strategic digital vision is fundamental. They also emphasise that aligning the business strategy and digital strategy (at both strategic and operational levels within the organisation) is a must when "doing" DT.

Business Operational key informants highlight the importance of enabling your workforce so that "doing" DT can be as smooth as possible throughout the organisation. Business Operational key informants emphasise the criticality of the *Digital Strategy* being driven from the top, filtering down through the organisation, and being understood in its entirety. They also emphasise the role of people as being critical in how an organisation transforms. Therefore, to ensure the people are onboard, a compelling message, from top management, needs to get through to everyone; as simply stated by a key informant: *"if the people aren't on board, it's not going to happen"*. Ultimately, the understanding of the *Digital Strategy* is critical. IT Operational key informants see the *Digital Strategy* "message being conveyed" as core to "doing" DT. They also highlight that enterprise-wide disruption from "doing" DT can only happen where a willingness to change (*Culture Change*) and the right vision exists. These practitioners are striving to ensure that for all in the organisation the *Digital Strategy* is comprehended, cascaded and executed correctly.

Based on our analysis of the sixteen practitioner voices, we extract the following *Digital Strategy* "Practitioner Priorities" for DT leaders (see Figure 2-1). This allows for the four types of practitioner voices to be represented (e.g. *IT Strategic*, *Business*

Strategic, *IT Operational, Business Operational*) as we theorise about the defining characteristics of "doing" DT.

DIGITAL STRATEGY		ORGANISATIONAL ROLE	
		STRATEGIC	OPERATIONAL
ORGANISATIONAL PERSPECTIVE	IT	**delivering** a clear strategy (what) enabled by the digital capabilities (how)	**aligning** the business / digital strategic visions with the technology used
	BUSINESS	**communicating** the digital strategy from the top down (to all)	**understanding** the role of people within the digital strategy

Figure 2-1 The Practitioner Priorities for Digital Strategy.

2.3.2 Customer Focus

Based on our analysis of the sixteen practitioner voices, a broad consensus emerges that organisations see opportunities to enable a greater degree of *Customer Focus* using digitalisation when "doing" DT. Terminology such as 'customer-centric', 'customer-driven' and 'customer-oriented' are used interchangeably to described *Customer Focus*. In fact, creating new digital channels of engagement with customers, strengthening relationships and enhancing the customer digital experience, while also expanding customer segments and ensuring customer prioritisation, are all critical elements of "doing" DT. It also appears that an organisations' philosophy most often involves striving to be seen as having a *Customer Focus*, or putting the customer at the forefront, when designing and delivering products and services, even if that is to improve their own competitive position in the market.

Voice	Key Informant Excerpt	Concept
BS	*organisations must be customer driven, to the degree that you need to continually and formerly measure where people are in terms of the transformation*	focus on being customer oriented
ITS	*the customer has to be positioned at the centre of digital transformation because sometimes it's irrelevant to the customer in terms of what you're doing internally*	
BO	*that's a change for the purpose driven organisation, how does an organisation organise itself around its customers with the customer being central to everything*	
ITO	*we're more focused on understanding what customers are trying to do within their businesses and how we can use technology to help them to achieve those business objective*	
BS	*so that you've got complete context and situational awareness that you can manage, and then we build collaboration tools and communication tools that allow you to manage the engagement*	build a digital experience for customer engagement
ITS	*in terms of timing, you've got to get your digital capability sorted out first before you can go to a customer and create the whole idea of minimum viable product*	
BO	*we are trying to be more agile in our approach using various touch points, understanding what it is the customer wants, and we operate in two-week sprint cycles to adjust to the needs of that customer*	
ITO	*six years ago, when we looked at transforming significantly from standard systems to what I would call 'cloud systems', we now call them 'cloud customers'*	

Table 2-3 Sample Coding for the Customer Focus Category

The Practitioner Voices

Business and IT Strategic key informants highlight the importance of being customer-oriented and providing a digital experience, where the benefits to the customer are increased through digital capabilities. This is significant if the organisation wants the customer to engage with them and embrace the digital outputs (*Digital Platform*) taking shape. These key informants also highlight the need [1] to be upfront with

customers about the organisation's digital capabilities and [2] to deliver on the promises made to customers in "doing" DT. These strategic practitioner voices also suggest trialling the digital outputs (*Digital Platform*) with the most trusted customers, so that the organisation has an "early adopter customer advocate" that will act as a catalyst and point of reference for other customers. In effect, showcasing a positive digital experience to customers will increase buy-in to what the organisation is "doing".

Business and IT Operational key informants hold differing priorities when it comes to *Customer Focus*. Business Operational key informants emphasise the importance of both understanding what the customer wants from "doing" DT and being able to respond to those needs with the appropriate digital capabilities. Considering how "doing" DT affects customers requires an understanding of the diversity of the customer base and the changing needs of these customers. These key informants refer to being agile in approach, using various touchpoints in getting a greater understanding of what it is the customer wants and adjusting to the needs of the customer. IT Operational key informants highlight the emergence of the 'cloud customer' and how the importance of digitalisation and creating a *Digital Platform* will facilitate a more substantive engagement with the customer base and will afford the customers the opportunity to see the *Value Creation*.

Offering a new digital experience and improved portfolios of products/services to customers, by changing the way the organisation engages with customers, are key objectives when "doing" DT. The practitioner voices suggest that in order to achieve these objectives, organisations will require the expertise of both IT and business personnel; where technologists will improve customer engagement through digitalisation (*Digital Platform*), while business professionals will enhance customer engagement by harnessing the opportunities presented through digitalisation (*Value Creation*). Therefore, based on our analysis of the sixteen practitioner voices, we extract the following *Customer Focus* "Practitioner Priorities" for DT leaders (see Figure 2-2). This allows for the four types of practitioner voices to be represented (e.g. *IT Strategic*, *Business Strategic*, *IT Operational, Business Operational*) as we theorise about the defining characteristics of "doing" DT.

CUSTOMER FOCUS		ORGANISATIONAL ROLE	
		STRATEGIC	OPERATIONAL
ORGANISATIONAL PERSPECTIVE	IT	**designing** customer-centred services using a suitable digital platform	**supporting** (effective) customer engagement through a digital platform
	BUSINESS	**creating** a digital experience for target sets of customers	**translating** the needs of customers into digital touchpoints

Figure 2-2 The Practitioner Priorities for Customer Focus.

2.3.3 Culture Change

Based on our analysis of the sixteen practitioner voices, a broad consensus emerges that core to "doing" DT is how organisations embrace new cultural and behavioural changes. *Culture Change* begins by creating favourable conditions for "doing" DT right throughout the organisation. This requires both support and sponsorship from the executive level so that it can transcend from the strategic level to the operational level. The view also exists that getting buy-in when "doing" DT requires leadership, that brings something different, a freshness, new ideas and invigorates the entire organisation (captured in the *Digital Strategy*).

Voice	Key Informant Excerpt	Concept
BS	*it thrives on support from the top of the company to create the vision and the mission of its digital future*	acquire top level sponsorship for cultural change
ITS	*digital transformation needs executive level sponsorship for it to be successful to get through to the ranks of the organization*	
BO	*you need to empower people to be bold, I think that's key as well, we're all afraid of transformation and ultimately everybody's afraid of change*	
ITO	*So, I think it has to be a partnership, where it works, really well is where we have leadership from IT and leadership from the business coming together to set-out how the transformation will be implemented*	
BS	*people must fit the culture of your organization and must be entertained and excited by the change*	ensure a personal connection for culture change
ITS	*being open and honest with people going down this transformation journey is critically important as an integrity or credibility thing*	
BO	*every employee in the organization needs to emotionally connect with the transformation, not just understand the need but actually are excited by doing it*	
ITO	*the more open minded the person is the easier it is to try and bring new ideas along, to trial new ideas and to be open to change*	

Table 2-4 Sample Coding for the Culture Change Category.

The Practitioner Voices

Business and IT Strategic key informants suggest that designing and leading *Culture Change* in a "positive way" in an organisation is key when "doing" DT. For these key informants, getting people to engage in the transformation and sponsoring the changes enables a better outcome for everyone across the organisation. Fostering a collaboration between the different levels and getting the best out of people and encouraging the "right people", or those who will contribute effectively and enhance the organisation, are key elements in *Culture Change*. Business and IT Operational key informants emphasise the criticality of changing the culture as something that needs to be fostered throughout the organisation. Having an understanding and being sensitive to the impact of the changes that a different or evolving culture will bring, especially to those at an operational and functional level, is identified as being

extremely important. Being able to encourage an openminded philosophy amongst those working at operational levels is also seen as important. Therefore, empowering people, especially at operational levels, must be a priority to deliver a *Culture Change* when "doing" DT.

In comparing Business and IT key informant voices, some interesting perspectives emerge around creating or changing to a digital culture. Business key informants underpin the importance of people and their role in *Culture Change*. They suggest that a *Culture Change* vision and mission statement must be visible, and a workplace environment, conducive to transformation, must also be cultivated. Business key informants identify the "role of people" as being key to transformation and requires a compelling message from top management; as highlighted earlier; *"if the people aren't on board, it's not going to happen"*. IT key informants suggest that *Culture Change* across an organisation needs to be sponsored and driven from the executive and senior leadership; however, *Culture Change* also needs to be conveyed in a manner where buy-in from those in operational roles, who may have reservations about the benefits from "doing" DT, will be forthcoming. Fostering a connectedness and encouraging partnerships between those in business and IT roles within the organisation is also seen as a key element to delivering a successful *Culture Change*, when "doing" DT.

Based on our analysis of the sixteen practitioner voices, we extract the following *Culture Change* "Practitioner Priorities" for DT leaders (see Figure 2-3). This allows for the four types of practitioner voices to be represented (e.g. *IT Strategic*, *Business Strategic*, *IT Operational, Business Operational*) as we theorise about the defining characteristics of "doing" DT.

CULTURE CHANGE		ORGANISATIONAL ROLE	
		STRATEGIC	OPERATIONAL
ORGANISATIONAL PERSPECTIVE	IT	**aligning** the need for transforming digitally (from the top down)	**building** an emotional connectedness to the change (in all)
	BUSINESS	**communicating** the message to people to ensure positivity around the change	**understanding** employee sensitivity to change (the why of the change)

Figure 2-3 The Practitioner Priorities for Culture Change.

2.3.4 Digital Platform

Based on our analysis of the sixteen practitioner voices, a broad consensus emerges that architecting a reliable *Digital Platform* is a critical element of "doing" DT. Creating a *Digital Platform* involves building an end-to-end digital backbone which is robust, resilient and is well architected and is comprised of web-based applications, and infrastructure-based services supported by emergent and emerging technologies. However, when designing a *Digital Platform*, the choice of technologies and innovations should align with the business objectives of the organisation (captured in the *Digital Strategy*).

Voice	Key Informant Excerpt	Concept
BS	*have a vision of what your future digital capability is going to be like. I said, transforming yourself from a hardware to a software company*	identify digital capabilities to design the digital platform
ITS	*to go digital, you need to create a successful platform for you to transform using this technology or is this where we need to go?*	
BO	*seen as a transformational shift in the technologies that you are using and getting the right individuals to lead the technology transformation*	
ITO	*organisations come to us with challenges where they want to be able to adopt technology and or maybe take advantage of new technologies*	
BS	*we are diverting our resource base much more into technology and automation, the idea of reaping what you sow*	leverage technologies

ITS	*so, we're building huge capability where we're transforming our operational backbone to make yourself fit for purpose in a digital sense*	to architect the digital platform
BO	*look at what and how many tools they're all using, consolidate down to certain tools, see how many versions of the tool they're all using and how they're used*	
ITO	*it's businesses really taking the opportunity to leverage technology to make their business better*	

Table 2-5 Sample Coding for the Digital Platform Category.

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The Practitioner Voices

Operational key informants more than Strategic key informants see the *Digital Platform*, along with the technology and innovations that are part of that platform, as being significant when "doing" DT. Furthermore, IT more than Business Strategic key informants place a high degree of importance on the successful design and implementation of a *Digital Platform*. For Strategic key informants, investing in the "right" technologies and aligning these technologies and innovations with the organisation's objectives (*Digital Strategy*) are seen as key to a reliable and resilient *Digital Platform*.

Operational key informants see the importance of employees, across the organisation, understanding the benefits that will come from technology advancements (e.g. improving business operations), while also receiving relevant training in any work practice changes. These practitioner voices also express the view that a *Digital Platform* must be effective for end users, while the complexities of using technology must be reduced for those engaging on the *Digital Platform*. Furthermore, the benefits from deploying enhanced technologies and innovations must be transparent for those in operations so that they can understand the reasoning behind the migration to the *Digital Platform*.

Business key informants suggest getting the vision correct when identifying what the organisation wants from the *Digital Platform*. Making the correct investments in

technology and allocating resources in a way where they will complement that investment and help to achieve the business objectives (*Digital Strategy*) is key when "doing" DT. However, Business key informants also highlight the importance of an understanding being required at operational level around what improvements the technological change is going to bring, ensuring that the right individual(s) are going to be tasked with designing and implementing the *Digital Platform* and ensuring that people are adequately trained to use the new technologies/applications that will be part of this *Digital Platform*. IT key informants are keen to promote the value and effectiveness of a *Digital Platform*, including having the "right" blend of innovations and technologies, but also require an acknowledgement from the business side that technologies and increased digitalisation in their own right will not create solutions, unless the solutions have been thought out in advance. IT key informants see the *Digital Platform* as an important mechanism to showcase the contribution of a reliable, resilient, and scalable suite of technologies to organisational evolution and *Culture Change*.

Based on our analysis of the sixteen practitioner voices, we extract the following *Digital Platform* "Practitioner Priorities" for DT leaders (see Figure 2-4). This allows for the four types of practitioner voices to be represented (e.g. *IT Strategic*, *Business Strategic*, *IT Operational, Business Operational*) as we theorise about the defining characteristics of "doing" DT.

DIGITAL PLATFORM		ORGANISATIONAL ROLE	
		STRATEGIC	**OPERATIONAL**
ORGANISATIONAL PERSPECTIVE	**IT**	**designing** foundations for a digital platform to enhance digital experiences	**implementing** technologies to solve a defined business problem
	BUSINESS	**delivering** the business vision using appropriate technologies	**improving** business operations with the right blend of technology

Figure 2-4 The Practitioner Priorities for Digital Platform.

2.3.5 Data Driven

Based on our analysis of the sixteen practitioner voices, it emerges that how organisations use data is core to "doing" DT. There is a strong consensus that an organisation needs to put a data strategy in place to be considered *Data Driven*. By *Data Driven*, the practitioner voices refer to the "role of data" in "doing" DT, more specifically, about the accuracy of the data in supporting key decisions as part of the transformation. Therefore, having data act as a *"compass"*, highlighting the direction of the organisation, is foundational to "doing" DT. Interestingly, *Data Driven* is not just about the new data possibilities created by the introduction of a new *Digital Platform*. However, being able to capture data from sources that present themselves to the organisation is a key feature when "doing" DT.

Voice	Key Informant Excerpt	Concept
BS	*data is going to be part of the digital transformation process and therefore you need it to be accurate for your digital transformation because data is going to help drive your transformation*	focusing on data as a driver for digital transformation
ITS	*data is the enabler to start a digital transformation, I just think without it, you're wasting your time trying to transform*	
BO	*someone then must tell the story with the data someone has to take it and say, do you know what this means and show how it can be used*	
ITO	*we are custodians of the data we're collecting and therefore we need to ensure that we maintain it and have it available for our stakeholders*	
BS	*we looked at our data strategy and we did a lot of work on our data journey our data usage and how we were analysing delivering it, it was suboptimal for a lot of people, so we needed to change that*	delivering the right data to the right stakeholders
ITS	*you can spend your life creating dashboards, creating reports, etc, but, you know, people are wanting real time data and they're only looking at it once a week, so it's got to be informative and giving them what they want*	
BO	*How are we measuring really what's going on so that we can inform leadership? Which they need to support their decision making*	

ITO	*I think with digital systems and digital platforms, gives us the means to capture the data, also deep dive into the data and interpret the data properly*	

Table 2-6 Sample Coding for the Data Driven Category

The Practitioner Voices

Business and IT key informants view data and data analytics as being an enabler when "doing" DT. As a starting point, Strategic key informants identify the existence of a well aligned data strategy as being critical to unlocking the value from data to inform business decisions. These practitioner voices believe that the data strategy should clearly state data's role and focus when "doing" DT. As highlighted by a key informant: *"without data, you're blind!"*.

Operational key informants emphasise the importance of using the "right" technologies to capture, analyse and interpret data, in order to provide insights on the current state of the organisation and how it can be improved as part of "doing" DT. Specifically, Business key informants allude to the accuracy of data needed to drive the transformation itself. According to these key informants, data accuracy provides organisations with greater certainty when evaluating the current state of the organisation prior to "doing" DT. Therefore, there is a need to tell the story with data. IT Strategic key informants view the purpose of what the organisation wants from the data and where the organisation are getting the data from as key; while the IT Operational key informants focus on using the most appropriate technologies to ensure that the data are secure and always available to organisational business units. IT key informants prioritise getting the right technologies/applications in place to allow data to be presented in real-time to parts of the business in order to show the position of the organisation (measurement) before, during, and after transformation.

Based on our analysis of the sixteen practitioner voices, we extract the following *Data Driven* "Practitioner Priorities" for DT leaders (see Figure 2-5). This allows for the four types of practitioner voices to be represented (e.g. *IT Strategic*, *Business Strategic*, *IT Operational, Business Operational*) as we theorise about the defining characteristics of "doing" DT.

DATA DRIVEN		ORGANISATIONAL ROLE	
		STRATEGIC	OPERATIONAL
ORGANISATIONAL PERSPECTIVE	IT	**building** digital capabilities to source purposeful business data	**capturing** high quality data for business use
	BUSINESS	**designing** a data strategy to extract value from data use	**interpreting** what the data is saying from the business context

Figure 2- 5 The Practitioner Priorities for Data Driven.

2.3.6 Value Creation

Based on our analysis of the sixteen practitioner voices, a broad consensus emerges that delivering value through leveraging technology and innovation in a key characteristic of "doing" DT, while offering a value proposition to all stakeholders is critical for *Value Creation*. *Value Creation* considers elements, such as: return on investment, delivering on value propositions, increasing revenue opportunities, and reducing the costs of doing business.

Voice	Key Informant Excerpt	Concept
BS	*you want to be able to do your analysis and extract the business value from it quickly and in a compliant way so you understand what you can do with it*	identifying the approach to creating value
ITS	*but I suppose you can create a true demonstration of what a transformational means to them, the value of it through quick wins showing them what other companies are doing*	
BS	*the stuff that's being measured gets done first because that's the stuff that's being held up on your dashboard and are inputs to creating value*	
ITS	*they still have the understanding that they are adding value to the business, so what most organisations are trying to achieve with digital transformation is to create new services or create new value*	

BS	*if you can give benefits as you go along to your stakeholders and create a value proposition you will definitely stop some of the change resistance that digital transformation may create in the organisation*	creating value propositions for stakeholders
ITS	*it's the holy grail of what you want, to unlock data for customers and translate that into a value proposition, as they tend to see the value very quickly*	
BO	*it's a payback because you have to invest, you must invest in transformation, you can't transform without putting in time and capital, you have to invest*	
ITO	*it leveraging the technology, this can enhance things and make it work, so there's huge return on investment pickings from technology*	

Table 2-7 Sample Coding for Value Creation.

The Practitioner Voices

Business Strategic key informants suggest that achieving cost savings and identifying sources of value extraction are critical when "doing" DT, while IT Strategic key informants view being able to demonstrate value and to offer a value proposition to all stakeholders as being the most significant parts of *Value Creation*. While Business Strategic key informants describe finding the sources to create value and being able to extract that value, as being important; understanding where you can use that value to contribute to a successful transformation initiative is viewed as even more important. They see value as coming from an increase in cost savings from certain inputs (e.g. technology), but *Value Creation* is not limited to just cost savings. *Value Creation* is achieved through the contribution of people and how the skills and competencies they have attained while "doing" DT can create value for the organisation thereafter, by working in more value-add roles.

IT Strategic key informants are of the view that being able to demonstrate "the how" of *Value Creation* is of critical importance when "doing" DT. These practitioner voices suggest that achieving *quick wins* while "doing" DT is important so that it fosters an appetite or willingness for change (*Culture Change*). These key informants also highlight that *Value Creation* can be achieved by [1] unlocking data for customers, through purposeful and compliant analysis, to deliver customer-focused business value (*Data Driven* and *Customer Focus*), and [2] creating revenue opportunities through technology-enabled organisational change (*Digital Platform*

and *Culture Change*). The IT key informants also see the importance of stating a value proposition for stakeholders across the organisation and especially in functional areas that struggle to see the benefits of "doing" DT. It is suggested that it could stop some of the change resistance (*Culture Change*) that "doing" DT may create in an organisation.

Business Operational key informants see the criticality of being able to accurately measure inputs to illustrate *Value Creation* for a variety of stakeholders. Such measuring of inputs (accurate data) is core to showing payback on investments, in both change and technology, across all levels of the organisation. IT Operational key informants highlight the benefits of leveraging technology, aligned with stated business objectives, to create a positive ROI (return on investment) through creating new services and value streams for the organisation. Therefore, based on our analysis of the sixteen practitioner voices, we extract the following *Value Creation* "Practitioner Priorities" for DT leaders (see Figure 2-6). This allows for the four types of practitioner voices to be represented (e.g. *IT Strategic*, *Business Strategic*, *IT Operational, Business Operational*) as we theorise about the defining characteristics of "doing" DT.

VALUE CREATION		ORGANISATIONAL ROLE	
		STRATEGIC	OPERATIONAL
ORGANISATIONAL PERSPECTIVE	IT	**demonstrating** how the exploitation of technology translates data into value	**leveraging** technology to enable effective ways of working
	BUSINESS	**translating** data into value propositions (for key stakeholders)	**measuring** the value delivered to customers (and all stakeholders)

Figure 2-6 The Practitioner Priorities for Value Creation.

2.4 Concluding Remarks and Further Research Opportunities

There is no doubt that Digital Transformation (DT) is a current hot topic and a top concern for many practitioners (both business and IT). However, the ability to lead a DT initiative, and be successful in doing so, is an area of IS research not yet well established. Therefore, the work presented in this paper is an effort at addressing this current shortfall. Reflecting on our analysis, this paper is one of the first to provide a "holistic categorisation" of the defining characteristics of "doing" DT. These defining characteristics have emerged from an analysis of our empirical data (sixteen key informants across four types of practitioner voices – e.g. *IT Strategic*, *Business Strategic*, *IT Operational, Business Operational*). Furthermore, we have also provided 24 *Practitioner Priorities* that reflect the must have features of "doing" DT, in order to increase the likelihood of a successful outcome. These unique *Practitioner Priorities* (see Figure 2-7) are linked to the six defining characteristics (*Digital Strategy*, *Customer Focus*, *Culture Change*, *Digital Platform*, *Data Driven*, and *Value Creation*).

In this paper we have presented our process (theorising) in order to avoid *"'blackboxing' the process of discovery"* (Hammond, 2018, p.3). Here, theorising is about focusing on what is important and *"abstracting something from the data in order to explain what is happening"* (Hammond, 2018, p.4). Through finding patterns, across the four types of practitioner voices, in what appear to be disparate accounts of "doing" DT, we present a conceptual model (see Figure 2-7) showcasing the "Practitioner Priorities" for each of the six categories. This model is the *"product of a long engagement with data"* (Hammond, 2018, p.5). Some of the key takeaways from this empirical work, for "doing" DT, are as follows:

- *Digital Strategy* needs a strong "role of people" focus over "role of technology" focus.

- *Customer Focus* needs to showcase the "role of technology" and the "role of data" in customer engagement.
- *Culture Change* needs to be viewed "positively" by employees and promote the "role of people".
- *Digital Platform* needs to align the "role of technology" with the business objectives.
- *Data Driven* needs to guarantee the "role of data" in telling the transformation story.
- *Value Creation* needs to showcase the "role of technology" in generating value aligned with business objectives.

It is hoped that this research will promote a *focal awareness* versus a *subsidiary awareness* (c.f. Hammond, 2018, p.6) amongst scholars and practitioners with regard to "doing" DT. It is also hoped that it will help practitioners to avoid the hidden traps in their decision making (e.g. *status quo trap*, *sunk-cost trap*, *overconfidence trap*, etc.) (c.f. Hammond, et al., 1998) and keep focus on the priorities that will increase the likelihood of a successful outcome from "doing" DT. A number of opportunities for further research also emerge from this empirical work. One particular opportunity centres around the *"role of people"*. For example, the *"role of people"* is a common theme across the *Digital Strategy* and *Culture Change* defining characteristics of "doing" DT. However, more investigation is needed to further understand the approaches taken by organisations to elevate the *"role of people"* as part of the fabric of "doing" DT.

Finally, we are conscious that while adding to the number of key informants in this study could be very beneficial and revealing for our *"concept development"* work on the defining characteristics of "doing" DT, it is perhaps more beneficial to move to a larger population of DT leaders as part of a study focused on *"construct elaboration"*(Gioia et al., 2012). Therefore, we imagine that the foundations are laid, through proposing the 24 *Practitioner Priorities* that reflect the must have features of "doing" DT, to further progress this line of enquiry by either qualitative, quantitative or a mixed method approach. In fact, there is an opportunity to look more closely at the differences in "doing "DT by industry, sector (public v private), organisation type (SME v MNC) and organisation size (# of employees); while further examining the

differences in “doing” DT by DT initiative (single or multiple) and classification (local or global) within an organisational context.

DIGITAL STRATEGY		ORGANISATIONAL ROLE	
		STRATEGIC	OPERATIONAL
ORGANISATIONAL PERSPECTIVE	IT	**delivering** a clear strategy (what) enabled by the digital capabilities (how)	**aligning** the business / digital strategic visions with the technology used
	BUSINESS	**communicating** the digital strategy from the top down (to all)	**understanding** the role of people within the digital strategy

CUSTOMER FOCUS		ORGANISATIONAL ROLE	
		STRATEGIC	OPERATIONAL
ORGANISATIONAL PERSPECTIVE	IT	**designing** customer-centred services using a suitable digital platform	**supporting** (effective) customer engagement through a digital platform
	BUSINESS	**creating** a digital experience for target sets of customers	**translating** the needs of customers into digital touchpoints

CULTURE CHANGE		ORGANISATIONAL ROLE	
		STRATEGIC	OPERATIONAL
ORGANISATIONAL PERSPECTIVE	IT	**aligning** the need for transforming digitally (from the top down)	**building** an emotional connectedness to the change (in all)
	BUSINESS	**communicating** the message to people to ensure positivity around the change	**understanding** employee sensitivity to change (the why of the change)

DIGITAL PLATFORM		ORGANISATIONAL ROLE	
		STRATEGIC	OPERATIONAL
ORGANISATIONAL PERSPECTIVE	IT	**designing** foundations for a digital platform to enhance digital experiences	**implementing** technologies to solve a defined business problem
	BUSINESS	**delivering** the business vision using appropriate technologies	**improving** business operations with the right blend of technology

DATA DRIVEN		ORGANISATIONAL ROLE	
		STRATEGIC	OPERATIONAL
ORGANISATIONAL PERSPECTIVE	IT	**building** digital capabilities to source purposeful business data	**capturing** high quality data for business use
	BUSINESS	**designing** a data strategy to extract value from data use	**interpreting** what the data is saying from the business context

VALUE CREATION		ORGANISATIONAL ROLE	
		STRATEGIC	OPERATIONAL
ORGANISATIONAL PERSPECTIVE	IT	**demonstrating** how the exploitation of technology translates data into value	**leveraging** technology to enable effective ways of working
	BUSINESS	**translating** data into value propositions (for key stakeholders)	**measuring** the value delivered to customers (and all stakeholders)

Figure 2-7 Practitioner Priorities across the Six Defining Characteristics of "doing" Digital Transformation (DT).

CHAPTER 3: THE CRITICAL SUCCESS FACTORS OF DOING DIGITAL TRANSFORMATION:

Abstract
The pace of Digital Transformation (DT) is accelerating within organisations, and this has blossomed a commentary around what we refer to as "doing" DT. Despite this trend, it is hard to find a collection of Critical Success Factors (CSFs) for DT, from either the academic literature or trade press. For the purposes of this research, we define "doing" DT as leveraging digital technologies to significantly alter an organisational design in order to enhance customer engagement. Therefore, the objective of this theory-building research is to explore the CSFs for DT in a pre-digital organisation. To fulfil this objective, we code (following an inductive approach) the stories of 16 key informants (DT leaders). Thereafter, we present nine CFSs that define the relationships between the six most frequently occurring characteristics of DT. This paper is unique in its approach and the CSFs presented can sharpen the DT focus of academia and practice.

3.1 Introduction

Despite the growing interest in Digital Transformation (DT), IS scholars and practitioners still *"struggle to grasp what* [DT] *really is"* (Wessel et al., 2021, p.102). When articles published in Sloan Management Review carry titles like the *"Five Myths About Digital Transformation"* and *"The Nine Elements of Digital Transformation"* it becomes clear that DT is not a walk in the park for those faced with making such a decision and leading out such an initiative. In fact, a 2019 article published in Harvard Business Review, titled *"Digital Transformation is Not About Technology"*, considers why some DT efforts succeed and others fail. They highlight that *"70% of all DT initiatives do not reach their goals"* and of the $1.3 trillion spent on DT in 2018, estimates suggest that *"$900 billion went to waste"* (Tabrizi et al., 2019, p.1). Therefore, it would seem that leading a successful DT initiative is a real present-day concern for both business and IT practitioners alike. DT has generated much research and curiosity in recent years from both an academic and practitioner perspective, not least in Information Systems (IS) research. Despite this growing attention around DT, several gaps still exist in our understanding of this complex process. As a result, several calls for further research have been made, in areas such as: embedding and sustaining (normalising) a DT (Carroll, 2020); organisational readiness for DT (Nguyen et al., 2021), impact of a CDO appointment on DT (Metzler et al., 2021), role of middle management in DT (Nadkarni and Prügl, 2021); leader attributes for a successful DT (Pabst von Ohain, 2019) and prioritising practitioner activities throughout DT phases (Berghaus and Back, 2017).

For the purposes of this research we conceptualise DT as occurring within the organisational context and that all organisations are striving to have the level of DT maturity synonymous with being *" Digital Masters"* (Westerman et al., 2011). The motivation for undertaking a DT programme can be multi-faceted, but many DT programmes are centred around changing the organisation's structure and business model to serve existing customers more efficiently and to reach new customers more effectively (Haffke et al., 2017, El Sawy et al., 2016). Therefore, DT is seen as something that invokes change or creates an evolution in an organisation (Dremel et al., 2017, Hansen and Sia, 2015, Fitzgerald et al., 2014). DT conveys an organisational message of acceptance of a need to find new ways to innovate using technologies. In

fact, "*digital transformation is a company-wide phenomenon with broad organisational implications in which, most notably, the core business model of the firm is subject to change, by means of digital technology*" (Verhoef et al., 2021, p.892). Irrespective of who leads on a DT initiative, as regards their role or title, it is more important to appreciate the factors that are critical to driving a successful DT outcome in organisations. Despite the growing volume of academic research, it is still hard to find comprehensive coverage of the defining characteristics of "doing" DT (even in the trade press) that are linked to *"what"* action a DT leader needs to take and *"how"* they enable that action, where they are striving for the best possible outcome in a DT initiative. This takes on a "must know" significance for the IS field when we consider that DT is a complex and multidimensional phenomenon (Porfírio et al., 2021, Tabrizi et al., 2019), and the DT process *"is not well understood"* within an IS context (Carroll, 2020, p.1). Therefore, the objective of this research is to explore the Critical Success Factors (CSFs) for DT. In order to fulfil this objective, we pose the following **Research Question:** *What are the CSFs for Digital Transformation (DT) that impact positively on the outcome of a DT initiative within a pre-digital organisation?* To answer this research question, we follow a theory building research strategy in order to develop an understanding of the CSFs for DT from those practitioners currently 'in the DT trenches'. This approach affords us the opportunity to *'capture the meaning'* from those practitioners *'living the experience'* (leading a DT initiative) and *'theorize about that experience'* (Gioia et al., 2012, p.17).

The remainder of this paper is structured as follows. In the next section we focus on the research approach being followed. This is followed by a presentation of our observations gained through coding sixteen key informant interviews (those operating as DT leaders in their respective organisations). The paper concludes with a model of the CSFs for DT and opportunities for further research.

3.2 Theoretical Underpinnings: Why the need for CSFs?

The pace of DT is accelerating within organisations of all types and sizes, across all industry sectors, and this has led to a significantly increasing commentary around what

we refer to as *"doing"* DT. For the purposes of this research *"doing"* DT is defined as leveraging digital technologies to significantly alter an organisational design in order to enhance customer engagement. To date, reviews of the literature, focusing on DT, have been conducted (e.g. (McCarthy et al., 2021, Vial, 2019, Morakanyane et al., 2017, Gerster, 2017, Piccinini et al., 2015, Henriette et al., 2015, Besson and Rowe, 2012)). This emerging scholarly attention positions DT as a *"leading technology-related phenomenon"* (Wessel et al., 2021, p.102). Despite this growing research focus, it is hard to find a well-established set of CSFs for DT, particularly in a pre-digital organisational context, from either the academic literature or trade press. Like all types of change programmes, DT can be understood as altering the *people*, *process*, *technology,* and *data* components of an organisation (Muehlburger et al., 2019, Matt et al., 2015).

For the purposes of this research CSFs are defined as *"areas of activity that should receive constant and careful attention from management"* (Rockart, 1979, p.85), CSFs have been widely investigated and used in IS research and practice over the last three decades in order to make sense of problems by identifying the factors that could influence business activities and outcomes (Alhassan et al., 2019, Shah et al., 2007; Butler and Fitzgerald, 1999; Jensen 1986). Throughout this period, researchers have identified CSFs, that need more attention from managers, in areas ranging from "project-type" operational initiatives to more "mindset shift" strategic initiatives (Alhassan et al., 2019). In essence, their continuing popularity is linked to their most valued characteristic of simplicity, as a statement of focus and action. Interpretive qualitative research is an appropriate research design to apply when exploring CSFs and several scholars have investigated and explored CSFs in IS by applying qualitative methods (Alhassan et al., 2019, Sammon and Adam, 2008; Butler and Fitzgerald, 1999). One IS topic, synonymous with ITOT (IS/IT-enabled organisational transformation) (Wessel et al., 2021), is the *Transformation Investment* (Ross and Beath, 2002) in ERP (Enterprise Resource Planning) systems that defined much of the 1990's and 2000's for organisations globally. In particular, this ITOT body of literature provides significant coverage of the CSFs for ERP project/programme implementations. However, there appears to be a lack of CSF coverage for the current wave of organisational DT initiatives. Therefore, we argue that understanding the

CSFs for DT could lead to a more successful DT outcome within an organisation, specifically when appreciating the associated actions of DT leaders, and given the large percentage of DT initiatives that do not reach their desired goals. In fact, research shows that "failure rates" for the introduction of IS initiatives still remain high (O'Neill, 2019; Cecez-Kecmanovic et al., 2014). The rate of failure suggests the need to focus the attention of IS professionals and academics on addressing and developing a list of factors that will enable the successful delivery of IS initiatives (Alhassan et al., 2019).

Although DT is considered an emerging area, several researchers have proposed different DT process models (Rueckel et al., 2020); (Muehlburger et al., 2019) These researchers have helped our understanding of the DT concept and in shaping its boundaries. However, more theoretical/empirical studies are needed to explore how organisations can undertake DT in a meaningful way (Mergel et al., 2019). Furthermore, only a limited number of papers, and none explicitly, have examined the CSFs for DT. Therefore, given the absence of prior literature explicitly addressing the CSFs for DT in a pre-digital organisation, we believe that our work shifts the frontier of knowledge on DT and presents a new way of conceptualising DT. We set about understanding the CSFs for DT in a pre-digital organisation in a unique way, using a grounded approach. We present nine CSFs for DT that emerge from analysing sixteen key informant's accounts of their lived experiences ("what" and "how" of DT). We believe that our approach strengthens the relevance of our research outputs for practitioners, where the practitioner voices and their lexicon are central to the theorising and the outputs produced. In the next section we present a detailed description of our research approach to building theory.

3.3 Research Approach

For the purposes of this research we follow a theory building research strategy where our ambition is to build theory, and in so doing, we embrace an approach aligned with *"concept development"* as opposed to *"construct elaboration"*, (Gioia et al., 2012, p.16). Therefore, being inspired by features of the Gioia Methodology, which is

positioned as a *"systematic inductive approach to concept development"* (Gioia et al., 2012, p.17) and assumes that *"the organisational world is socially constructed"* (Gioia et al., 2012, p.17), we aim to conceptualise the practitioner voice and not *"substitute practitioners' understandings for theory"* (Markus and Rowe, 2021, p.273). As a result, in data collection there is a need to *"give extraordinary voice to informants, who are treated as knowledgeable agents"*; while in data analysis there is a need to maintain *"the integrity of 1st order (informant-centric) terms"* during initial data coding, and further *"organise 1st-order codes into 2nd-order (theory-centric) themes"* (Gioia et al., 2012, p.26).

3.3.1 Data Gathering

To answer our research question, we select sixteen key informants based on their organisational perspective (Business or IT) and role (Strategic or Operational). This stratified selection of key informants affords us the opportunity to *"capture the consonance (or dissonance) between plans* [strategic] *and their implementation* [operational]*"* (Day et al., 2009, p.641) while also appreciating that *"leadership has also a critical role in engaging information system leaders and business leaders"* (Porfírio et al., 2021) because the *"impact of DT"* on the *"business"* is *"technology-enabled"* (p.616). Furthermore, given the ongoing interest (amongst both researchers and practitioners) in IT and business alignment, this stratified selection also provides an opportunity to see the "fit and integration" between business and IT perspectives on DT, both strategically and operationally, around *people*, *processes*, *technologies* and *data* (Yeow et al., 2018). In fact, (Smith and Watson, 2019, p.85) in using the metaphor of a *"tapestry"* and its *"weavers"* of the *"threads"* explicitly refer to the *"business thread"* and the *"IT thread"* of DT (the *digital tapestry*). The literature also reminds us of the importance of a well-functioning and collaborative strategic partnership between IT and business leadership for the purpose of change adaptations throughout the DT process (Singh and Hess, 2017., Hess et al., 2016., Matt et al 2015., Bharadwaj et al., 2013). In short, in order to design a new digital experience and an improved portfolio of digital offerings to change the way the organisation engages with customers, organisations will require the expertise of both IT and business personnel to operate in partnership (***reference withheld for review purposes***). These

sixteen key informants (representing eleven organisations) are considered DT leaders within their respective organisations and their voices reflect those of their industry peers. On average these key informants have 15+ years of industry experience in the area of business/IT transformation. Our approach to key informant selection allows for four types of practitioner voices to be heard (e.g. *IT Strategic*, *Business Strategic*, *IT Operational, Business Operational*) as we theorise about the CSFs for DT in a pre-digital organisation. Each key informant was categorised in one of the practitioner voice quadrants based on an appreciation of the nature of their activities on a DT programme. The key informants were recruited through (i) prior knowledge of, and working relationships with, practitioners currently active in a DT programme, (ii) speakers at practitioner conferences and webinars, and (iii) LinkedIn connections. Interviews are considered the most appropriate data gathering technique for collecting rich and detailed data from industry experts (Koh and Tan., 2011) and are a typical data gathering technique with the key informant approach (Whittaker, 2012, Barker et al., 2005). In this study, we conduct a series of semi-structured interviews (four per practitioner voice type), where each key informant reveals their experiences (positive and negative) with "doing" DT (see Table 3-1 for a list of the interviewees and their respective backgrounds). Interviews took place over sixteen months (between November 2018 and February 2020) and ranged in duration from 35 to 75 minutes with an average interview duration of 60 minutes (See ***reference withheld for review purposes*** for the interview guide used in this research). It is also worth mentioning that the sixteen key informants are affiliated with organisations *"born in the pre-digital age"* and they are conscious that they are balancing *"tensions between the 'old' and the 'new'"* when transforming (Oberländer., 2021, p.1).

3.3.2 Data Analysis

The emphasis of qualitative data analysis is on "sense making" (Bhattacherjee et al., 2012) and coding is one of the techniques widely used in analysing qualitative data in order to build theory (Buchwald et al., 2014, Tallon et al., 2013). In this research we follow an inductive open, axial and selective coding approach, where these coding techniques aim to generate concepts from field data (Walsham, 2006). According to (Corbin and Strauss, 1990, p.67), coding *"represents the operations by which data are*

broken down, conceptualized, and put back together in new ways". Therefore, *open coding* is a process that aims to identify the concepts or key ideas that are hidden within data that are likely to be related to the phenomenon of interest (Bhattacherjee et al., 2012) and concepts that appear to be similar are grouped together under a higher-order, more abstract concept called a category (Corbin and Strauss, 1990). The second reading of the data is considered during *axial coding* (Dezdar and Sulaiman, 2009), which is performed simultaneously with open coding (Bhattacherjee et al., 2012, Corbin and Strauss, 1990). During this stage, where the researcher thinks systematically about the data in order to relate them, the categories are refined in order to be linked in the form of relationships (Alhassan et al., 2019). Finally, *selective coding* begins when researchers identify a potential core category (Tan et al., 2015), focusing then on the core categories and related categories that accrued in the axial coding. This involves comparing the core categories with the raw data by telling the story of the core categories that emerge (Corbin and Strauss, 1990). Therefore, "*what coding does, above all, is to allow the researcher to communicate and connect with the data to facilitate the comprehension of the emerging phenomena and to generate theory grounded in the data*" (Basit, 2003, p.152).

Key Informant Position	**KI Quadrant**	**DT Initiative**	**DT Classification**	**Experience (years)**	**Sector**	**Industry**	**Org Type**	**Org Size (employees)** (all figures are *less than*)
IT Services Director	ITS	S	L	20-25	PU	H.Ed.	SME	2.5K
Chief Information Officer	ITS	M	L	15-20	PR	Agri	SME	.2K
Global Director of Digital Services Platform	ITS	M	G	25-30	PR	Energy	MNC	10K
Senior Software Development Manager	ITS	S	L	20-25	PR	S/ware	MNC	2K
Chief Executive Officer & VP	BS	M	G	25-30	PR	Energy	MNC	10K
Director of Academic Affairs & Digital Services	BS	S	L	20-25	PU	H.Ed.	SME	2.5K

Chief Information Officer & VP	BS	M	G	25-30	PR	Tech	MNC	50K
Senior Global Business Transformation Director	BS	M	G	20-25	PR	Tech	MNC	50K
Senior Digital Solutions Engineering Manager	ITO	S	G	15-20	PR	Tech	MNC	15K
IT Manager	ITO	S	L	15-20	PU	H.Ed.	SME	1.8K
Chief Technology Officer	ITO	S	L	15-20	PR	Agri	SME	.15K
Lead Digital MIS Analyst	ITO	S	L	10-15	PU	H.Ed.	SME	2.5K
Business Transformation Officer	BO	M	G	15-20	PR	Tech	MNC	50K
Director of Operations & Global Support Services	BO	M	G	20-25	PR	Tech	MNC	15K
Business Transformation Director	BO	M	G	20-25	PR	H/care	MNC	80K
Business Transformation Manager	BO	M	G	15-20	PR	Tech	MNC	15K
Business Strategic (BS), IT Strategic (ITS), Business Operational (BO), IT Operational (ITO) DT initiative (S-Single; M-Multiple) | DT Classification (G-Global; L-Local) | Sector (PU-Public; PR-Private)								

Table 3-1 Key Informant Overview.

For this research, the open, axial, and selective coding process took place over a 22-month period (from June 2019 to March 2021). This coding was conducted on three levels, as follows: (i) on each individual transcript (*micro*), (ii) within each quadrant (*meso*), and (iii) across all four quadrants (*macro*). There was also a reflection back to the literature during each of these coding levels. The tempo with which the key informant interviews were completed, dictated the tempo with which the coding of data progressed also. During the coding process, the research team followed *'collaborative reflection'*, to offer a *"diversity of perspectives"* and challenge assumptions (c.f. Olmos-Vega et al., 2022, pp.5-6). For each key informant interview, the lead author transcribed the interview and generated a structured transcript, which was then independently coded (reading the transcript sentence-by-sentence and following an inductive open coding approach) by the lead author and the 2nd author. Thereafter, the coding outputs for each structured transcript (*micro*) were compared

and consolidated, following discussion. These discussions maintained the ongoing accuracy and consistency of our coding. Furthermore, when the tempo allowed, the four coded outputs belonging to each quadrant (*meso*) were also analysed by all three research team members. This afforded the opportunity of an external challenge (given the somewhat more 'objective' view of the 3rd author – having not been "in the weeds" coding each interview transcript). Finally, our constant comparative analysis efforts culminated in an analysis of all four practitioner voice quadrants (*meso*) towards the end of the 2-year period. In total, approximately 40 rounds of coding conversations took place (averaging one per fortnight) throughout the 22-month period.

During *open coding* we were initially looking for two sides of a key informant's DT experience, namely the "what" and the "how" of "doing" DT. This simply translates as "what" action they need to take and "how" they enable that action, in their role as a DT leader. These actions are in the context of the key informant striving for the best possible outcome in a DT initiative. The output from our open coding produced 95 concepts from 348 key informant excerpts. After coding the first two interviews, *axial coding* (the second reading of the data) was commenced in an iterative manner (as categories started to emerge) in order to identify and clarify the relationships between the emerging categories. During this iterative process, similarities and differences among the categories emerged thus reducing the number of categories to 14 (emerging from the 95 concepts). For the purposes of this paper, we leverage the six most frequently occurring categories (DT characteristics), as follows: *Digital Strategy*, *Customer Focus*, *Culture Change*, *Digital Platform*, *Data Driven*, and *Value Creation*. These six categories and the nine relationships between them are shaped by all four practitioner voice quadrants. See Table 3-2 for an illustration of our coding. Finally, our efforts at *selective coding* allows us to tell a compelling theorising story around the outputs (the nine CSFs for DT in a pre-digital organisation – see Figure 3-1). In the next section we present our findings and discussion.

KI	Key Informant Coded Excerpt	Concept	Category	Relationship
BS	you have a vision of what your future digital capabilities are going to be like as is outlined in your digital strategy	underpin the strategy with digital capabilities	Digital Strategy	A Clearly Communicated Message (the Purpose of the Strategy) to Ensure Buy-In (**CSF#1**)
ITS	you've got to underpin the digital capabilities that will make that happen, that's obviously a function that the business must carry			
BO	an understanding of what you need in place to implement your digital strategy requires the support from those in operations so that it will be successful			
ITO	an acknowledgement of what they want to transform and how they feel transforming grows the company by using digital capabilities			
BS	it thrives on support from the top of the company to create the vision and the mission of its digital future	acquire top level sponsorship for cultural change	Culture Change	
ITS	digital transformation needs executive level sponsorship for it to be successful to get through to the ranks of the organisation			
BO	you need to empower people to be bold, I think that's key as well, we're all afraid of transformation and ultimately everybody's afraid of change			
ITO	so, I think it has to be a partnership, where it works, really well is where we have leadership from IT and leadership from the business coming together to set-out how the transformation will be implemented			
Business Strategic (BS), IT Strategic (ITS), Business Operational (BO), IT Operational (ITO)				

Table 3-2 Sample coding of the relationship between the categories for CSF#1.

3.4 Findings & Discussion: The CSFs for "doing" DT

In this section we present the nine CSFs for DT in a pre-digital organisation. These CSFs are presented in order of importance based on the frequency of mention of the six DT characteristics (*Digital Strategy* [85 coded excerpts], *Customer Focus* [62 coded excerpts], *Culture Change* [46 coded excerpts], *Digital Platform* [38 coded excerpts], *Data Driven* [30 coded excerpts], and *Value Creation* [27 coded excerpts]). These prioritized defining characteristics emerge from an analysis of the sixteen practitioner voices presented in (***reference withheld for review purposes***). See Figure 1 for a visual representation of these CSFs. To show the distribution of the key informant excerpts (across the practitioner voice quadrants) for each DT characteristic, we use a RAG colour scheme to make it visually obvious. Each colour represents a % of the total coded excerpts for that characteristic (e.g. green >30%; amber <=30% and >15%; red >15%). So, for *Digital Strategy*, with 85 coded excerpts: 28 (33% - green) associated with *Business Strategic* (BS), 27 (32% - green) associated with *IT Strategic* (ITS), 17 (20% - amber) associated with *Business Operational* (BO), and 13 (15% - red) associated with *IT Operational* (ITO).

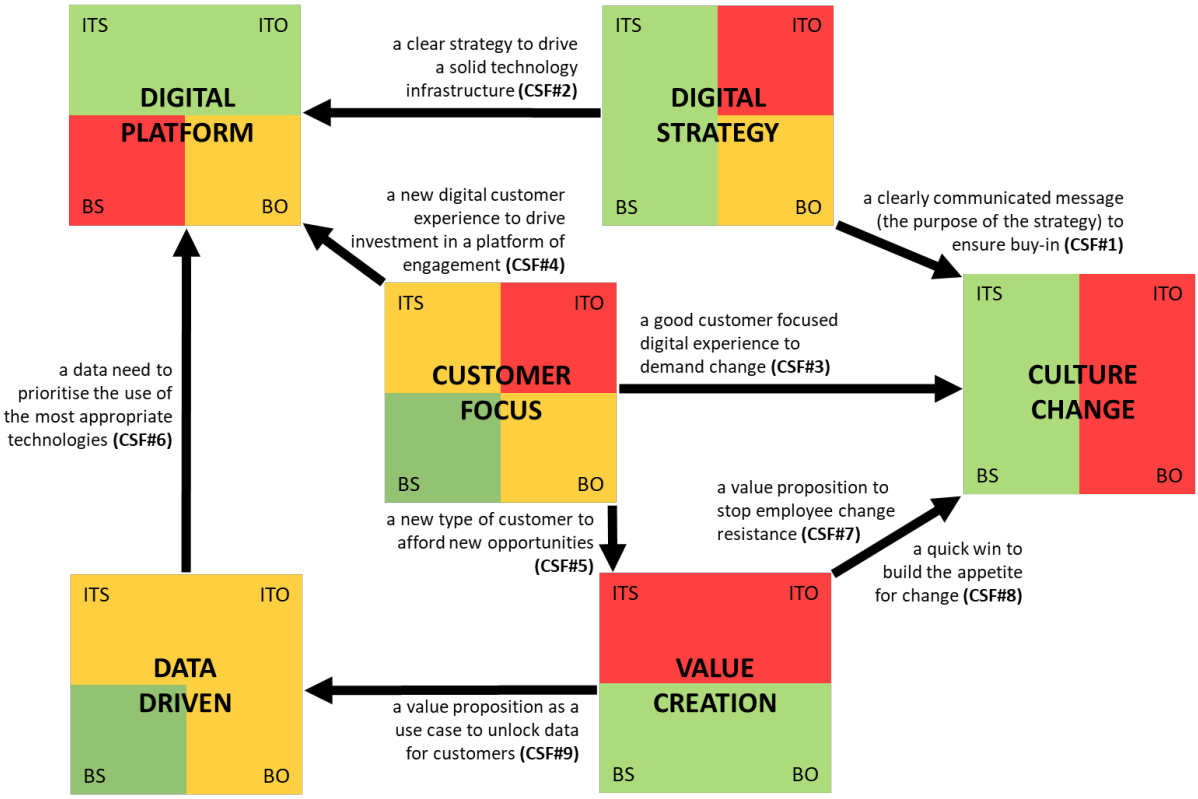


Figure 3-1 A conceptual model of the CSFs for DT in a pre-digital organisation.

3.4.1 The Six Defining Characteristics of "doing" DT

Each of the six defining characteristics of "doing" DT are described as follows:

1. *Digital Strategy* is concerned with delivering a clear strategy (what) enabled by the digital capabilities (how), communicating the digital strategy from the top down (to all), aligning the business / digital strategic visions with the technology used, and understanding the role of people within the digital strategy.

2. *Customer Focus* is concerned with designing customer-centred services using a suitable digital platform, creating a digital experience for target sets of customers, supporting (effective) customer engagement through a digital platform, and translating the needs of customers into digital touchpoints.

3. *Culture Change* is concerned with aligning the need for transforming digitally (from the top down), communicating the message to people to ensure positivity

around the change, building an emotional connectedness to the change (in all), and understanding employee sensitivity to change (the why of the change).

4. *Digital Platform* is concerned with designing foundations for a digital platform to enhance digital experiences, delivering the business vision using appropriate technologies, implementing technologies to solve a defined business problem, and improving business operations with the right blend of technology.

5. *Data Driven* is concerned with building digital capabilities to source purposeful business data, designing a data strategy to extract value from data use, capturing high quality data for business use, and interpreting what the data is saying from the business context.

6. *Value Creation* is concerned with demonstrating how the exploitation of technology translates data into value, translating data into value propositions (for key stakeholders), leveraging technology to enable effective ways of working, and measuring the value delivered to customers (and all stakeholders).

As illustrated in Figure 3-1, the eight business-oriented practitioner voices dominate the *Value Creation* conversation, whereas the eight IT-oriented practitioner voices dominate the *Digital Platform* conversation. The eight more strategic-oriented practitioner voices dominate the *Digital Strategy* and *Culture Change* conversations. Finally, the Business Strategic quadrant (four practitioner voices) dominate the *Customer Focus* and *Data Driven* conversations. Based on our analysis some interesting patterns emerge regarding the nature of the relationships between the six DT characteristics. The *Customer Focus* characteristic is the single most important factor (having an impact on three other characteristics) when "doing" DT. Whereas, the *Culture Change* characteristic is the most impacted, with four relationships, involving three characteristics, impacting on it. Furthermore, the *Digital Platform* characteristic is also impacted by three other characteristics. Finally, the *Value Creation* characteristic has an impact on two other characteristics; however, more specifically, *Value Creation* has a significant impact on *Culture Change* (with two

relationships). We now present the nine CSFs for DT in a pre-digital organisation. Each CSF defines the relationship between two DT characteristics.

3.4.2 CSF#1: A Clearly Communicated Message (the Purpose of the Strategy) to Ensure Buy-In

This CSF defines the relationship between *Digital Strategy* (ranked 1st on coded frequency) and *Culture Change* (ranked 3rd on coded frequency). Ultimately, an understanding of the *Digital Strategy* is critical, as enterprise-wide disruption from "doing" DT can only happen where a willingness to change (*Culture Change*) for the "right vision" exists. The view also exists that getting buy-in when "doing" DT requires leadership, that brings something different, a freshness, new ideas and invigorates the entire organisation (captured in the *Digital Strategy*). For example, a Business Strategic key informant suggests that *"people need to know what they're buying into, they need to know what they're investing in, they need to see a coherent way of putting that together and understand the benefit of doing it"*. While another Business Operational key informant simply states *"companies don't transform, people transform companies, so if the people aren't on board, it's not going to happen, or its going to take a lot longer. People must understand why they're transforming"*. Therefore, while *Culture Change* needs to be sponsored and driven from the executive and senior leadership, it also needs to be conveyed in a manner where buy-in from those in operational roles, who may have reservations about the benefits from DT, will be forthcoming. Therefore, the importance of getting the right type of people for your organisation, so that they positively influence its evolution, is critically important. Furthermore, allowing the message to transcend to people in your organisation also embodies a positive culture. As one of the Business Strategic key informants suggests *"people must fit the culture of your organisation and must be entertained and excited by the change"*.

3.4.3 CSF#2: A Clear Strategy to Drive a Solid Technology Infrastructure

This CSF defines the relationship between *Digital Strategy* (ranked 1st) and *Digital Platform* (ranked 4th). This CSF outlines the importance of creating a clear and coherent *Digital Strategy* to drive a solid technology infrastructure (enabling the choice of the appropriate technologies to be incorporated into a *Digital Platform*) which will be required for successfully "doing" DT. For example, as one of the IT Strategic key informants suggests *"start by aligning the business strategy, then see how digital becomes a key enabler for it"*. Furthermore, according to another IT Strategic key informant *"digital transformation is about painting a vision, getting the leaders of the organisation bought into the vision, thereby helping them to manage, to change, and to get the full value from technology"*. While the IT Strategic key informants speak of DT as beginning with designing the "right" *Digital Strategy*; they do so in order to understand what digital capability investments and initiatives are needed to deliver the transformation. From an IT Strategic perspective, identifying how your digital capabilities can deliver your strategic digital vision is fundamental. They also emphasise that aligning the business strategy and digital strategy (at both strategic and operational levels within the organisation) is a must when "doing" DT. Therefore, for Strategic key informants, investing in the "right" technologies and aligning these technologies and innovations with the organisation's objectives (*Digital Strategy*) are seen as key to a reliable and resilient *Digital Platform*. As commented by one of the IT Strategic key informants "*so we're building huge capability where we're transforming our operational backbone to make ourselves fit for purpose in a digital sense".* Furthermore, intrinsically important in a *Digital Strategy* is having a strategic vision, as highlighted by an IT Strategic key informant *"I would say you have to have a vision of what your future digital capability is going to be; furthermore, digital strategy enables the appropriate technology to be incorporated to deliver a successful digital transformation"*.

3.4.4 CSF#3: A Good Customer Focused Digital Experience to Demand Change

This CSF defines the relationship between *Customer Focus* (ranked 2nd) and *Culture Change* (ranked 3rd). This CSF outlines how a good customer focused digital experience to demand change is important for successfully "doing" DT. The focus on the customer should be clear and evident before an organisation decides on "what they need to change" as part of their transformation. For example, one of the Business Strategic key informants suggests that "*organisations must be customer driven, to the degree that you need to continually and formally measure where people are in terms of the transformation".* The importance of being able to create and build a digital experience for the customer is further outlined by a Business Strategic key informant, suggesting "*we expect our customers to praise us because of the good job we do and the strong relationship we have that helps the customer to buy more; but, to create this digital experience that the customer desires, you have to be continuously innovative with your existing products for your present customer needs".* Therefore, creating new digital channels of engagement with customers, strengthening relationships and enhancing the customer digital experience, while also expanding customer segments and ensuring customer prioritisation, are all critical elements of DT. This is supported by one of the Business Operational key informants stating that *"we are trying to be more agile in our approach, using various customer touchpoints and understanding what the customer wants, and we operate in two-week sprint cycles to adjust to the needs of the customer"*. Furthermore, as commented by one of the IT Operational key informants *"creating that digital experience means changing the ways you approach your customers"*.

3.4.5 CSF#4: A New Digital Customer Experience to Drive Investment in a Platform of Engagement

This CSF defines the relationship between *Customer Focus* (ranked 2nd) and *Digital Platform* (ranked 4th). This CSF outlines how a new digital customer experience to

drive investment in a platform of engagement is core to the success of "doing" DT. When "doing" DT, the importance of being customer-oriented (*Customer Focus*) and providing a digital customer experience is significant if the organisation wants the customer to engage with them and embrace the digital outputs (*Digital Platform*) as it takes shape. For example, an IT Strategic key informant states that *"organisations will have to setup internal innovation teams to build platforms, and this will be conducive to securing incremental gains over time, through getting closer to their customers"*. Furthermore, a Business Strategic key informant highlights *"to get complete context and situational awareness that you can manage, build collaboration and communication tools that allow you to manage the engagement, whatever it might be; so, you know who's doing what, who's communicating to whom, who's collaborating on it, and who needs to know about what the status of it is"*. In fact, these strategic practitioner voices also suggest trialling the digital outputs (*Digital Platform*) with the most trusted customers, so that the organisation has an "early adopter customer advocate" that will act as a catalyst and point of reference for other customers. In effect, showcasing a positive digital experience to customers will increase buy-in to what the organisation is doing. For example, as commented by one of the IT Operational key informants *"we're more focused on understanding what customers are trying to do within their businesses and how we can use technology to help them to achieve those business objectives"*. Furthermore, IT Operational key informants highlight the emergence of the 'cloud customer' and how the importance of digitalization and creating a *Digital Platform* will facilitate a more substantive engagement with this customer base (*Customer Focus*). As stated by one of the IT Operational key informants *"when we looked at transforming significantly from standard systems to what I would call 'cloud systems', we now call them 'cloud customers'"*.

3.4.6 CSF#5: A New Type of Customer to Afford New Opportunities

This CSF defines the relationship between *Customer Focus* (ranked 2nd) and *Value Creation* (ranked 6th). The importance of being customer-oriented (*Customer Focus*) and providing a digital experience, where the benefits to the customer (*Value*

Creation) are increased through digital capabilities is key when "doing" DT. This CSF outlines how DT brings new opportunities from new customer engagement; therefore, creating value for customers, new and old, needs an alignment between *Customer Focus* and *Value Creation*. For example, a Business Strategic key informant states that "*our customer needs are changing very rapidly, and we, as an organisation, need to be able to respond to those. So, we need to consider how we actually hear and gather our customer requirements, and also how we respond to those and how we deliver on what they're looking for*". Considering how DT affects customers requires an understanding of the diversity of the customer base and the changing needs of these customers. The key informants refer to being agile in approach, using various touchpoints in getting a greater understanding of what it is the customer wants and adjusting to the needs of the customer. While IT Operational key informants highlight the emergence of the 'cloud customer' and how the importance of digitalization and creating a *Digital Platform* will facilitate a more substantive engagement with the customer base and will afford the customers the opportunity to see the *Value Creation*. Being customer centric means not only having "an understanding of" but having the where with all to "respond to" the changing needs of customers. Key for the customer is how an organisation can create new value and opportunities - provide them with a "value proposition". For example, IT Strategic and Business Operational key informants refer most often to the *"younger generation"* or *"digital natives"* as the *"new customer type"*. One IT Strategic key informant suggests that this new customer type is *"very sophisticated in the way they manage their relationships through online channels (interacting using digital platforms)"*. Furthermore, a Business Operational key informant states that *"we need to be aware that customers are now open to digital engagement. Engagement relationships are changing with the younger generation, the 'new customer'. They want to engage with pharmacies/ doctors in the same way they engage with 4 Star Pizza (e.g. use an app to do an e-prescription straight to the pharmacy)"*.

3.4.7 CSF#6: A Data Need to Prioritise the Use of the Most Appropriate Technologies

This CSF defines the relationship between *Data Driven* (ranked 5th) and *Digital Platform* (ranked 4th). This CSF presents data as a pointer or a compass (an illustrator of how the organisation is performing). Being able to capture data from sources that present themselves to the organisation is a key feature when "doing" DT. The importance of using the "right" technologies (*Digital Platform*) to capture, analyse and interpret 'high quality' data, in order to provide insights (*Data Driven*) on the current state of the organisation and how it can be improved, is at the core of DT. For example, an IT Strategic key informant highlights that "*at the end of the day, data is the real measurement of what you got right or wrong, and so without data, you're blind*". Furthermore, an IT Operational key informant states that *"all kinds of technology generate data, and digital platforms give us the means to capture the data, also deep dive into the data and interpret the data properly"*. Therefore, there is a need to tell the story with data. These key informants view the purpose of what the organisation wants from the data and where the organisation are getting the data from as key; while also focusing on using the most appropriate technologies to ensure that the data are secure and always available to organisational business units. There is also significant support for the importance of the timeliness of data gathering and analysis. As an IT Strategic key informant highlights *"you can spend your life creating dashboards, creating reports, etc., but, you know, people are wanting real time data and they're only looking at it once a week, so it's got to be informative and giving them what they want"*. Another IT Strategic key informant suggests that *"IT will be trying to lobby for good data and identifying sources to provide it, from good business process practices, so you get good data which will be used to drive your decision outputs"*.

3.4.8 CSF#7: A Value Proposition to Stop Employee Change Resistance

This CSF defines the relationship between *Value Creation* (ranked 6th) and *Culture Change* (ranked 3rd). This CSF outlines that how organisations embrace new cultural and behavioural changes is core to successfully "doing" DT. In effect, a key factor in being able to implement a successful DT, is the organisations ability to strive for improvement and to embrace new opportunities and to be ready to attract new talent.

The importance of stating a value proposition (*Value Creation*) for stakeholders across the organisation and especially in functional areas that struggle to see the benefits of DT is critical, as it can stop some of the change resistance (*Culture Change*) that DT may create in an organisation. For example, a Business Strategic key informant states that *"people must fit the culture of your organisation and must be oriented to evolving it"*. Therefore, going through the process of changing an organisation's culture so that it assists the implementation of DT is core to that transformation journey and is seen as a critical determining factor as to whether it is successful or not. As commented by one of the Business Operational key informants **"***you need to empower people to be bold, I think that's key as well, we're all afraid of transformation and ultimately everybody's afraid of change".* While another Business Operational key informant comments that *"every employee in the organisation needs to emotionally connect with the transformation, not just understand the need, but are actually excited by doing it"*.

3.4.9 CSF#8: A Quick Win to Build the Appetite for Change

This CSF defines the relationship between *Value Creation* (ranked 6th) and *Culture Change* (ranked 3rd). Being able to demonstrate "the how" of *Value Creation*, through achieving *quick wins*, is of critical importance when "doing" DT as it fosters an appetite or willingness for change (*Culture Change*). Changing the culture requires creating an openness to ensure that there is connectedness between management and employees alike. This requires both support and sponsorship from the executive level so that it can transcend from the strategic level to the operational level. For example, a Business Strategic key informant states that *"you've got to be able to distil the messages that people can consume and latch onto, and understand the kind of mission that they're on".* However, the IT strategic key informants also highlight that *Value Creation* can be achieved by creating revenue opportunities through technology-enabled organisational change (*Digital Platform* and *Culture Change*). As commented by one of the IT Strategic key informants *"you can create a true demonstration of what a transformation means, the value of it, through quick wins and showing them what other companies are doing".* Indeed, the IT Strategic and Operational key informants refer most often to finding *"low hanging fruits"* or *"quick wins"* and their importance to *"build credibility"* and *"feed into long-term plans"*. For example, one

IT Strategic key informant provides an example of a 'quick win' where they were *"building an online portal to handle payments for transcript requests, turning a 4/5 week wait into 2/3 days"*. However, an IT Operational key informant warns that *"quick wins, where you paint lipstick on the pig, or do window dressing, are not desirable; 'quick wins' must provide momentum"*.

3.4.10 CSF#9: A Value Proposition as a Use Case to Unlock Data for Customers

This CSF defines the relationship between *Value Creation* (ranked 6th) and *Data Driven* (ranked 5th). Being able to unlock data for customers, through purposeful and compliant analysis, (*Data Driven*) will deliver customer-focused business value (*Value Creation*); therefore, this CSF highlights the organisational imperative to be data-driven when "doing" DT. This entails identifying the appropriate technologies required to gather, analyse, and measure the data in a meaningful way so that it can be presented to decision makers in order to extract value for the organisation: [1] in how it can guide the DT initiative, and [2] in how it can create a competitive advantage. For example, one Business Strategic key informant highlights that being data driven is difficult and is based on an assumption *"that you can get at the data, and you've got some ingestion methodology to extract value from the data, for your digital transformation*". In fact, one of the IT Strategic key informants also suggests that "*it's the holy grail of what you want, to unlock data for customers and translate that into a value proposition, as they tend to see the value very quickly*". However, another IT Strategic key informant states that *"90% of data is still not in the cloud. It's still stuck in 'on premise' systems within companies, so there is a long way to go yet to unlock data"*. Furthermore, the importance of using data to extract value for the organisation, when "doing" DT, is also highlighted by a Business Strategic key informant who suggests that "*you need to gather your data, analyze it and make efficient use of it in real time. As one of our experts once said, you wouldn't put a query into Google today and wait until Monday for the answer. So you want to extract business value from it quickly in a compliant way".* In essence, how organisations engage with customers, through their data, to improve their own competitive advantage, and to create a viable value proposition for their customer base, through enhancing their customer

experience, expanding their customer segments, and ensuring customer prioritisation, is core to this CSF.

3.5 Conclusions, Implications for Practice & Future Research

Reflecting on our analysis, and in answering the RQ posed in this paper, we present nine CSFs for DT in a pre-digital organisation in order to enhance organisational DT outcomes. We advance the first comprehensive conceptualisation of the CSFs for DT in such a pre-digital context. This is an important first step towards the creation of a set of conceptual elements that can inspire further study. In this paper we have presented our process (theorising) in order to avoid *"'blackboxing' the process of discovery"* (Hammond, 2018, p.3). Here, theorising is about focusing on what is important and *"abstracting something from the data in order to explain what is happening"* (Hammond, 2018, p.4). Through finding patterns, across the four types of practitioner voices, in what appear to be disparate accounts of "doing" DT, we present a conceptual model (see Figure 1) showcasing the CSFs for DT. This model is the *"product of a long engagement with data"* (Hammond, 2018, p.5). These research findings contribute to IS theory development by adding to our current understanding of DT and illustrating the usefulness of CSFs when evaluating such initiatives. This research also provides managers with a *"CSF-based recipe"* (see Figure 1) for achieving *"transformation investment outcomes"* which will also *"increase the perceived usefulness of CSFs to managers in general"* (Sammon and Adam, 2008, p.13). While these CSFs may appear generic or obvious in-and-of-themselves, it is the relationships between the CSFs and their combined impact, which organisations must understand and focus upon. As argued by (Sammon and Adam, 2008) this is particularly important if an organisation is *"striving to produce outcomes in-line with those expected from a transformation investment"*.

It is hoped that this research will promote a *focal awareness* versus a *subsidiary awareness* (c.f. (Hammond, 2018, p.6) amongst scholars and practitioners with regards to what is important when "doing" DT. It is also hoped that it will help practitioners to avoid the hidden traps in their decision making (e.g. *status quo trap*,

sunk-cost trap, *overconfidence trap*, etc.) (Hammond et al., 1998) and keep focus on the CSFs that will increase the likelihood of a successful DT outcome. So, what does our work mean for DT in a pre-digital organisation? We propose that for DT leaders, it's trying to get the composition of the DT process right; finding a balance so that DT delivers a successful outcome across the organisation. We appreciate that "doing" DT is difficult in practice as it involves 'getting the idea' of what DT is all about packaged together, and communicated to all levels of the organisation, so that the benefits and value are apparent and visible to all. Furthermore, DT leaders must consider the importance of a digital culture, seeing it as a significant part in the enablement of the digital strategy, and also key in demonstrating value creation to employees and customers alike. Therefore, getting the necessary buy-in that comes from an 'enthusiasm' and a 'willingness' from employees across the organisation is a top priority for DT leaders. Finally, DT leaders need to build out a digital architecture and create a digital platform that will provide the foundation for achieve a successful DT outcome.

3.5.1 Implication for Practice

Similar to (Rosemann and Vessey, 2008, p.3) we view the *importance* dimension of research relevance for IS practitioners as research that *"meets the needs of practice by addressing a real-world problem in a timely manner* [currently significant]*, and in such a way that it can act as the starting point for providing an eventual solution"*. Therefore, we argue, given our methodological approach to this research, that the CSFs for DT in a pre-digital organisation are provided "by practitioners, for practitioners", and this should improve the consumption of our work by IS practitioners, given its relevancy. Extending this idea of *importance* even further, our research presents the raw materials of a method for practitioners to evaluate their respective DT efforts. There is no doubt that DT is a current hot topic and a top concern for many practitioners (both business and IT). However, the ability to lead a DT initiative, and be successful in doing so, is an area of IS research not yet well established. Therefore, the work presented in this paper is an effort at addressing this current shortfall. For example, through simply undertaking a self-assessment exercise on the *presence* or *absence* of the CSFs (presented in Figure 3-1), a DT leaders' level

of awareness will be raised as to the importance of previously unknown factors (if absent) in their organisational context. Furthermore, similar to the arguments made by (Sammon and Adam, 2008), in the context of ERP projects, such awareness of the CSFs would increase the organisations likelihood of achieving the desired expected outcomes (from "doing" DT). Finally, to further increase the relevancy of this work (around *accessibility* and *applicability*) the CSFs for DT in a pre-digital organisation are ordered by criticality (based on the outcome of our theorising work). To note, as per (Rosemann and Vessey, 2008, p.3) *accessibility* is understood as *"the research is understandable, readable, and focuses on results"* and *applicability* is understood to be *"whether it provides guidance and/or direction, and whether it provides concrete recommendations"* that are easy to apply in practice.

3.5.2 Recommendations for Future Research

When using semi-structured interviews as part of the key informant technique, it is not uncommon to have a smaller number of interviewees; this can range from 6 interviewees (Flores and Ekstedt, 2012) to 32 interviewees (Benova et al., 2019). In using the key informant technique, it is more important to have appropriately qualified (quality) individuals participating in a study, over a larger quantity of individuals. Therefore, we believe that our use of sixteen key informants is appropriate for this exploratory research study. However, we are also conscious that while adding to the number of key informants in this study could be very beneficial and revealing for our *"concept development"* work on the CSFs for DT in a pre-digital organisation, it is perhaps more beneficial to move to a larger population of DT leaders as part of a study focused on *"construct elaboration",* (Gioia et al., 2012, p.16). Therefore, we imagine that the foundations are laid, through proposing the nine CSFs in this study, to further progress this line of enquiry by either qualitative, quantitative or a mixed method approach. In fact, there is an opportunity to look more closely at the differences in the CSFs by industry, sector, organisation type (SME v MNC) and size (# of employees), etc. Finally, while our work presents a breadth of CSFs, more work can now be done to unpack these CSFs and look under the hood of each factor to better appreciate its role when "doing" DT in a pre-digital organisation. Of course, more can also be done

to evaluate if these nine CSFs are transferable to other organisational contexts (e.g. digital start-ups).

CHAPTER 4: THE CHARACTERISTICS OF DIGITAL TRANSFORMATION LEADERSHIP: A LITERATURE ANALYSIS

Abstract
Digital Transformation has generated much research and curiosity in recent years and indeed the current COVID-19 global pandemic is accelerating the pace of digital transformation within organisations of all types and sizes, across all industry sectors. To date, current literature has not adequately provided a comprehensive understanding of Digital Transformation Leadership (DTL). Therefore, the objective of this research is to explore the characteristics of DTL. In order to fulfil this objective, we undertake a comprehensive review of Information Systems literature. A systematic procedure is followed, identifying 87 research papers. These papers are coded, as part of content analysis, resulting in the identification of 600 coded excerpts capturing the 'who' and 'what' of DTL. Our analysis identifies eight digital transformation leadership characteristics, namely: digital strategist, digital culturalist, digital architect, customer centrist, organisational agilist, data advocate, business process optimiser, and digital workplace landscaper. We also discuss an initial mapping of the DTL characteristics to c-suite roles and present a taxonomy emerging from the literature analysis. The research is of interest to both academics and practitioners, as it identifies research gaps and practical concerns on which ongoing and future research efforts can be focused.
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4.1 Introduction

Digital Transformation has generated much research and curiosity in recent years from both an academic and practitioner perspective, not least in Information Systems (IS) research. Indeed, in 2020, the current COVID-19 global pandemic is accelerating the pace of digital transformation within organisations of all types and sizes, across all industry sectors. Therefore, the volume of commentary around digital transformation is set to increase significantly. To date, systematic reviews of digital transformation, focusing on its meaning, importance and effects on an organization, while also highlighting the inconsistencies that exist in current literature, emanating from the definition of the term digital transformation, have been conducted (c.f. Vial 2019, Morakanyane et al 2017, Besson & Rowe 2012, Henriette et al 2015, Piccinini et al 2015). However, it is hard to find a universally shared definition of digital transformation from the literature (El Sawy et al 2016, Hansen et al 2011). Like all types of change programmes, digital transformation can be understood to alter the *people*, *process*, *technology* and *data* components of an organisation (Hansen et al 2016, Dremel et al 2017). The motivation for introducing a digital transformation programme can be multi-faceted, but, many digital transformation programmes are centred around changing the organisation's structure and business model in order to serve existing customers more efficiently and reach new customers more effectively (El Sawy et al 2016, Haffke et al 2017). This is achieved through leveraging current and emerging digital technologies.

So, what of leadership in digital transformation? So far not much is known about the role leadership plays in a digital transformation undertaking and current literature has not adequately provided a comprehensive understanding of Digital Transformation Leadership (DTL). Where literature does exist, DTL is understood as *"doing the right things for the strategic success of digitalization for the enterprise and its business ecosystem"* (El Sawy 2016, p.142). Industry analysis suggests that less than 30% of digital transformation programmes succeed (c.f. McKinsey, 2018); further revealing that one of five categories of success factor to ensure digital transformation success is *"having the right, digital-savvy leaders in place"* (p.4). However, what does this really mean? The emergence of new leadership roles (Haffke et al., 2016; Horlacher et al.,

2016) including the creation of a Chief Digital Officer (CDO), has been highlighted as being significant (Horlacher et al 2016; Singh and Hess, 2017). So while achieving transformation success is linked to having certain digital-savvy leaders in place, less than one-third of organisations have engaged a CDO to support their transformations (McKinsey, 2018). Notwithstanding this, the emergence of the CDO represents the widespread view of the need to appoint a specialist to take charge of digitally transforming the business (Haffke 2017).

Irrespective of who leads on a digital transformation programme, as regards their role or title, it is more important to appreciate the DTL characteristics that are required to drive digital transformation in organisations. Should the CDO be the only individual in the c-suite leading on digital transformation? Are there other executive leadership types that are also suited to this role such as the CEO, CIO, CDAO (Chief Data & Analytics Officer) or CTO, who may be equipped with the necessary mandate to deliver change and overcome challenges that they will undoubtedly face during a digital transformation programme? Therefore, the objective of this research is to explore the characteristics of DTL, as reported in Information Systems (IS) literature. In order to fulfil this objective, we pose the following research question.

Research Question: What are the characteristics associated with Digital Transformation Leadership (DTL)?

To answer this research question we undertake a comprehensive review of Information Systems literature in order to develop an understanding of Digital Transformation Leadership as currently reported in the literature. The remainder of his paper is structured as follows. In the next section we focus on the approach followed to analyse the literature. This is followed by a data analysis section within which we present our answer to the research question in the form of eight characteristics of Digital Transformation Leadership. We then discuss an initial mapping of the DTL characteristics to c-suite roles, and present a taxonomy emerging from the literature analysis. The paper concludes with a summary and future research directions.

4.2 Research Methodology

For the purposes of the literature review undertaken in this research, the literature search focused on the journals categorised under "Information Management" in the Chartered Association of Business Schools (CABS) list, along with the major IS conferences listed in the AIS eLibrary. The keyword search criterion of having "digital transformation" and "leadership" or "digital leadership" and "digital strategy" and "digital transformation", in either the title or abstract, was applied on June 2019 and December 2020. This was followed by a thorough review of the references and citations of the research papers returned from both of these searches. This resulted in a total of 165 research papers being reviewed. 78 research papers were excluded as they were either off topic and/or conceptual/theoretical in nature. Therefore, 87 research papers that explicitly mentioned digital transformation and leadership, and were scientific peer-reviewed empirical research papers were analysed.

Given that the objective of this study is to generate a set of Digital Transformation Leadership (DTL) characteristics, content analysis was deemed an appropriate analysis approach. Content analysis is a frequently used technique when analysing texts (written or visual sources), especially where the meaning of the text is relatively straightforward and obvious (c.f. Myers, 2009; Alhassan, et al., 2018). A structured approach to analysis is pivotal in conducting content analysis; this requires the researcher to code the texts systematically. Therefore, through searching for *"structures and patterned regularities in the text"* (Myers, 2009), the researcher applies a code to a unit of text that seeks to demonstrate the meaning of that text. Once coded, the resulting output can be both quantified and interpreted. Therefore, in effect, content analysis is best understood as *"a quantitative method of analysing the content of qualitative data"* (Myers, 2009, p. 172). In this study, we used eight coding steps (c.f. Finney and Corbett, 2007; Alhassan et al., 2018). These steps constitute data collection and coding procedures which enable researchers to ensure clarity and transparency in the processes undertaken. The steps and associated decisions are presented in (Table 4-1) below.

Step	Description
Step 1: Decide the level of analysis	Researchers should decide what level of analysis should be conducted. The level of analysis can be a signal word, a set of words, phrases, or an entire document
Step 2: Decide how many concepts to code for	Researchers should decide whether to code text using a predefined set of concepts or develop a list of concepts incrementally during the process of coding
Step 3: Decide whether to code for the existence or frequency of a concept	After a certain number of concepts have emerged, researchers should decide whether to code the concepts for existence or frequency
Step 4: Decide on how you will distinguish between concepts	During this step, researchers should decide whether to code the concepts exactly as they appear, or if they can be coded in some altered or collapsed form
Step 5: Develop rules for coding your text	Researchers should define certain translation rules in order to ensure the consistency of the coding procedures
Step 6: Decide what to do with 'irrelevant' information	Researchers should determine what to do with information in the text that was not coded
Step 7: Coding the text	Researchers should start the coding procedure after the decision related to irrelevant information and should follow the translation rules identified in step 5
Step 8: Analyzing the results	After coding the data, researchers should decide how to review and present the results

Table 4-1: Eight Coding Steps (source: Alhassan et al 2019)

Due to the exploratory nature of this research, it was decided to adopt an open coding analysis technique, which is usually the first coding procedure undertaken on the data, as part of a grounded theory approach (Corbin and Strauss, 1990; Vollstedt and Rezat, 2019). Open coding analysis is widely applied in conducting content analysis for a set of publications (Finney and Corbett, 2007; Goode and Gregor, 2009; Alhassan et al., 2018) and is described as *"the process of breaking down, examining, comparing, conceptualising, and categorising data"* (Corbin and Strauss, 1990, p. 61). Open coding is a process that aims to identify the concepts or key ideas that may be hidden within data (text of each research paper in this case) and are likely to be related to a phenomenon of interest (the *'who'* and the *'what'* of digital transformation leadership in this case). The concepts and categories that are generated as part of the open coding stage are the result of *"an intensive analysis of the data"* where a *"core idea"* is

established and *"a code"* is developed to describe it (Vollstedt and Rezat, 2019, p.86). These codes can be grouped and labelled to form concepts which can also be further grouped and labelled to form categories.

In this research, analysis was conducted at the level of the entire research paper in order to identify which of the research papers were addressing DTL related concepts. More specifically, thereafter, the focus of the coding and analysis was on the *'who'* (referring to the leader or leadership function in digital transformation) and the *'what'* (referring to the activities of digital transformation leadership). Where the *'who'* and the *'what'* were present in the same sentence, it was coded, following an inductive coding approach. This *"low-level coding"* approach adopted here ensures that *"the data are examined minutely"* (Urquhart, et al., 2010, p.369) and the chain of evidence provided (as is presented throughout Section 4.2) ensures that the conceptualisation work undertaken (to generate the DTL characteristics) is well supported by multiple instances (excerpts of text) from the research papers analysed.

Through an open coding process, the emergent concepts were further grouped into categories, thereby creating eight DTL characteristics. For this research, it was decided to code for frequency in order to gain a deeper insight into the concepts that emerged. The following translation rules were established and applied during the coding procedure: (i) all research papers were read the first time in order to code for the *'who'* and the *'what'* of digital transformation leadership; (ii) all the concepts that emerged from the research papers were compared to identify similarities and differences in order to group them together in categories; (iii) once all the research papers had been coded, the researchers examined the concepts that emerged and their properties within the actual text in order to ensure that they reflected the meaning of the text and that they were being related to the correct category. Following the above procedure, we ended up with eight categories, emerging from 142 concepts, which linked back to the 600 coded excerpts (the *'who'* and the *'what'* of digital transformation leadership) from the 87 research papers coded. Table 4-2 presents a sample of the open coding undertaken as part of this research. A more detailed open coding picture is provided in Section 4.2 for each of the eight DTL characteristics.

Table 4-2: Open Coding Examples of DTL Characteristics:

Reference	Excerpt of Text	Code Who	Code What	Concept	Category
Singh et al (2017)	Increasingly, companies are establishing an additional position at top management level: the chief digital officer (CDO). The CDO role can be centralized at the group level or decentralized at the subsidiary level. Regardless of positioning, CDOs are employed to make digital transformation a strategic priority in their companies	CDO	is employed to make digital transformation a strategic priority across organisations	*Make Digital Transformation a Strategic Priority*	Digital Strategist
Haffke, et al. (2016)	CDO is primarily an evangelist whose mission is to take the organization on a digital journey and sensitize people that the world as we know it will not exist for long	CDO	drives a shift in thinking and cultural change	*Advocate and Cultivate a Passion for Digital Transformation*	Digital Culturalist
Sebastian et al. (2017)	Moreover, digital technologies present so many opportunities that, without clear investment criteria, leaders will find themselves reacting to immediate one-off opportunities rather than proactively designing their business for digital success	Leaders	requires the know how to invest in sustainable digital technologies	*Explore and Exploit Digital Technologies to Implement Operational Excellence*	Digital Architect
Westerman and Bonnet (2015)	the CDO position was initiated bottom-up by the now-CDO herself, who has been with the company for several years as an online communication specialist and introduced the company's first online channels for greater customer collaboration.	CDO	focused on interfacing with customers through digitalization	*Create and Strengthen Customer Collaboration*	Customer Centrist
El Sawy et al (2016)	Digital leadership require a different mindset at all levels, top management and all employees will need to be more adaptive and willing to experiment and innovate while occasionally failing while everyone throughout the enterprise will need to have an appropriate adaptive skill set and digital know-how	CIO	organizational changes required for digital leadership and a digital business strategy	*Embrace the Need for Positive Organisational Change*	Organisational Agilist
Bennis (2013)	leadership should be focused on creating a mindset around information ubiquity, through the digitalisation of data so as interpret and convey its meaning with stakeholders.	Leaders	focused on information ubiquity digitally	*Create a Data Driven Culture and Mindset*	Data Advocate

Weill & Woerner (2013)	the enterprise process CIO has accountability for the delivery and optimization of some enterprise business processes that were traditionally outside IT. Enterprise Process CIOs are often found in companies where processes are increasingly digitized, such as financial services or online businesses, or where IT is part of shared services.	Chief Process Owner	managing the business processes at all levels across the organisation	*Reengineer and Optimise Business Processes*	Business Process Optimiser
Dery et al (2017)	It was therefore critical that the company built a leadership team firmly committed to workplace change and a digital future, and had a highly motivated digital innovation team.	Leadership	committed to workplace change through digitalization	*Create, Manage and Pioneer a Digital Workplace*	Digital Workplace Landscaper

***Table 4-2: Open Coding Examples of DTL Characteristics*:**

4.3 Data Analysis

As mentioned in the previous section, the 87 research papers were selected from the journals categorised under "Information Management" in the Chartered Association of Business Schools (CABS) list, along with the major IS conferences listed in the AIS eLibrary. These papers cover the period from 2001 to 2020. 2003 was the year of the first published research paper identified (based on the search keywords used). The list of papers is provided in Table 4-3 below.

Journal	56 Papers	Number
MISQe	Wade et al 2020, Van der Meulen et al 2020, Smith et al 2019, Gurbaxani et al 2019, Eden et al 2019, Winkler et al 2018; Dery et al 2017, Dremel et al 2017, Sebastian et al 2017, Singh et al 2017, El Sawy et al 2016, Gray et al 2013, Hansen et al 2016; Lee at al 2014; Gray et al 2013; Hansen et al 2011, Kohli et al 2011; Peppard et al 2011	18
MISQ	Tumbas et al 2017, Svahn et al 2017, Saladanha et al 2017, Majchrzak et al 2016; Bennis et al 2013, Bharadwaj et al 2013, Granados et al 2013, Henfridesson et al 2013; Pagani et al 2013, Setia et al 2013, Woodard et al 2012; Leonardi et al 2008; Sambamurthy et al 2003	13
Sloan Management Review	Weill, P. et al 2018; Andriole, S.J et al 2017; Ross, J. W et al 2017; Kane et al 2017, Westerman, G et al 2016, Kane, G. C. et al 2015; Westerman et al 2015; Westerman, G. et al 2014; Fitzgerald, M et al 2014;	9
JSIS	Yeow et al 2017, Benlion et al 2016, Peppard et al 2014	3
PAJIS	Barthel et al 2020, Tanniru et al 2018, White et al 2012	3
JAIS	Tan et al 2015, Granados et al 2006	2
Bus Sys Eng	Maedche et al 2016, Matt et al 2015	2
CAIS	Argawal et al 2010	1
ISR	Argawal et al 2011	1
JMIS	Benlian et al 2018	1
HBR	Davenport et al 2018	1
JITTA	Gimpel et al 2018	1
EJIS	Grahlmann et al 2012	1
Conferences	**31 Papers**	
ICIS	Soh et al 2019, Yangying et al 2019, Von Ohain et al 2019 Bilgeri et al 2017, Haffke et al 2016, Nwanka et al 2016, Piccinini et al 2015, Serrano et al 2014	8
HICSS	Windt et al 2019, Somsen et al 2019, Ritz et al 2018, Hesse et al 2018, Antonopoulou et al 2017, Schmid et al 2017	6
ECIS	Carroll 2020, Muelberger et al 2020, Zimmer et al 2020, Leonhardt et al 2017, Wenzel et al 2016	5
AMCIS	Weritz et al 2020, Freitas et al 2020, Schmid et al 2017, Horlacher et al 2016,	4
PACIS	Guggenberger 2019, Tainniru et al 2018, Weinrich et al 2016	3
MCIS	Baiyere et al 2018, Berghaus et al 2016,	2
SCIS	Braf 2020, Engesmo et al 2020	2
CIIMA	Van Ee et al 2020	1

Table 4-3 Journal and Conference Papers Analysed (2001 – 2020)

The 87 papers are broken down as follows: 56 journals papers and 31 conference papers. As illustrated in Figure 4-1, the earliest published paper in an IS journal, which addressed Digital Transformation Leadership (DTL), appeared in MISQ (a senior scholars' basket of 8 journal) in 2003. In fact, Figure 1 shows that from 2001-2010 MISQ and CAIS were the only IS journals publishing papers on the DTL topic (published 2 papers and 1 paper, respectively). In the subsequent time period from 2011-2020 MISQ continued to publish papers in the DTL area, with 11 papers published during that time. However, in this decade it was not only matched, but overtaken by two practitioner-based journals, MISQe and MIT Sloan Management Review, both of whom published 18 and 9 DTL papers, respectively. In fact, many of these practitioner focused papers have only been published throughout the last five years specifically. This represents a significant growth in DTL research being published in a small number of journals, especially in the last five years. This emergent trend is further illustrated by the growing number of papers being published and presented at the major IS conferences in the last five years.

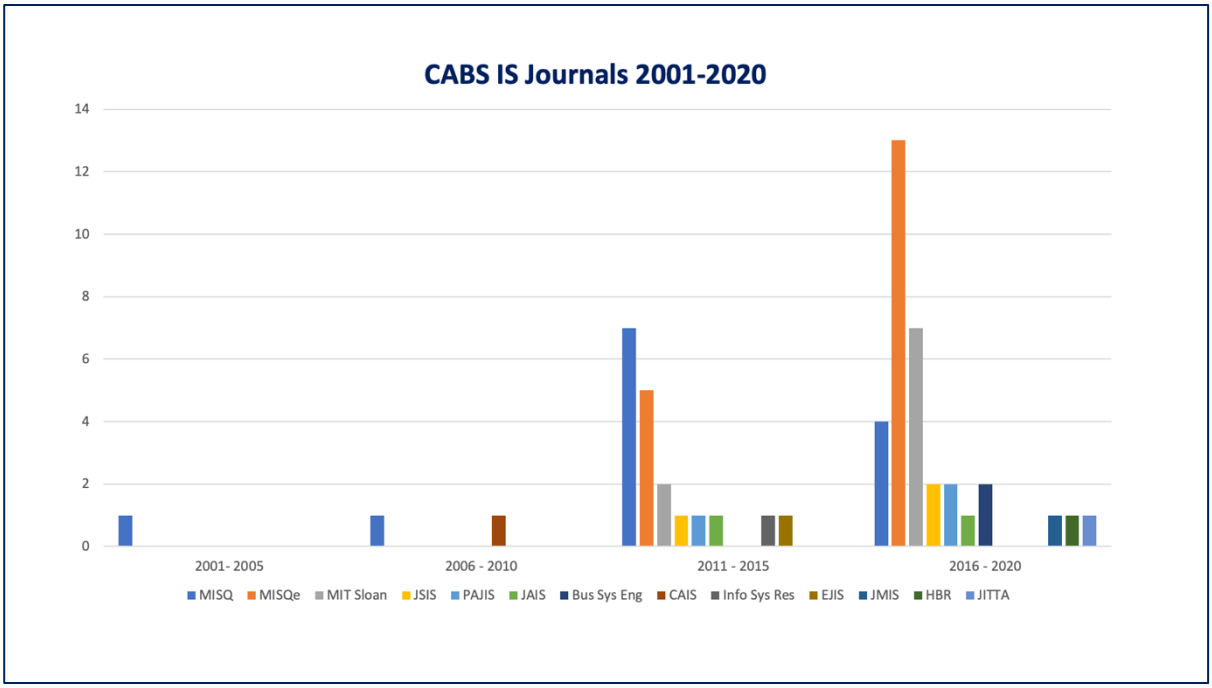


Figure 4-1 56 Journals (2001-2020)

As illustrated in Figure 4-2, of the 31 papers that have been published on the DTL topic, several conferences have led the way in this research. As with the more

practitioner focused journal outputs (MISQe and SMR), all conference papers have been published in the last five years, with the exception of two papers in 2014 and 2015, respectively, at the International Conference for Information Systems (ICIS). There has been a dramatic increase in the number of papers at the following conferences: the International Conference on Information Systems (ICIS) with six papers, the Hawaii International Conference on System Sciences (HICSS) with six papers, the European Conference on Information Systems (ECIS) with five papers, the American Conference on Information Systems (AMCIS) with four papers, the Pacific Asia Conference on Information Systems (PACIS) with three papers, two papers each from the Mediterranean Conference on Information Systems (MCIS) and the Scandinavian Conference on Information Systems (SCIS), with one paper each from the CONFIRM and CIIMA conferences.

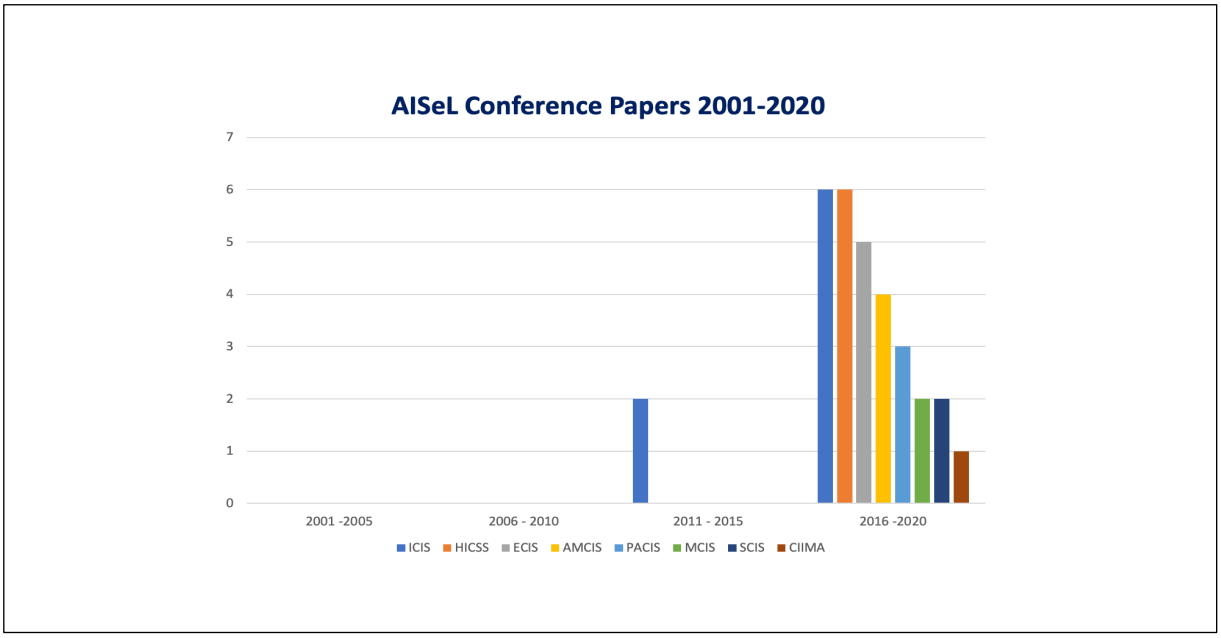


Figure 4-2 31 Conferences (2001-2020)

In Figure 4-3, we plot the CABS "Information Management" journals and the AISeL conferences. As can be seen the journals have led the way in DTL research. The most interesting observation is the fact that IS journal papers continued to lead the way until the second part of the 2011-2020 decade, where at that point, the increasing volume of IS conference papers on DTL research matches that of the IS journals. It is envisaged that this trend will continue into the next decade as COVID-19 among other

factors begin influencing digital transformation deployments across many organisations. Therefore, to summarise our analysis of the 56 journals; there has been a greater focus on digital transformation leadership (DTL) among the Information Systems community and practitioner focused outputs are much more prolific than more academic focused outputs

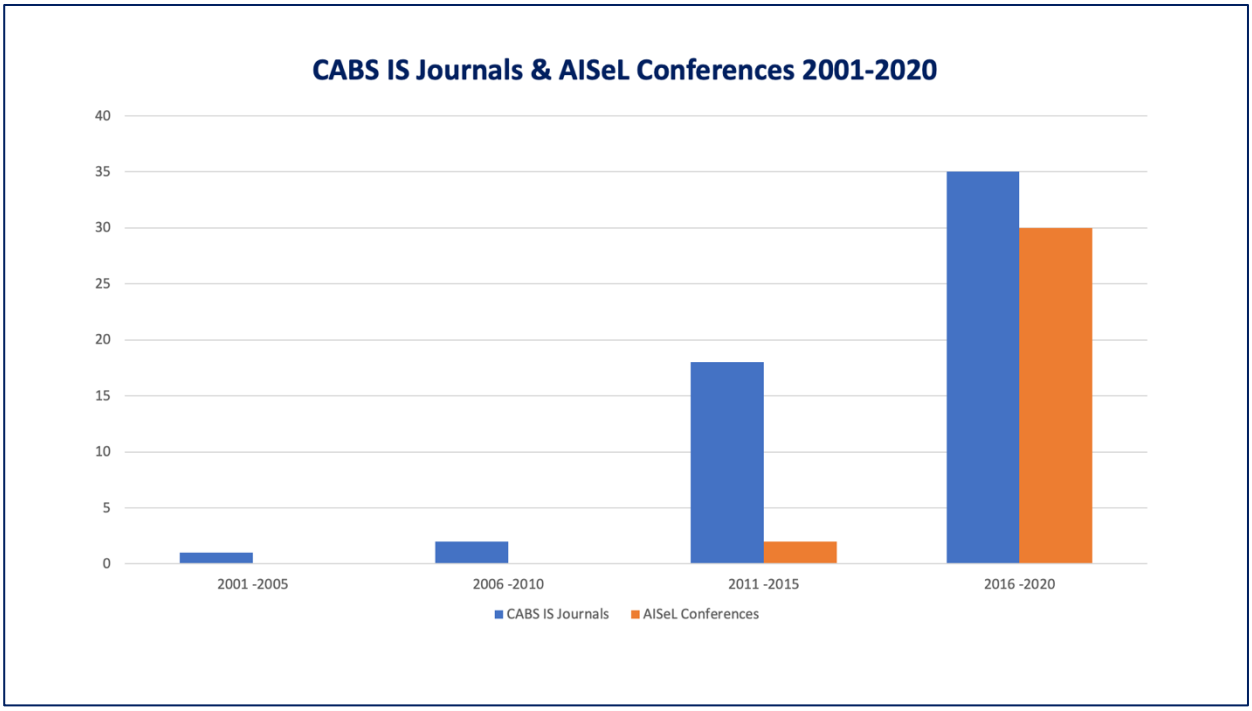


Figure 4-3 Journals versus Conferences (2001-2020)

4.4 DTL Characteristics

While there are many factors that can impact on the successful implementation of a digital transformation programme, none can have as much influence as *"skilled and competent leadership"* (c.f. El Sawy et al. 2016). While there are several competing perspectives on the topic of leadership, there are two main theoretical schools of thought that capture much of the decades of research conducted into leadership. These are (i) the *trait theories* – a property which describes ***what leaders are***, and (ii) the *behavioural theories* – a process which describes ***what leaders do***. Traditional research concluding with findings that support a trait theory, present leadership as a characteristic, or a set of characteristics, that successful leaders possess.

In order to answer the research question posed in this paper (*What are the characteristics associated with Digital Transformation Leadership (DTL)?*), we now present the results of our open coding of the 87 research papers in this section. Having identified 600 coded excerpts (capturing the *'who'* and the *'what'* of DTL) we generated 142 concepts which we rolled up into eight categories (reflecting the emergent characteristics of DTL). These DTL characteristics are as follows: *digital strategist, digital culturalist, digital architect, customer centrist, organisational agilist, data advocate, business process optimiser and digital workplace landscaper.* Each DTL characteristic consists of concepts that reflect the breadth and depth of leadership required for a digital transformation programme to succeed. We use the frequency count of concepts to prioritise the categories (see Figure 4-3 for the distribution of DTL characteristics).

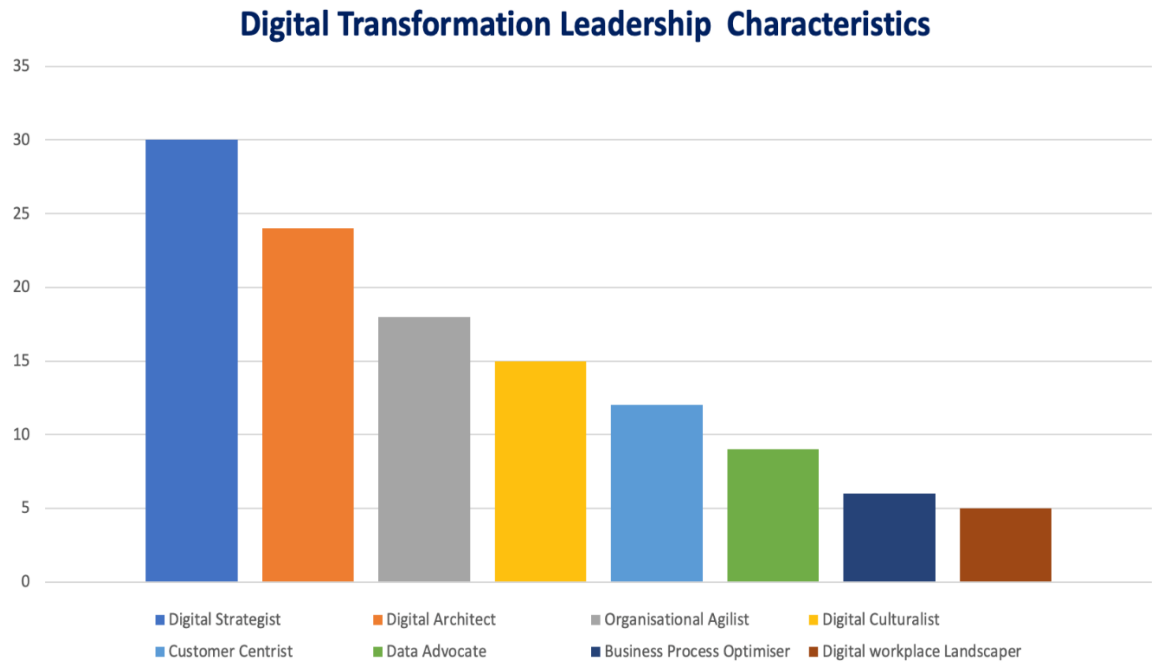


Figure 4-4: Distribution of Digital Transformation Leadership (DTL) Characteristics

As highlighted in Figure 4-3, the *digital strategist* has the highest number of occurrences and has consistently appeared in research papers over the twenty-year period (2001-2020). This illustrates the importance of leaders to be strategic in their approach to digital transformation. This DTL characteristics is closely followed by

being a *digital architect*, which illustrates the need for leaders and leadership to understand technology and innovation and what best fits the organisation when looking to digitally transform. As a result, we contend that both the digital strategist and digital architect are established characteristics of DTL. Thereafter, the *organisational agilist*, *digital culturalist* and *customer centrist* are viewed as belonging to the emergent category of DTL characteristics, as illustrated by the organisational change that has transpired in recent times from the exploitation of digital resources both human and physical, and the improved customer collaboration and experience through the optimisation of digital services. Furthermore, the *data advocate*, *business process optimiser* and *digital workplace landscaper* have a growing number of occurrences within research papers published in recent years. These DTL characteristics highlight the importance of leadership to be data driven, to identify how business processes can be improved and reengineered though digital transformation. Of particular note, the *digital workplace landscaper* characteristic is taking on a high level of significance in recent years and will continue to do so as the workplace becomes more influenced by digitalisation and remote working becomes more normal practice. This has been accelerated due to the COVID-19 pandemic, which has reshaped the world of work for many organisations.

We now present these DTL characteristics in descending order of frequency throughout the remaining sub-sections.

4.4.1 Digital Strategist

Based on our analysis of **digital strategist**, some of the concepts that inform the digital strategist are as follows: *make digital transformation a strategic priority*, *advise the top management team on digital transformation*, *create and communicate a digital vision*, *change the organisational mindset*, and *adapt the approach to digital transformation*. As presented in Table 4-4, strategy, mindset and achieving top management support is central to digital transformation. This involves prioritising digital transformation as a strategic objective by influencing top management to put it top of their agenda. Creating a digital vision and mindset and communicating it in a

top-down fashion coupled with creating, communicating and executing a digital strategy throughout the organisation are key elements of the role of the digital strategist. The digital strategist therefore leads on a digital vison and mindset.

Excerpt Of Text	*Concept*	*Category*
"digital leadership regardless of positioning is employed to **make digital transformation a strategic priority** in their companies' "	*Make Digital Transformation a Strategic Priority*	Digital Strategist
"digital leaders **establish a digital transformation strategy** and help their companies innovate through the use of new digital technologies"		
"As Digital Evangelists, CDOs **communicate their digital strategies** across their companies and across departmental boundaries to **ensure the whole company is "signed up" to the digital journey**"		
"the CDO defines and implements the company's overall e-business strategy. His tasks involve **advising the top management team**, disseminating business-critical information and informing top management on current trends"	*Advise the Top Management Team (on Digital Transformation)*	
"with the skill to inspire others, CDOs not only **act as consultants to the top management team**, but also act as effective motivators of the whole workforce and enabling the digital transformation"		
"the IT Advisor is an IS leader with limited decision-making authority but highly developed leadership skills, considerable strategic knowledge and the ability to effectively **advise business leaders** on key IT issues"		
"inspiring and motivating an organization to embark on a digital transformation is what the CDO needs to **create a cohesive digital vision** for the company"	*Create and Communicate a Digital Vision*	
"responsive leadership also includes **communicating a clearly articulated vision** that links new workplace design to the strategic objectives of the organization, and driving new behavioural norms"		
"to develop responsive leadership, traditional companies that embark on a digital transformation **must change their management mindset**	*Change the Organisational Mindset*	
"the CDO's current priority is on **changing the mindset within the top management team and among employees** before being able to proceed with specific digital initiatives"		
"LEGO's CEO emphasized that effective digitalization and digital leadership **require a different mindset that nurtures the capability to experiment, learn and iterate**"		
"the CDO's current priority is on **changing the mindset within the top management team and among employees** before being able to proceed with specific digital initiatives"		
"IS and business leaders need to come to an agreement on when and how to view IT as a strategic resource to help the organization **adapt to changes in the digital landscape**"	*Adapt the Approach to Digital*	

"IS and business leaders realized they needed to **adapt their approach to digital transformation** in response to specific demands and opportunities that the participants perceived to be important for the organization"	*Transformation (IS/IT and Business Alignment)*	
Table 4-4 Digital Strategist Concepts.		

The digital strategist creates a vision for digital transformation in a top - down manner enterprise wide implementation (Singh & Hess 2017, Dery et al 2016 and Hess & Matt 2017). The digital strategist must be accountable for a well-functioning and collaborative strategic partnership between IS and business leadership to adapt a digital transformation (Bharadwaj et al 2013, Singh & Hess 2017 and Hess & Matt 2017; Hess et al 2016). The digital strategist is tasked with value creation and enhancing stakeholders value propositions across many organisations (Fitzgerald et al 2013 and Berman 2012) and increases transparency through digitalization at every stage of its implementation and with the power of instrumentation leaders will lead and manage using digitalisation (Bennis 2013, El Sawy et al 2016 and Granados et al 2013).

4.4.2 Digital Culturalist

Based on our analysis, some of the concepts that inform the **digital culturalist** are as follows: advocate and cultivate a passion for digital transformation, use an ambidextrous approach to foster a digital organisational culture, and *develop skills and competencies in the workforce*. As presented in Table 4-5 having a culture in an organisation that is predisposed to digital transformation is key. This involves advocating and cultivating a passion for digital transformation and fostering an ambidextrous approach to creating a digital culture in the organisation which can be embraced top down and bottom up, where both management and employees are receptive of it. Changing the culture needs buy in from all sections and needs to include the philosophy of empowering employees to develop skills and competencies in digital transformation, this requires a digital evangelist to illustrate the benefits and challenges of digital transformation which can improve the organisation. This suggests that the digital culturalist leads on an ambidextrous approach to digitalisation and instilling a digital culture.

Excerpt Of Text	*Concept*	*Category*
"leaders must **have a passion for digital transformation implementation** to manage the digital business model across the organisation"	*Advocate and Cultivate a Passion for Digital Transformation*	Digital Culturalist
"leadership should be transparent, adaptive and resilient and **promise to advocate, foster and create a digital culture** thought the company"		
"organisations need leadership **to cultivate a top down digital leadership approach** necessary to drive forward digital transformations across enterprises"		
"CDO is primarily **an evangelist whose mission is to take the organization on a digital journey** and sensitize people that the world as we know it will not exist for long"		
"the leader **should be ambidextrous, having both supply and demand side qualities** to promote and foster digitalization across the company"	*Use an Ambidextrous Approach to Foster a Digital Organisational Culture*	
"the CDO represents the catalyst of communication of upcoming digital opportunities and threats, the **fostering of cultural change across the company**, the introduction of digital collaboration tools, the establishment and leadership of digital innovation labs, and business responsibilities for digital marketing or digital sales channels"		
"the CDO has articulated their mission to **foster a more innovative mindset and culture** across the organization"		
"there are often demands on the CDO's ability to **drive a shift in thinking and cultural changes without provoking harmful internal disruption** to the various functions of the organisation"		
"the digital leader should **provide a safe pair of hands when looking to drive through a digital transformation** across the organisation, cultural change is another important aspect of the evangelistic CDO role"		
"**exploit ideas and ensure skillsets are on par** from both internal and external sources for digital transformation implementation"	*Develop Skills and Competencies in the Workforce*	
"leaders should **improve the organisation's workforce through acquiring of digital skills and competencies** internally and externally"		

Table 4-5 Digital Culturalist Concepts

Being a digital culturalist embodies the need to act as a digital pioneer and native, have a digital mandate for change in their respective organisations, including creating new leadership roles such as the chief digital officer (Haffke et al 2017; Horlacher et al 2016 and Singh & Hess, 2017). The digital culturalist specialises in advocating, fostering and creating a digital culture and acting as a digital role model for the organisation (Granados et al 2013). The digital culturalist in digital transformation leadership ensure skillsets are on par from both internal and external sources (Dremel et al 2017) and evolves the workforce through the acquiring of digital skills and

competencies (Kane et al, 2015; Peppard, 2016). It furthermore endeavours to allow leadership to cultivate a top down digital leadership approach (Eden et al 2019) necessary to drive forward digital transformations across enterprises. The digital culturalist is ambidextrous having supply and demand side qualities critical to digital transformation implementation (Piccinini 2015)

4.4.3 Digital Architect

Based on our analysis, some of the concepts that inform the **digital architect** are as follows: *define and architect a digital services platform*, *think digitally and innovate digitally enabled operations*, and *explore and exploit digital technologies to implement operational excellence*. As presented in Table 4-6 creating a digital platform and using innovation and digital technologies to deliver digital transformation is key. This involves designing and implementing a digital platform through innovation and using the most relevant digital technologies to deliver a resilient digital architecture for digital transformation. This suggests that the digital architect leads on digital platform architecture using current and emerging digital technologies.

Excerpt Of Text	*Concept*	*Category*
"leadership has to **define the architecture for a digital services platform** by focusing on an small set of digital innovations they believe will be critical to business success"	*Define and Architect a Digital Services Platform*	Digital Architect
"leaders need to **architect a digital services platform** to cater for the repositories of all kinds of data in the organisation both internally and externally"		
"leadership needs to **innovate and think digitally and act as a catalyst** for digital innovation with direct business ties"	*Think Digitally and Innovate on Digitally Enabled Operations*	
"management has to decide whether **new digitally enabled operations should be integrated into existing structures** or be located in independent entities that are separated from the company's core business"		
"new digital products and services are based on IT, so CDOs need to have an **understanding of IT applications and the underlying infrastructures**, as well as knowledge on how they can be upgraded and modified"		
"leaders must **understand the nature of digital technology** and its composition in getting the correct blend of innovating technologies in place"		

"management must **understand the need for operational excellence by exploring and exploiting digital technologies,** finding their suitability for organisational transformation"	*Explore and Exploit Digital Technologies to Implement Operational Excellence*	
"managers must **consider what types of operational changes to expect as they explore and exploit digital technologies**"		
leaders must "**foster the idea of an operational backbone to develop operational excellence** and a platform for customers and suppliers using digitalization"		
"build agile and scalable digital operations for the organisation so ensuring the stability and operational excellence can be achieved from digitalization"		
Table 4-6 Digital Architect Concepts		

The digital architect creates operational excellence by exploring and exploiting digital technologies foundations for digital transformation (Nwankpa et al 2016; Singh & Hess 2017) for systems integration through agile and scalable digital operations. The digital architect is tasked with architecting a digital services platform for repositories of data within organisations (Sebastian et al 2017, Ross et al 2016). The digital architect must bear in mind t not react to one off opportunities but instead proactively design for sustained success in the organisation (Hansen et al 2016, Singh & Hess 2017, Haffke et al 2017 and Sebastian et al 2017). The digital architect must understand how digital transformation is enabled by emerging technologies such as big data, cloud computing, Internet of things, mobile technologies and social media platforms (Resnick 2002, Fitzgerald et al. 2013).

4.4.4 Customer Centrist

Based on our analysis, some of the concepts that inform the **customer centrist** are as follows: *create and strengthen customer collaboration*, *create a "360 degree" customer experience and improve business services*, *optimize and deliver digital services to customers* and *generate value for customers*. As presented in Table 4-7 the customer centricity will develop by strengthening collaboration and improving customer experience through digital transformation. This suggests that the customer centrist leads on enhancing the customer value proposition.

Excerpt Of Text	*Concept*	*Category*
"leadership is tasked with **creating better customer collaboration in order to focus on greater customer interaction** and what they use to make this happen with digitalization seen as key to achieving this"	*Create and Strengthen Customer Collaboration*	Customer Centrist
"the CDO position was initiated bottom-up by the now-CDO herself, who has been with the company for several years as an online communication specialist and **introduced the company's first online channels for greater customer collaboration**"		
"leadership must **develop ways of strengthening the company's relationships with its customers** and to help sell and deliver products and services to them in innovative ways"		
"the CDO is tasked with **creating a '360 degree' customer experience across all customer touch points** and with massively growing the company's online and mobile business. the CDO's main focus is therefore on customer relationship, social media and multichannel management"	*Create a "360 degree" Customer Experience and Improve Business Services*	
"management need to support the drive for digital transformation projects and to **consult the customer-facing managers on how best to improve services** to all their customer groups"		
"it is important that leaders focus on **developing applications and common business services for customers** using digitalisation so as to increase agility in how they engage"		
"the CDO uses new digital technologies to **enhance the customer experience across all customer touch points** and fully integrates the offline and online points of sale"	*Optimize and Deliver Digital Services to Customers*	
"the primary focus of a CIO is to **strengthen the company's relationships with its customers** and to help **manage, sell and deliver products and services** to them using digitalization"		
"leadership needs to take on the mantle of **being accountable for the delivery and optimisation of digital services to customers** with emphasis on new technologies to create more channels of customer engagement"		
"leadership are required to manage the customer engagement part of the platform as well as the **generation of value to customers** from the use of digitalization"	*Generate Value for Customers*	
"the CIO's capability to manage the conflicting goals of exploiting current IT resources and capabilities to realize value (IT exploitation) and exploring new opportunities for the innovative use of IT (IT exploration) as a means to **generate value to customers**"		

Table 4-7 Customer Centrist Concepts

The customer centrist is concerned with creating a better customer collaboration for customer services improvement so as to increase its sales of products and services using digitalization (Hess et al 2015, Hansen et al 2011 and Weill 2013). The customer

centrist looks to improve customer experience through the right digital technologies (Westerman et al 2015) and be accountable for the delivery and optimisation of digital services to customers (Davenport 2013). The customer centrist manages the customer engagement part of the platform supporting innovative business services or front-end apps for customers to use (Sebastian et al 2017) along with generating value for the organisation through digitalization.

4.4.5 Organisational Agilist

Based on our analysis, some of the concepts that inform the **organisational agilist** are as follows: *embrace the need for positive organisational change*, *develop ambidexterity in the exploitation and exploration of resources for digital transformation* and *identify and hire suitably killed people to implement digital transformation*. As presented in Table 4-8, the organisational agilist will develop the approach for the organisation to implement digital transformation through exploring and exploiting the necessary resources and how that organisational change will be governed successfully. This suggests that the organisational agilist leads on cross functional connectedness and simplification of operations.

Excerpt Of Text	*Concept*	*Category*
"there is a need for leadership to convince the entire organisation to **embrace digitalisation by interlinking different functions** along with **fostering the idea of a need for organisational change**"	*Embrace the Need for Positive Organisational Change*	Organisational Agilist
"leadership needs to convince the organisation to **understand how digitalisation can be used to manage organisational structure** and **create greater positive change across business functions**"		
"organisations and managers must be able to **adapt their approach to digital transformation based on specific demands and opportunities** identified and the positivity that they can bring"		
"new kinds of managerial challenges are emerging that require an understanding of the nature of digital technology and how best to **deploy resources to bring about change from digitalization"**		
"managers need to **develop an organizational ambidexterity** as digital innovation is about the combination and joint consideration of digital and physical aspects for new solutions, so managers must engage in blending rather than in discrimination"	*Develop Ambidexterity (in the Exploitation*	

"the challenge for leadership is to **provide IT related services** to operate in the digital economy **which will involve the best use of resources and technologies**"	*and Exploration of Resources) for Digital Transformation*	
"they must simultaneously **balance the exploitation and exploration of resources** for digital transformation to successfully be deployed throughout the organisation"		
" leaders need to be conscious of the role they play in being able to **identify and hire the right technical people to implement digitalisation** across the organisation"	*Identify and Hire Suitably Skilled People to Implement Digital Transformation*	
"to augment their enterprises' capabilities for digital leadership, CIOs need to **rethink their hiring criteria for corporate IT**"		
"new kinds of managerial challenges are emerging that require an understanding of the nature of digital technology and **getting the appropriate staff to implement digital transformation** is a one of those challenges"		
"leadership need to convey the shared vision of digitalization being central to the growth of the organisation and **create a highly digital team to pioneer workplace change**"		

Table 4-8 Organisational Agilist Concepts

The organisational agilist needs to convince the entire organisation to embrace digitalisation to by interlinking different functions enterprise wide (Hansen et al 2011). It looks to simultaneously balance the exploitation and exploration of resources for a successful digital transformation implementation through hiring the right technical staff to implement it (Hess et al 2015, Weill et al 2013) which may require adapting their approach to digital transformation based on specific demands and opportunities identified (El Sawy 2016).

4.4.6 Data Advocate

Based on our analysis, some of the concepts that inform the **data advocate** category are as follows: *create a data driven culture and mindset*, *create a data strategy for data exploitation*, and *design a data architecture using digital technologies*. As presented in Table 4-9, data and its exploitation are central to digital transformation. This involves building a successful data strategy, data culture, and data architecture so that enterprise data can be analysed and used to make informed decisions and create value. This suggests that the data advocate leads on leveraging data for strategic enhancement.

Excerpt Of Text	*Concept*	*Category*
"leadership should be focused on **creating a mindset around information ubiquity**, through the digitalisation of data so as to interpret and convey its meaning with stakeholders"	*Create a Data Driven Culture and Mindset*	Data Advocate
"senior executives have to encourage and reward their employees to leave their comfort zone of daily work routines and **adopt a data-sharing mindset** across the organisation"		
"leadership needs to **create a data culture** in the organisation identifying opportunities to create value across the organisation"		
"create a data strategy which involves the capture, analysis and evaluation of data so as to enable better decisions for business to transform"	*Create a Data Strategy for Data Exploitation*	
"the chief data officer puts data on the business agenda and, instead of treating data merely as a by-product of running the business, **they devise strategies for exploiting the business's data**"		
"leadership need to **interpret data sets and convey its meaning with stakeholders** to identify the value and frequency of data as determined by the digital transformation"		
"leaders need to **ensure a data architecture for digital transformation exists** u using the most relevant digital technologies and applications for the management and optimisation of data"	*Design a Data Architecture using Digital Technologies*	
"design a data architecture using a digital platform and by using the necessary and most relevant digital technologies and applications for real-time data capture"		

Table 4-9 Data Advocate Concepts

The data advocate assists leadership with creating the architectural platform in digital transformation to harness insights from big data analytics which significantly improves information availability for managers to make evidence-based decisions (Dremel 2017). Information ubiquity in a digital world helps every leader at every level to a better understanding of the various stakeholder groups (Bennis 2013). The data advocate is focused on having a digital services backbone made up of technologies such as cloud computing, data analytics and mobile technologies provide opportunities to create value for data and for real-time decision making (Piccinini 2015, Ross et al 2016 and Eden et al 2019).

4.4.7 Business Process Optimiser

Based on our analysis, some of the concepts that inform the **business process optimiser** are as follows: *reengineer and optimise business processes* and *ensure business driven process change*. As presented in Table 4-10 the business process optimiser involves reengineering and improving business processes with a focus on how digitalisation will align and optimise business processes. This suggests that the business process optimiser leads on cross functional business process optimisation.

Excerpt Of Text	*Concept*	*Category*
"the CDO is also the CIO and is therefore also responsible for the IT infrastructure and for **implementing IT-enabled business processes** and applications aimed at enhancing process efficiency"	*Reengineer and Optimise Business Processes*	Business Process Optimiser
"identify reengineer and improve existing processes in advance of digitalization to maximise the value of the business processes most suitable for digitization from those who can't"		
"the enterprise process CIO has accountability for the **delivery and optimization of some enterprise business processes** that were traditionally outside IT"		
"lead **the optimisation of business processes through digital** of the individual business processes within that holistic perspective"		
"effective program leaders play two roles: they push the organization to extremes to **seek business-driven process change**, while also employing balanced execution mechanisms to implement changes and cope with uncertainties throughout the program"	*Ensure Business Driven Process Change*	
"Transformation leaders should be bold enough to request the best functional experts the organization has available **to drive business process change"**		
"ensure that changes to **business processes are aligned to business goals** and customers when commencing digitalization"		
Table 4-10 Business Process Optimiser Concepts		

The business process optimiser during digitalization must optimise business or functions performance by abandoning the 'divide and conquer mindset' typical of many large organizations, integration is critical for digital transformation to be a success across these organisations (Ross et al 2016). The business process optimiser is a chief business process owner tasked with organising multiple process and sub-

process owners distributed across the organisation to drive business process optimisation (Winkler et al 2018). The business process optimiser needs to be bold enough to request the best functional experts the organization has available to drive business process change through digitalization (Winkler et al 2018).

4.4.8 Digital Workplace Landscaper

Based on our analysis, some of the concepts that inform the **digital workplace landscaper** are as follows: *create, manage and pioneer a digital workplace* and *improve employee experience through innovative digital solutions*. As presented in Table 4-11 the digital workplace landscaper will concentrate on developing a digital workplace for employees, identifying the innovation and technical solutions that transforms the work environment and that creates greater flexibility for organisations. This suggests that the digital workplace landscaper leads on resource evolution and overcoming barriers to change.

Excerpt Of Text	*Concept*	*Category*
"leadership should foster the idea of **creating a digital workplace** and in doing so use a highly digital team to **pioneer the workplace change**"	*Create, Manage and Pioneer a Digital Workplace*	Digital Workplace Landscaper
"critical that the company built a leadership team firmly committed to workplace change and a digital future, and had a highly motivated digital innovation team"		
"top management should allow IT leadership to **manage digital workplace transformation** rather than leaving it to functional leaders"		
"innovating on new ways of working with a broader focus on **the online employee experience** "	*Improve Employee Experience through Innovative Digital Solutions*	
"leaders need to **apply user experience principles across** the digital workplace landscape to **improve the employee experience**"		
"ensure that development and technical resources are designed to **deliver innovative employee solutions"**		
"management need to create innovative, technical solutions that actually **serve and meet the needs of employees"**		

Table 4-11 Digital Workplace Landscaper Concepts

The digital workplace landscaper invokes changes in the workplace through enterprise-wide digitalization (El Sawy et al 2016), changes in the workplace requires

CEO and top management team supports using IT Leadership to manage digital workplace transformation rather than functional leaders (Dery et al 2016). The digital landscaper knows the value of IT in response to environmental dynamics and therefore is able to harness those IT resources appropriately when delivering change (Hansen et al 2012).

4.5 Discussion: Mapping DTL Characteristics to C-Suite Roles

This section advances our understanding of the *'what'* of DTL (the characteristics) and poses a question relating to the *'who'*. In so doing we are putting a *'face to the name'* of each DTL characteristic. Figure 4-5 presents a leader-centred digest of the DTL characteristics. Our proposed DTL characteristics (the *'what'*) are highlighting the "values" or "core traits" that a leader (e.g. c-suite role) needs to possess to deliver a successful digital transformation programme. So, for example, being a *digital strategist* or a *data advocate* are fundamental DTL characteristics for certain c-suite roles (the *'who'*). One could say it is no surprise that a number of c-suite roles have emerged as potential digital leaders from our analysis of the literature. In fact, we identify some c-suite roles as espousing several DTL characteristics while others have fewer. The most popular c-suite roles that have emerged from the literature, as espousing these DTL characteristics, are the Chief Digital Officer (CDO), the Chief Information Officer (CIO), and the Chief Executive Officer (CEO). Others, such as the Chief Technical Officer (CTO), the Chief Data & Analytics Officer (CDAO), the Chief Innovation Officer (CINO) and Chief Marketing Officer (CMO) emerge as playing a very specific leadership role with a digital transformation programme. In some cases, the proposal of a DTO (Digital Transformation Officer) who motivates, orchestrates, and aligns digital initiatives has gained some popularity in recent times (Gimpel 2018).

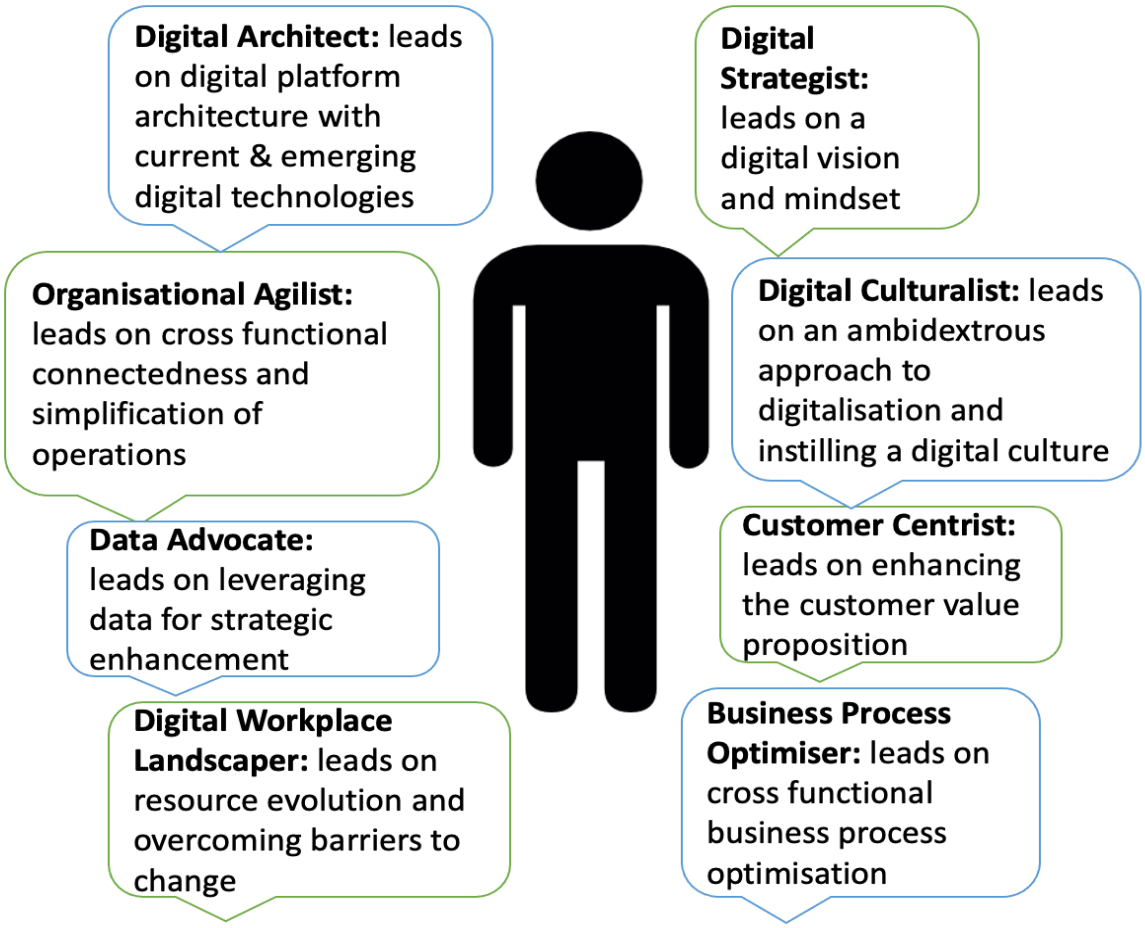


Figure 4-5 Digital Transformation Leadership Characteristics

Taxonomies help us to organise our knowledge and can bring structure and completeness to our understanding of a domain area (c.f. Dezdar and Sulaiman, 2009). A taxonomy is valuable in that researchers can assign concepts to a category and define relationships between these categories (Dezdar and Sulaiman, 2009, p.1045). This study is significant because few, if any, taxonomies have been presented in literature relating DTL characteristics (the *'what'*) to c-suite roles (the *'who'*). There is now a need to consolidate prior research and present a holistic and bigger picture of DTL characteristics and their association with the c-suite roles. The taxonomy presented in this paper (see Table 4-12) provides a visual representation of this association and based on our analysis, highlights the fact that no one c-suite role possesses all of the DTL characteristics.

There is no doubt from our analysis that it is very difficult for one individual leader to be all encompassing when it comes to delivering a digital transformation programme. However, it also highlights the need for digital transformation leadership to be considered a team sport and further highlights the mix of c-suite roles that should combine to ensure that all the DTL characteristics are in play. For example, from the perspective of the *digital strategist* DTL characteristic, it's something that the CDO, CIO and CEO need to be focused on (see Table 4-12). Furthermore, from the perspective of the *Chief Digital Officer (CDO)* role, it appears as if the CDO and CIO have the greatest number of DTL characteristics associated with them (covering seven of the characteristics). In fact, the CDO, CIO and CDAO cover all eight of the DTL characteristics emerging from the literature (see Table 4-12).

DTL Characteristic / ***C-Suite Role***	Digital Strategist	Digital Culturalist	Organisational Agilist	Digital Architect	Customer Centrist	Business Process Optimiser	Data Advocate	Digital Workplace Landscaper
Chief Digital Officer (CDO)	**X**	**X**		**X**	**X**			**X**
Chief Information Officer (CIO)	**X**	**X**	**X**	**X**		**X**		
Chief Executive Officer (CEO)	**X**	**X**	**X**					
Chief Technology Officer (CTO)				**X**				
Chief Data & Analytics Officer (CDAO)							**X**	
Chief Innovation Officer (CINO)				**X**				
Chief Marketing Officer (CMO)					**X**			

Table 4-12 DTL Characteristics to C-Suite Taxonomy

Chief Digital Officer (CDO): - digital strategist, digital culturalist, digital architect, customer centrist, and digital workplace landscaper.

The CDO (Chief Digital Officer), a new specialist role which has emerged in many organisations. The CDO sees himself as a digital strategist, a digital advisor so creating a shared digital vision for the company, changing to a digital business model and developing a digital mindset across the organisation. The CDO is primarily an evangelist, a digital culturalist, whose mission it is to " take the organization on a digital change journey and sensitize people that the world as we know it will not exist for long" (Haffke 2017, p107). The CDO role can be centralized at the group level or decentralized at the subsidiary level but their priority is to make digital transformation a strategic priority in their companies (Singh & Hess 2017). The CDO is a digital workplace landscaper "fostering cross-functional collaboration, mobilizing the whole company across hierarchy levels and stimulating corporate action to digitally transform the whole company", the CDO is also focused on increasing revenues from digital products (Singh & Hess 2017, p2). Yet the CDO can also be viewed as digital architect, by monitoring and managing the introduction of new technology innovations relating to the content platform (El Sawy 2016). The CDO can be customer centrist focused on using new digital technologies to enhance the customer experience across all customer touch points, creating a "360 degree" customer experience across all customer touch points (Singh & Hess 2017, p6)

Chief Information Officer (CIO): - digital strategist, digital culturalist, digital architect, organisational agilist and business process optimiser.

The CIO (Chief Information Officer), the acknowledged head of IT in an organisation is generally viewed as having many digital transformation characteristics. Traditionally chief information officers (CIOs) were responsible for IT strategy, IT operations and IT and business alignment. As digitalization began to develop within organisations CIOs' were mainly held responsible for digital innovation, as a digital architect, servicing infrastructure and applications, but in recent years, companies have expected their CIOs to extend their roles from pure technologists to business

strategists and subsequently in the role of a digital strategist (Singh & Hess 2017). "The CIO may also manage the transformation, which is typically the case if the focus is on business processes, a business process optimiser" (Matt & Hess 2016, p29). The managing of enterprise processes and the associated digital platform, provides all the IT services the firm needs to operate in a digital economy (Hansen et al 2011; Weill & Woerner 2013). There are different shades of CIO's, one such type is the enterprise process CIO, accountable for the delivery and optimization of processes focus on CIO ambidexterity, the transformational character of digitization, and the distribution of leadership roles and responsibilities in an era of digital business (Haffke 2017) must ensure that internal technical skills and competencies are on a par with those of external consultancies. (Dremel et al 2017)

Chief Executive Officer (CEO): - digital strategist, digital culturalist, and organisational agilist.

The Chief Executive Officer whose primary role is to manage the senior leadership or top management team in the organisation. The CEO is pivotal to the success of digital transformation "because of its high level of complexity (Haffke 2017, p106). "A truly successful digitalization will require full CEO attention and commitment" (Bilgeri 2017, p4) therefore the role needs to promote the idea that effective digitalization and digital leadership require a different mindset and requires a "deep commitment to enterprise-wide digitalization" (El Sawy 2016, p155). The CEO is fully responsible for and adds authority to the digital transformation strategy (Hess & Matt 2016). CEOs need to be transparent and must ensure that there is a transparency strategy (Granados et al 2013), be adaptive and resilient and personally champions the digital agenda to provide a dedicated focus on leveraging the digital edge (Sia et al 2016). Successful digital transformation also requires clearly defined roles and responsibilities as well as top-management support which fosters "increased transparency through digitization" (Dremel 2017).

Chief Technical Officer (CTO) & Chief Innovation Officer (CINO): - digital architect

The Chief Innovation Officer (CINO) and the Chief Technology Officer (CTO) are seen as most suited to the role of the digital architect. The digital architect creates an environment that fosters innovation and provides the organizational structure to support the development of new products and services. The CTO as a digital architect is seen as the individual to manage the plan-build-run way of organizing IT (El Sawy et al 2016). The digital architect innovates and thinks digitally, creates the digital workplace, develops operational excellence and an operational backbone using digital technologies (Singh & Hess 2017). The digital architect coordinates innovation standards and methodology for innovation build the digital architecture and an agile and scalable digital platform for the organisation, through the correct blend of emergent technologies (Granados et al 2013). Their role involves exploiting ideas from both internal and external sources (Singh & Hess 2017).

Chief Data & Analytics Officer (CDAO): - data advocate

The Chief Data & Analytics Officer is recognised as the senior leadership role in an organisation responsible for the management of the enterprise data. “Chief Data Officers thus focus on just one organizational capability within the digital realm: big data, but the scope of the CDAO role is much broader and not confined to this one specific area of digital transformation” (Singh & Hess 2017, p3). The chief data and sometime analytics officer is a strategist, architect, organisational agilist and customer centrist in the data domain (Lee et al 2014). However it is as a data advocate which confirms their primary role in digital transformation. The CDAO encourages the importance of analytics big data in generating valuable insights from micromarketing and increased digital engagement (El Sawy et al 2016).

Chief Marketing Officer (CMO): - customer centrist

The Chief Marketing Officer or Chief Customer Officer is seen as the senior leader in the organisation with responsibility for customer engagement. The CMO is a customer

centrist who uses technology such as social media to transform organisations into more transparent, customer-oriented businesses. Leading digital transformation requires a professional with particular characteristics such technology and business, a vision of the future to be applied in the present, it doesn't always require a CDO or CIO it can be the CMO (Chief Marketing Officer) (Tumbas et al 2017). CMOs are customer centrists mastering the art of collaboration with both external and internal customers and partners as well as with technology platform companies focusing on digital transformation and how organisations engage with their customer base dramatically with the development of a digital services platform and digital channels and technologies.

4.6 Summary and Future Research Directions

According to Rowe (Rowe, 2014), there is a need within the IS community to publish more literature reviews. He argues that *"literature reviews can be highly valuable"* and *"every researcher looks for [a literature review] when starting a research study"* (Rowe, 2014, p. 242). So where the primary goal of a literature review is *"to classify what has been produced by the literature"* (Rowe, 2014, p. 243), we believe that we have achieved this for Digital Transformation Leadership (DTL) characteristics (see Figure 4-4). We conceptualise DTL across eight characteristics (the *'what'*) and further present an initial mapping of these characteristics to c-suite roles (the *'who'*), taxonomically (see Table 4-12). This work provides rich descriptive theorising of the phenomenon and generates interesting insights into the DTL characteristics that can help organisations to be more successful with their digital transformation programmes. To the best of our knowledge, this study is the first to do such an analysis of DTL characteristics in the IS domain.

As proposed by Al-Mashari et al (2003, p.362) in relation to ERP systems implementation, a taxonomy puts forward the idea that *"regular audits and benchmarking exercises can bring with them new* [insights] *that will make the organisation more adaptable to change programs and will also, provide them with the opportunity to derive maximum benefits from investing in complex systems such as*

ERP". This sentiment also holds through for digital transformation and the fact that leadership is such a key aspect to delivering digital transformation programme success. In fact, our understanding of the leadership required to change an organisation's structure and business model is improving and through the completion of this research work, with the emergence of the eight DTL characteristics, we expect that we have advanced this understanding further. Instead of putting leadership on the shoulders of one individual (c-suite role) who espouses all eight DTL characteristics, we are suggesting that a leadership team needs to exist around a digital transformation programme. These leaders are responsible for taking a *people*, *process*, *technology* and *data* perspective on the digital transformation programme. Now that we have identified these DTL characteristics, we need to provide some calls-to-action to progress this work further. We need to understand if these DTL characteristics have specific relationships between them, for example, is the *digital strategist* characteristic impacted by the presence/absence of another characteristic (e.g. *customer centrist* or *data advocate*).

Rowe (2014, p. 246) suggests that *"the quality of a literature review depends on its systematicity since systematicity implies reproducibility through documenting the search process and potentially indicates comprehensiveness"*. This research identified and analysed 87 published IS articles. Using a systematic approach, through the eight coding steps of content analysis, these 87 research papers were analysed using open coding to complete in-depth content analysis of DTL characteristics. Therefore, we believe that we have achieved the systematicity required. That is, to ensure the reproducibility of our work by others. These 87 research papers were selected from the journals categorised under "Information Management" in the Chartered Association of Business Schools (CABS) list, along with the major IS conferences listed in the AIS eLibrary. With regard to the 93 journals categorised under "Information Management" in the Chartered Association of Business Schools (CABS) list, only 13 have published research papers in the DTL area since 2001. Specifically, MISQe, MISQ and Sloan Management Review have published the majority of these papers, with 18, 13, and 9 papers respectively (40 papers out of a total of 56 published). Of further interest is the fact that 24 of these 40 papers were published over the past five years. This suggests that DTL is a continually developing area of research and

investigation. As a result, a great volume of research papers might be expected in the coming years within these "Information Management" journals. Furthermore, other journals, categorised under "Strategy" or "Innovation", should also be searched in order to ensure that other existing/forthcoming relevant DTL research in not overlooked.

Embracing the advice of Webster and Watson (2002, p. xxi), we believe that we have addressed the *contributions* (what's new?), *impact* (so what?), *logic* (why so?) and *thoroughness* (well done?) expected from a review article. Hopefully, it represents a *"benchmark for others."* The research conducted on the 87 journal and conference papers illustrates that there are certain characteristics that Digital Transformation Leadership (DTL) requires to deliver a digital transformation programme in an organisation. It is suggested that empirical research should now be undertaken to establish if Digital Transformation leaders share the same views around the DTL characteristics. In fact, given the relatively small volume of research outputs on DTL over the past two decades, it may be a worthwhile approach to follow a Grounded Theory approach (data-to-theory) to identify the DTL characteristics from the experiences of Digital Transformation leaders (both operational and strategic) "in the trenches". This would offer a valuable compare and contrast of the theory and practice of DTL and further our understanding of the DTL characteristics. Most likely this empirical work would produce a set of critical success factors to aid leaders in their digital transformation programmes.

The leadership required to lead a Digital Transformation programme is perhaps greater than is anticipated, simply because, in many cases, the volume of changes within the business is unprecedented. Where *process* and *technology* are the most tangible and visible of changes that can take place, the changes to the role that *data* now has to play within the business is perhaps under-appreciated. This is especially true if the business is working to deliver value to its customers in new ways. Creating a digital experience for customers relies on mature thinking around data and its exploitation. Notwithstanding this and even more challenging though is the leadership that is needed to guide the *people* within the business through the Digital Transformation journey. Finally, from our research and analysis, we have seen that there are levels of

maturity that define DTL characteristics; for example, ***established***, ***emergent*** and ***emerging***. A review of the literature has illustrated that characteristics such as *digital strategist* and *digital architect* have been ***established*** for a period of time, since 2001-2010, and continue to be mentioned as key characteristics for leaders and leadership undertaking a digital transformation programme in their organisations. Other characteristics are ***emergent*** over the past decade such as *organisational agilist*, *digital culturalist,* and *customer centrist*. However, recent literature has also informed us of ***emerging*** characteristics, such as, *data advocate, business process optimiser* and *digital workplace landscaper*. The patterns behind these established, emergent, and emerging characteristics demands that more research is conducted to further investigate these levels of maturity that define the DTL characteristics.

CHAPTER 5: DIGITAL TRANSFORMATION LEADERSHIP THEORISING THE PRACTITIONER VOICE:

ABSTRACT
Digital Transformation (DT) is more than simply integrating a new digital technology into the organisation. However, despite a growing volume of research, there is little coverage of the characteristics of Digital Transformation Leadership (DTL). Using a grounded approach, we present ten DTL characteristics. These characteristics link "what" action a DT leader needs to take and "how" they enable that action, when they are striving for the best possible DT initiative outcome. Our approach strengthens the relevance for practitioners, where sixteen practitioner voices are central to the theorising output. Finally, prefacing each DTL characteristic with "Are We…", affords DT leaders with the opportunity to start new conversations and build a shared understanding amongst key organisational stakeholders around the realities of their DT initiative. This checklist use case can serve as both a pre-commencement readiness check, or an in-progress reflective aid for practitioners.

5.1 DIGITAL TRANFORMATION LEADERSHIP

Emerging scholarly attention positions Digital Transformation (DT) as a *"leading technology-related phenomenon"* (Wessel et al., 2021 p.102). Despite the growing interest in DT, IS scholars and practitioners still *"struggle to grasp what* [DT] *really is*", (Wessel et al., 2021 p.102), and several gaps still exist in our understanding of this complex and multidimensional process (c.f. Porfírio et al., 2021; Carroll, 2020; Tabrizi et al., 2019; Vial 2019). In fact, Tabrizi et al. (2019, p.1) highlight that *"70% of all DT initiatives do not reach their goals"* and of the $1.3 trillion spent on DT in 2018, estimates suggest that *"$900 billion went to waste"*. Therefore, leading a successful DT initiative is a real present-day concern for both business and IT practitioners alike. For the purposes of this research we conceptualise DT as occurring within the organisational context and that all organisations are striving to have the level of DTL maturity synonymous with being *"Digital Masters"* (c.f. Westerman et al., 2011). Where *Digital Masters* excel in two critical dimensions: *"the what of technology (which we call digital capabilities) and the how of leading change (which we call leadership capabilities)"* (Westerman, 2012 p.13). In fact, taken together, these two capabilities enable organisations to *"transform digital technology into business advantage"* (Bonnet & Westerman, 2021 p.1). Therefore, irrespective of who leads on a DT initiative, as regards their role or title, it is more important to appreciate the Digital Transformation Leadership (DTL) characteristics that are required to drive DT in organisations.

It is often reported that Digital Transformation (DT) is *"fundamentally about relationships"* and that effective DT *"requires strong leadership"* (Shein, 2021), where *"a qualified and effective leadership can fast-track business success* (Georgiou, 2022*)*. In fact, (Porfírio et al., 2021) refer to the *"crucial role of leadership"*, while (Gwilym & Benwell, 2020) contend that *"leadership is the element without which the rest of your transformation efforts will be rendered meaningless"*. However, the role of the DT leader has *"evolved a lot in recent years"* (Georgiou, 2022) and expectations on what the DT leader needs to deliver have also *"changed radically"* (Shein, 2021).

So while there is a broad consensus on the *"importance and influence of leadership"* in DT (Porfírio et al., 2021), McCarthy et al. (2021) suggest that there is currently a relatively small number of empirical research outputs focusing on Digital Transformation Leadership (DTL), based on their analysis of 87 empirical studies (from 93 top ranked 'information management' journals and 8 major AIS conferences). Where literature does exist, DTL is understood as *"doing the right things for the strategic success"* (El Sawy et al., 2016 p.142). The emergence of new digital leadership roles, e.g. the Chief Digital Officer (CDO), is highlighted as being significant (c.f. Haffke et al., 2017; Haffke et al., 2016; Horlacher & Hess, 2016; Singh & Hess, 2017).

It is understood that changes need to *"occur at various levels within the organisation"* in order to *"achieve a successful DT outcome"*, and one such change is *"adjustments in leadership"* (Nadkarni & Prügl, 2021). Therefore, achieving DT success is linked to having certain digital-savvy leaders in place, and the emergence of the CDO represents the widespread view of the need to appoint a specialist to take charge of digitally transforming the business (Haffke et al., 2016; Singh & Hess, 2017). However, it is still hard to find comprehensive coverage of the characteristics of DTL (even in the trade press) that are linked to *"what"* action a DT leader needs to take and *"how"* they enable that action, where they are striving for the best possible DT initiative outcome. Interestingly, in recent times, there is a growing volume of trade press articles listing digital leadership characteristics/traits (c.f. Chhabra, 2022; Georgiou, 2022; Shein, 2021; Ton, 2021; Guggenberger & Simon, 2020; Gwilym & Benwell, 2020). While these lists are strong signals of the present day struggles of IS practitioners "in the DT trenches", more theorising can still be done to unpack the complexity of DTL.

Therefore, the objective of this research is to *explore the characteristics of Digital Transformation Leadership (DTL) that impact on the outcome of a DT initiative within an organisation?* To fulfil this research objective, we follow a theory building research strategy in order to develop an understanding of DTL characteristics from those practitioners currently "in the DT trenches" (a data-to-theory approach). Therefore, we embrace an approach aligned with *"concept development"* as opposed to

"construct elaboration", where a concept captures *"qualities that describe or explain a phenomenon of theoretical interest"*, (Gioia et al., 2012 p.16). This approach affords us the opportunity to *'capture the meaning'* from those practitioners *'living the experience'* (leading a DT initiative) and *'theorise about that experience'* (Gioia et al., 2012 p.26). In the next section we present a detailed description of our research approach to building theory.

5.2 UNPACKING THE DT LEADERS STORIES

It is reported that *importance* is the most critical dimension of relevance for IS practitioners. Similar to (Rosemann & Vessey, 2008 p.3) we view *importance* as research that *"meets the needs of practice by addressing a real-world problem in a timely manner* [currently significant]*, and in such a way that it can act as the starting point for providing an eventual solution"*. In this paper we set ourselves the challenge of conducting research that is both rigorous and relevant. Throughout our inductive approach, we have maintained an *"analytical discipline"* in order to produce *"credible interpretations of data"* and conclusions that are both *"plausible and defensible"* (Gioia et al., 2012 p.15). Our theorising efforts at concept development and our making sense of the organisational world, that practitioners live in, affords us with the opportunity to produce ten DTL characteristics. These ten DTL characteristics that can help DT leaders to highlight potential gaps in organisational thinking as part of a DT initiative.

Therefore, being inspired by features of the Gioia Methodology, which is positioned as a *"systematic inductive approach to concept development"* and assumes that *"the organisational world is socially constructed"*(Gioia et al., 2012 p.17), we aim to conceptualise the practitioner voice and not *"substitute practitioners' understandings for theory"* (Markus & Rowe, 2021 p.273). As a result, in data collection there is a need to *"give extraordinary voice to informants, who are treated as knowledgeable agents"*; while in data analysis there is a need to maintain *"the integrity of 1st order*

(informant-centric) terms" during initial data coding, and further *"organise 1st-order codes into 2nd-order (theory-centric) themes"* (Gioia et al., 2012 p.26).

We select sixteen key informants based on their organisational perspective (Business or IT) and role (Strategic or Operational). This stratified selection of key informants affords us the opportunity to *"capture the consonance (or dissonance) between plans* [strategic] *and their implementation* [operational]*"* (Day et al., 2009 p.641), while also appreciating the alignment between IT and business perspectives (c.f. Bendig et al., 2022; Yeow et al., 2018) because the *"impact of DT"* on the *"business"* is *"technology-enabled"* (Porfírio et al., 2021 p.616). In fact, (Smith & Watson, 2019 p.98), in using the metaphor of a *"tapestry"* and its *"weavers"* of the *"threads"* explicitly refer to the *"business thread"* and the *"IT thread"* of DT (the *digital tapestry*). The literature also reminds us of the importance of a well-functioning and collaborative strategic partnership between IT and business leadership for the purpose of change adaptations throughout the DT process (c.f. Singh & Hess, 2017; Matt et al., 2015; Hess et al., 2016; Bharadwaj et al., 2013) . In short, in order to design a new digital experience and an improved portfolio of digital offerings to change the way the organization engages with customers, organizations will require the expertise of both IT and business personnel to operate in partnership (***reference withheld for review purposes***).

These key informants are considered DT leaders within their respective organisations and their voices reflect those of their industry peers. On average these key informants have 15+ years of industry experience in the area of business/IT transformation. It is also worth mentioning that the sixteen key informants are affiliated with organisations *"born in the pre-digital age"* and they are conscious that they are balancing *"tensions between the 'old' and the 'new'"* when transforming (Oberlander et al., 2021 p1). Our approach to key informant selection allows for four types (quadrants) of practitioner voices to be heard (e.g. *Business Strategic*, *Business Operational*, *IT Strategic*, *IT Operational*) as we theorise about the characteristics of Digital Transformation Leadership (DTL). Interviews are considered the most appropriate data gathering technique for collecting rich and detailed data from industry experts and are a typical data gathering technique with the key informant approach (Barker et al., 2005;

Whittaker, 2012). In this study, we conduct a series of semi-structured interviews (four per practitioner voice type), where each key informant reveals their unique DTL experiences (see Table 1 for a list of the interviewees). Interviews took place over sixteen months (between November 2018 and February 2020) and ranged in duration from 35 to 75 minutes with an average interview duration of 60 minutes.

Key Informant Position	**KI Quadrant**	**DT Initiative**	**DT Classification**	**Experience (years)**	**Sector**	**Industry**	**Org Type**	**Org Size (employees)**
IT Services Director	ITS	S	L	20-25	PU	H.Ed.	SME	2.5K>
Chief Information Officer	ITS	M	L	15-20	PR	Agri	SME	.2K>
Global Director of Digital Services Platform	ITS	M	G	25-30	PR	Energy	MNC	10K>
Senior Software Development Manager	ITS	S	L	20-25	PR	S/ware	MNC	2K>
Chief Executive Officer & VP	BS	M	G	25-30	PR	Energy	MNC	10K>
Director of Academic Affairs & Digital Services	BS	S	L	20-25	PU	H.Ed.	SME	2.5K>
Chief Information Officer & VP	BS	M	G	25-30	PR	Tech	MNC	50K>
Senior Global Business Transformation Director	BS	M	G	20-25	PR	Tech	MNC	50K>
Senior Digital Solutions Engineering Manager	ITO	S	G	15-20	PR	Tech	MNC	15K>
IT Manager	ITO	S	L	15-20	PU	H.Ed.	SME	1.8K>
Chief Technology Officer	ITO	S	L	15-20	PR	Agri	SME	.15K>
Lead Digital MIS Analyst	ITO	S	L	10-15	PU	H.Ed.	SME	2.5K>
Business Transformation Officer	BO	M	G	15-20	PR	Tech	MNC	50K>
Director of Operations & Global Support Services	BO	M	G	20-25	PR	Tech	MNC	15K>
Business Transformation Director	BO	M	G	20-25	PR	H/care	MNC	80K>

Business Transformation Manager	BO	M	G	15-20	P R	Tech	MN C	15K>
DT initiative (S-Single; M-Multiple) | **DT Classification** (G-Global; L-Local) | **Sector** (PU-Public; PR-Private)								

Table 5-1 Key Informant Overview

For this research, after preparing each of the sixteen key informant interview transcripts (as the interviews were completed throughout the 16-month data gathering period), the data analysis commenced by reading each transcript sentence-by-sentence and following an inductive open coding approach. According to (Corbin & Strauss, 1990 p.67), coding *"represents the operations by which data are broken down, conceptualized, and put back together in new ways"*. During *open coding* we were initially looking for two sides of a key informant's DTL experience, namely the "what" and the "how". This simply translates as "what" action they need to take and "how" they enable that action, in their role as a DT leader. These actions are in the context of the key informant striving for the best possible outcome in a DT initiative. The output from our open coding produced ten categories (emerging from 558 key informant excerpts, coded against 165 concepts). See a sample of our coding in Figure 1. Therefore, "*what coding does, above all, is to allow the researcher to communicate and connect with the data to facilitate the comprehension of the emerging phenomena and to generate theory grounded in the data*" (Basit, 2003 p.143).

5.3 TEN DIGITAL TRANSFORMATION LEADERSHIP CHARACTERISTICS

In this section we will present our findings. We start by presenting a high-level overview, based on some key patterns emerging from our analysis (see Table 5-2 and Figure 5-1), and also comparing our understanding of these patterns against current literature. We then present each of our ten DTL characteristics (based on out theorising). The naming of the ten DTL characteristics respects the lexicon of the sixteen key informants involved in this study, notwithstanding the fact that there is an evolution in the description used as part of the data-to-theory process.

Number	Category		Excerpt	Concept	Practitioner Voice Quadrant			
	What	How			IT Strategic	IT Operational	Business Strategic	Business Operational
C1	communicating and executing a digital strategy and vision	by leveraging executive management support	101	20	26	24	28	23
C2	prioritising the customer value proposition	by implementing an integrated digital platform	76	16	21	20	18	17
C3	understanding the journey of organisational change	by embracing digital disruption	62	26	16	14	17	15
C4	inspiring the organisation to change	by adopting an open culture and digital mindset	60	18	16	10	18	16
C5	underpinning the organisational change	by using appropriate digital capabilities	58	15	22	18	10	8
C6	collaborating cross functionally	by adopting a disruptive approach to innovation	55	16	12	16	15	12
C7	redefining the business model	By optimising functionally aligned processes	48	17	14	12	12	10
C8	unlocking the value of data-driven decisions	by capturing and analysing high quality data	44	15	15	8	14	7
C9	realising value creation	by balancing cost reduction and revenue generation	29	10	13	8	5	3
C10	empowering employee experience	by creating a dynamic digital workplace	25	12	5	3	6	11
		Total	**558**	**165**	**160**	**133**	**143**	**122**

Table 5-2: The DTL Characteristics Frequency across the four Practitioner Voice Quadrants

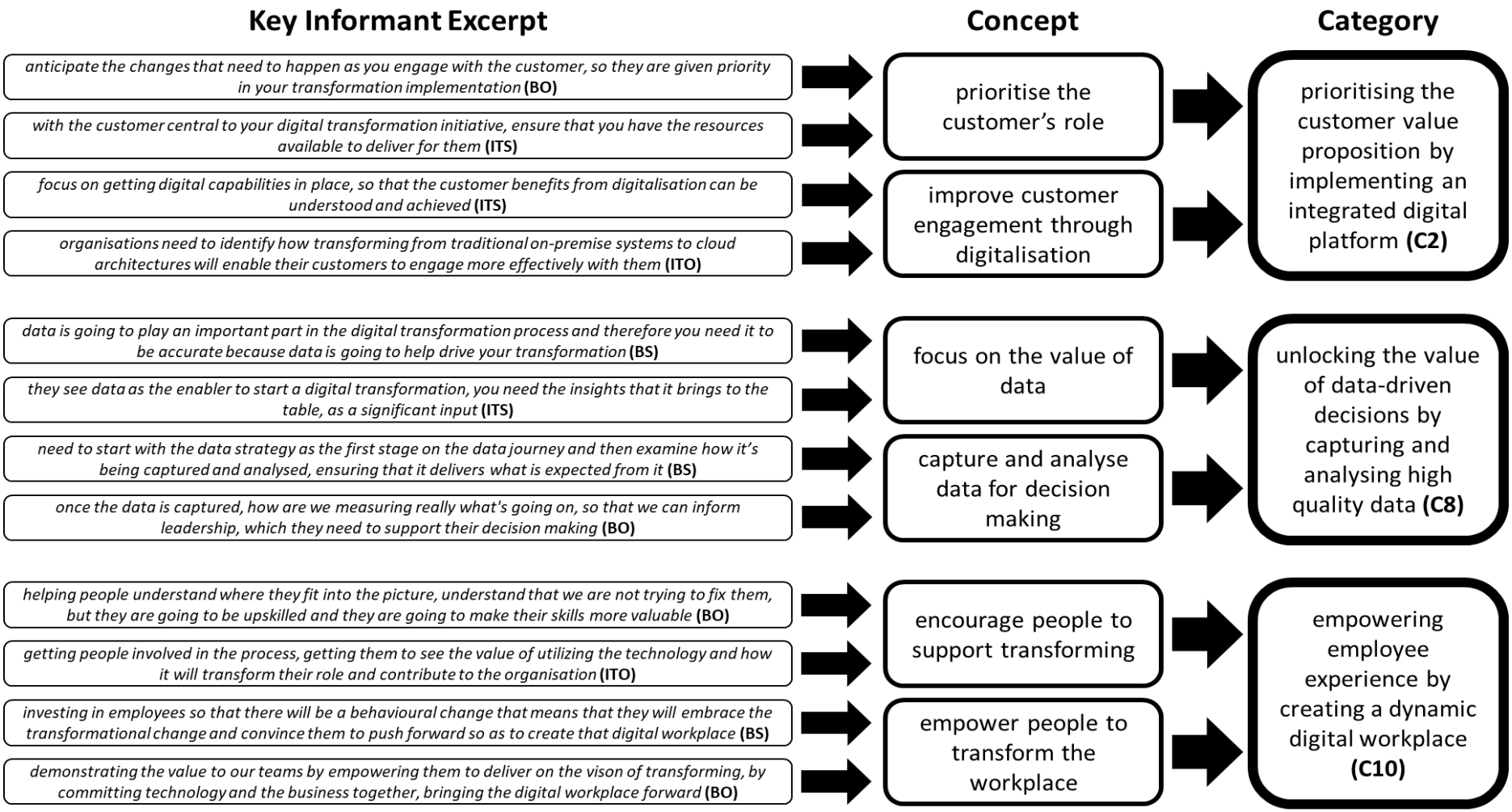


Figure 5-1: Sample Open Coding for the DTL Characteristics C2, C8, and C10 (across the four Practitioner Voice Quadrants)

5.3.1 DTL Characteristics: Patterns of Interest

Examining Table 5-2, we can identify a number of patterns of interest, emerging from our coding of the sixteen key informant interviews. Table 5-2 presents the ten DTL characteristics in descending order of coded excerpts. The distribution of excerpts across the four practitioner voice quadrants is also highlighted. Each DTL characteristic is presented as a "what" and "how" combined, which emerged as part of the open coding process, in an effort to fulfil our research objective.

There is a very strong and balanced coverage across all practitioner voices for DTL characteristics C1, C2, and C3. This pattern would perhaps conform with researcher and practitioner expectations as to where a DT leader needs to focus attention (e.g., on digital strategy and vision, customer value propositions, and organisational change). There is also a strong and balanced coverage across all practitioner voices for DTL characteristics C4, C6, and C7. However, of particular interest in C7 (*redefining the business model by optimising functionally aligned processes*), the volume of coded excerpts relative to those for C1 (*communicating and executing a digital strategy and vision by leveraging executive management support*) is <50% across the four quadrants (practitioner voices). This pattern may not align with researcher and practitioner expectations as to where a DT leader needs to focus attention, given the prominent coverage of business model redesign in the DT literature. For example, like all types of change programmes, DT can be understood as altering the people, process, technology, and data components of an organisation (Matt et al., 2015; Muehlburger et al., 2019; Saariko et al 2020). The motivation for introducing a DT programme can be multi-faceted, but many DT programmes are centred around changing the organisation's structure and business model to serve existing customers more efficiently and to reach new customers more effectively (El Sawy et al., 2016; Haffke et al., 2017). In fact, (Porfírio et al., 2021 p.611) refer to DT as a disruptive movement *"usually resulting in a transformation of the firm's business model"*.

A similar "as expected" observation can be made in DTL characteristic C8 (*unlocking the value of data-driven decisions by capturing and analysing high quality data*) where there is a strong focus within both the Business and IT Strategic practitioner voices. Notwithstanding this strong strategic focus around C8, the Business and IT Operational practitioner voices are less prominent (in terms of coded excerpts) which could present a challenge for DT leaders as regards how well strategic priorities (e.g., being more data informed) will be operationalised in practice (Saariko et al 2020). This highlights the potential dissonance between the plans and their implementation (c.f. Day et al., 2009). In fact, Shein (2021) reminds us that an effective DT leader *"will motivate their executive team and their reports to really transform. They really need to have this motivation; this ability to translate vision into action"*.

DTL characteristics C9 and C10 represent the least frequently coded excerpts across the four practitioner voices. This focuses attention on two areas that potentially receive lesser focus from DT leaders than might be expected, and this pattern can present challenges to the outcome of a DT initiative. For example, DTL characteristic C9 (*realising value creation by balancing cost reduction and revenue generation*) shows a strong focus within both the IT Strategic and Operational practitioner voices, relative to the focus (coded excerpts) of both the Business Strategic and Operational practitioner voices. This could present a challenge for a DT leader where the business narrative is not focussing enough on value (cost reduction and revenue generation) relative to the IT narrative? In fact, this imbalanced focus between IT and business narrative also emerges as a pattern within DTL characteristic C5 (*underpinning the organisational change by using appropriate digital capabilities*) where it appears as if the use of digital capabilities to underpin organisational change is not as frequent a focus for the Business practitioner voices as it is for the IT practitioner voices (<50%). This has the potential to present a significant challenge to a DT leader regarding the outcome of a DT initiative. In fact, Shein (2021) reminds us that effective DT leaders *"know they can only gain board influence if they can talk the language of the board"*. Therefore, IT leaders need to build more *"contextual awareness"* through *"learning to meet business colleagues where they are and speak their language"*. Shein (2021) continues that *"the quickest way to get the business to disconnect is to bring them to the table and then you lose them if you're trying to get them to speak the language of*

IT". According to Overby (2021) the best DT leaders *"avoid speaking in acronyms and never try to flout their tech lexicon"*, instead they *"democratise tech understanding"* and *"keep it as simple as possible"*.

A very interesting observation reveals itself when comparing the focus of practitioner voices between customer engagement and employee engagement. There is a very strong and balanced coverage across all practitioner voices for DTL characteristic C2 (*prioritising the customer value proposition by implementing an integrated digital platform*). This pattern would perhaps align with researcher and practitioner expectations as to where a DT leader needs to focus attention (e.g., on the needs of the customer). However, there is very little support (coded excerpts) across the practitioner voices for DTL characteristic C10 (*empowering employee experience by creating a dynamic digital workplace*). In fact, the strongest practitioner voice is that of the Business Operational DT leader, which is perhaps an "as expected" pattern and meets with researcher and practitioner expectations. However, where this DTL characteristic C10 receives so little focus from DT leaders (to what might be expected), this presents a significant challenge to the outcome of a DT initiative. For example, the current changes in the world of work (accelerated by the COVID-19 global pandemic) presents a need for new ways of thinking and doing, especially against the backdrop of "The Great Resignation". In a recent article, it was stated that *"employees and customers alike are unplugging from companies who refuse to care about them",* (Huffington & Bates, 2022) . Therefore, it is important to foster the idea of employees working together, collaborating effectively and using a cross dimensional approach to DT (Holmström*,* 2022*)*. It seems appropriate to conclude this section with a quote from one of the key informants in this study, who state *"if the people aren't on board, it's not going to happen"!*

5.4 DTL Characteristics: The "What" & The "How"

In this section we present a digest of the practitioner voices that inform each of the ten characteristics of DTL. These characteristics are presented in descending order based on total coded excerpts per category (see Table 5-2). For example, the IT Strategic practitioner voices are dominant in shaping C9; the Business Operational practitioner voices are dominant in shaping C10: the IT Strategic and Operational practitioner voices are dominant in shaping C5; the IT and Business Strategic practitioner voices are dominant in shaping C8; finally, C1-4 & C6-7 are shaped by a balanced contribution across the four practitioner voices. Throughout the next sub-section, we present a brief digest of each of the DTL characteristics.

5.4.1 C1: communicating and executing a digital strategy and vision by leveraging executive management support

Based on our analysis, a broad consensus emerges around the importance of creating a digital strategy and vision that is transparent to all and communicated from the strategic level to the operational level. For example a Business Operational key informant suggests that *"those at the operational level need to understand how the strategy and vision transfers down to them and what is expected of them"*. For the digital strategy and vision to be effective and accepted it must be inspiring and motivating and must be aligned with the organisation's business strategy. These practitioner voices (DT leaders) suggest that for a DT initiative to be a success, the digital strategy and vision must have the required level of support throughout the organisation. The leadership must ensure that the digital strategy and vision will be communicated and executed and have the necessary resources (digital and human) to deliver value for all organisational stakeholders. This is captured by an IT Strategic key informant who advises to *"be transparent in how the strategy will be delivered by the underpinning of the digital capabilities available to the organisation"*.

5.4.2 C2: prioritising the customer value proposition by implementing an integrated digital platform

Based on our analysis, a broad consensus emerges from key practitioner voices that prioritising the customer value proposition is something that leadership needs to focus on as a key objective of DT. These key informants emphasise that leadership must promote putting the customer at the core of an organisation's digital strategy, so as to ensure greater value to the customer, through the changes that are implemented. A Business Operational key informant suggests that DT leaders should *"concentrate on finding customer data touchpoints in order to find out customer priorities, understanding and finding the best way to support them in achieving value is what the customer wants"*. They believe that leadership need to focus on enhancing their customer segments through digitalisation. These practitioner voices also emphasise that using digital channels will improve customer engagement, thereby enhancing the customer experience.

5.4.3 C3: understanding the journey of organisational change by embracing digital disruption

Based on our analysis, a broad consensus emerges that undergoing a digitally enabled organisational change involves having a clear understanding of the *'why'*, *'what'* and *'how'* of DT. As highlighted by an IT Strategic key informant, it's important to *"identify what we are looking to achieve from transforming, how we go about that process and making those changes, and why it's important that we do so"*. Having a complete understanding of the reasons for DT, or the *'why'* of digitally transforming, is very important as it affords leadership the opportunity to assess the risks and rewards of such a disruptive paradigm shift. For those leading the organisational change, the *'what'* of DT is necessary, for example, having the emotional intelligence, sufficient appetite, and strategic partnerships; furthermore, focusing on building credibility by achieving short term successes is also a key aspect of attaining a positive result from DT. Focusing on the *'how'* of DT means leadership having the competencies and abilities to assess risks and rewards from an external (industry-wide) as well as internal (inside the organisation) perspective. It also requires leadership to be adept at evaluating digital technologies, investments and innovations, coupled with being focused on process improvement and change management. This is captured by one of the Business Operational key informants who suggests "*understanding that it's a*

transformational shift in technologies, supported by a workplace and workforce transformation, that brings about the organisational change".

5.4.4 C4: inspiring the organisation to change by adopting an open culture and digital mindset

Based on our analysis, it emerges that understanding the culture of the organisation is crucial to a successful DT outcome. While embracing the cultural and behavioural changes that Digital Transformation (DT) will bring, these practitioners (DT leaders) highlight the need to promote the necessary cultural shift in the organisation in order to make it 'culturally fit' for DT; therefore, culture and mindset are closely aligned to the digital strategy. As highlighted by a Business Strategic key informant "*if your culture is closed and your mindset follows, your digital transformation will not flourish, the key is to foster an openness in both*". These practitioner voices see a digital mindset as embodying empathy, positivity, and inclusivity, all of which leadership need to transfer from the strategic to the operational level. Another Business Strategic key informant recommends that "*people must fit the culture of your organization and must be entertained and excited by the change*". For these key informants, getting buy-in from the organisation requires leadership to have someone who can bring something different, a freshness, new ideas and invigorates the entire organisation.

5.4.5 C5: underpinning the organisational change by using appropriate digital capabilities

Based on our analysis, it emerges that identifying and incorporating *"appropriate digital capabilities"* is viewed as a critical enabler of an organisation's DT initiative. According to a Business Strategic key information *"we are diverting our resource base much more into technology and automation, the idea of reaping what you sow".* For these practitioner voices (DT leaders), leadership must acknowledge that creating a well architected digital platform will provide the foundation to deploy digital services across the organisation. Such a digital platform will involve building a robust and resilient end-to-end digital backbone, which will support a well-designed and scalable digital architecture, comprised of web-based applications, and infrastructure-based services supported by emergent and emerging technologies. For example as an

IT Strategic key information comments *"so we're building huge capability where we're transforming our operational backbone to make ourselves 'fit-for-purpose' in a digital sense"*. These practitioner voices believe that leadership must focus on aligning digital capabilities to the strategic business objectives (captured in the digital strategy).

5.4.6 C6: collaborating cross functionally by adopting a disruptive approach to innovation

Based on our analysis, it emerges that getting organisations to collaborate, both functionally and cross functionally, will enable a more successful DT initiative. The key informants see that collaboration involves using collaborative technologies, human resources, and innovative methods in their approach to DT. As highlighted by a Business Strategic key informant *"incorporating the right methodology, to find the best technology and applications required to bind those involved in transforming, to produce the desired outcome"*. Furthermore, they believe that an agile methodology should be fostered with regards to the programme management structure used, which is inclusive, self-determining, and empowering for all participants in the DT initiative. These practitioners (DT leaders) believe that leadership must foster a behaviour of collaboration and empowerment to get support and participation from those at all levels of the organisation. As highlighted by an IT Strategic key informant *"having that openness and honesty and making sure everyone has their say, being collaborative with those around you, to foster inclusivity and extract those good ideas from people that can be brought to the table".* Finally, they see the importance of creating a DT roadmap for all involved to see the milestones that need to be achieved as part of the DT journey.

5.4.7 C7: redefining the business model by optimising functionally aligned processes

Based on our analysis, it emerges that the enhancement and optimisation of business processes are essential in redesigning an organisation's business model. For example, a Business Operational key informant suggests that *"understanding the process*

transformation is important and needs someone to lead this transformation, someone who is people-oriented, can put themselves in the shoes of everyone in the organisation to convey the message to them". The practitioners (DT leaders) view the changing operational model of the organisation as a product of leadership advocating for the creation of an integrated digital platform that meets the needs of customers and employees. To deliver such change requires the appropriate expertise internally and externally to facilitate the remodelling of how the "digital" business operates at all levels. In fact, an IT Operational key informant reveals that is it important to *"convince people that its ok to use automation and other tools to transform the business and that transformation of processes will not lead to employees losing their jobs".*

5.4.8 C8: unlocking the value of data-driven decisions by capturing and analysing high quality data

Based on our analysis, it emerges that a clear understanding of the importance of data, why it is an enabler of organisational change, and why it is critical for DT decision making needs to exist. As highlighted by a Business Strategic key informant "*data is going to play an important part in the digital transformation process and therefore you need it to be accurate because data is going to help drive your transformation".* The key informants (DT leaders) believe that leadership must be data-driven and initially have a data strategy in place before deciding on capturing and analysing any data. Furthermore, the practitioners present the importance of data and its use as a pointer or compass, providing an indication of how the organisation's DT initiative is performing (its direction). In fact, another Business Strategic key informant reveals *"we need to start with the data strategy as the first stage on the data journey and then examine how it's being captured and analysed, ensuring that it delivers what is expected from it".*

5.4.9 C9: realising value creation by balancing cost reduction and revenue generation

Based on our analysis, it emerges that creating value by balancing cost reduction and revenue generation is a priority for leadership. The key informants (DT leaders) suggest that it is important for leadership to make the right investments in digital (technologies and resources), that will enable value creation and provide a meaningful ROI (return on investment). This is highlighted by an IT Operational key informant, stating that *"seeing how to leverage technology to support value creation, whereby there will be a meaningful return on investment that will come from using the technology"*. In fact, these practitioners believe that being able to ascertain where the cost reductions can be achieved, to offer a value proposition to all stakeholders, internal and external, is critical in gaining acceptance of the DT initiative. As an example, leadership might look to pinpoint where the value is, through technology-enabled organisational change (e.g., migration of applications and services from on premise to the cloud); thereby reducing capital expenditure on technologies and infrastructure, while also increasing customer and employee engagement. According to an IT Strategic key informant it is important that we are *"demonstrating what the result of transforming will mean to everyone, and building the value of it through quick wins, while also showing them what other companies are doing"*.

5.4.10 C10: empowering employee experience by creating a dynamic digital workplace

Based on our analysis, it emerges that encouraging a value proposition for employees needs to be outlined as part of a DT initiative: this can come in various forms, e.g. monetary, improved working environment, or a greater say in how the organisation operates. Creating that value proposition can be achieved using digitalisation whereby introducing new technologies and tools can assist employees not only in their everyday work tasks but also allow themselves to upskill and develop new competencies. For example, a Business Operational key informant comments on the importance of "*demonstrating the value to our teams by empowering them to deliver on the vison of transforming, by committing technology and the business together, bringing the digital workplace forward"*. These practitioner voices (DT leaders) see positivity in empowering employees, giving them input into making the changes and ensuring that

they understand why the organisation is transforming and ensuring employees not only understand but support it. For these IS practitioners, getting buy-in from the organisation requires a leadership to have someone who can bring something different, a freshness, new ideas and invigorates the entire organisation.

5.5 Conclusions and Implications

To conclude, *"without research outcomes relevant to practice, the very existence of a research discipline could be questioned because the discipline could well lack impact beyond its own (academic) community"* (Rosemann & Vessey, 2008 p.3). Therefore, to further increase the relevance of this work (around *accessibility* and *applicability*) we present a DTL checklist for DT leaders. This checklist works by prefacing each DTL characteristic with *"Are We…"*. These questions are ordered by criticality (based on the outcome of our theorising work). This checklist use case can serve as both a pre-commencement readiness check, or an in-progress reflective aid for practitioners. To note, as per (Rosemann & Vessey, 2008 p.3), *accessibility* is understood as *"the research is understandable, readable, and focuses on results"* and *applicability* is understood to be *"whether it provides guidance and/or direction, and whether it provides concrete recommendations"* that are easy to apply in practice.

We believe that asking and answering these ten questions will afford DT leaders with the opportunity to start conversations and build a shared understanding amongst key organisational stakeholders around the realities of their DT initiative. For example, our work suggests that unless you are hearing the Business Operational DT leader voices you may not be in a good position to empower employees to create a dynamic digital workplace. Furthermore, IT Operational DT leaders need to appreciate the importance of the dynamic digital workplace, especially from the business perspective. Finally, IT Strategic DT leaders are key to value creation and need to engage with Business Operational DT leaders to ensure that there is a greater shared understanding and alignment between the plans and actions of business and IT. However, while technology enabled change (central to DT) is the remit of IT Strategic

and Operational DT leaders, for a successful DT outcome, Business Operational DT leaders need to be more proactively engaged in the ongoing DT conversation.

CHAPTER 6: CONCLUSIONS

6.0 Introduction

This research study has centred on the key organisational initiative of Digital Transformation (DT) and furthermore on the process of leading a Digital Transformation programme (DT Leadership) across an organisation. The study has uncovered, by way of using a Grounded Theory approach, key findings pertaining to how best to lead a DT initiative in a pre-digital organisation. Furthermore, this research study has identified, illustrated, and outlined key elements of DT (e.g. defining characteristics and the Critical Success Factors (CSFs)). The study has also unearthed the characteristics and practices of DT Leadership (from both literature and empirical sources) . Therefore, the purpose of this concluding chapter is to focus on highlighting these research findings and showcasing how they contribute to both the theory and practice of Information Systems (IS), given the 'seismic change' that DT represents for an organisation (an enterprise-wide effect on people, process, technology and data).

6.1 Revisiting the Research Objectives

To conclude this research study, the research objective and research questions, outlined in the introduction, are now revisited. The objective of this research, is to identify the defining characteristics of Digital Transformation Leadership (DTL) in "pre-digital organisations".

6.1.1 Research Question 1: What are the defining characteristics of "doing" Digital Transformation (DT)?

This initial research question sets out to establish the key characteristics of "doing" DT, specifically from the perspective of those tasked with leading a DT initiative, and endeavouring to be successful in doing so. The findings from this research question highlight a "holistic categorisation" of the defining characteristics of "doing" DT. These "*six defining characteristics of DT*" have emerged from empirical data, attained by a comprehensive data gathering and data analysis process. These *six defining characteristics* for "doing" DT along with how they relate to one another are crucial for a DT implementation. The research findings highlight that Digital Strategy concerns itself with the "role of people" over the "role of technology", having a Customer Focus concerns itself with the "role of technology" and the "role of data" in customer engagement, creating a Culture Change must be viewed "positively" by employees and promote the "role of people", designing a Digital Platform must align the "role of technology" with the business objectives of the organisation, being Data Driven is required to guarantee the "role of data" in telling the transformation story, and Value Creation is highlighting the "role of technology" in generating value aligned with business objectives. The benefits of the findings from this research question will promote greater awareness amongst academics and practitioners with regard to the implementation of a DT initiative. By getting those in practice to take on board these *six defining characteristics* when preparing to "do" DT, they are keeping focus on the priorities that will increase the likelihood of a successful outcome from "doing" DT.

6.1.2 Research Question 2: What are the CSFs for Digital Transformation (DT) that impact positively on the outcome of a DT initiative within an organization?

This second research question uncovers the Critical Success Factors (CSFs) that enhance the outcome of a DT initiative. In this research nine CSFs for DT in a pre-digital organisation are identified. These *nine CSFs* for implementing a DT initiative emerged from unpacking the relationships between the *six defining characteristics* of DT (emerging from RQ1). These CSFs contribute to the current understanding of DT and illustrate the importance of these CSFs in evaluating DT initiatives, In effect, these

CSFs providing managers with a very useful guide. Ultimately, these CSFs show leadership the key ingredients needed for a successful DT outcome.

6.1.3 Research Question 3: What are the characteristics associated with Digital Transformation Leadership (DTL)?

This third research question focuses on uncovering the key characteristics of Digital Transformation Leadership (DTL) from the literature. In total *eight characteristics of DTL* are identified. These characteristics identify the key areas that should be considered by leadership when implementing a DT initiative. These *eight characteristics of DTL* are also mapped to c-suite roles (the leaders most likely to be in a position tasked to lead on a DT initiative). These characteristics are described as follows: *digital strategist* (focused on leading on a digital vision and digital mindset), *digital culturalist* (leads the fostering of a digitalised culture), *customer centrist* (leads on enhancing the customer value proposition), *business process optimiser* (leads out on cross functional business process optimisation), *digital architect* (involves leading out on building a digital platform architecture of established and emerging technologies), *organisational agilest* (leading on cross functional connectedness and simplification of operations), *data advocate* (leads on leveraging data for strategic enhancement), *digital workplace landscaper* (leads on resource evolution and overcoming barriers to change). This work provides rich descriptive theorising of the phenomenon and generates interesting insights into the DTL characteristics that can help organisations to be more successful with their DT programmes.

6.1.4 Research Question 4: What are the characteristics of Digital Transformation Leadership (DTL) that impact on the outcome of a DT initiative within an organisation?

The fourth and final research question explores the characteristics of DTL from the perspective of those tasked with leading DT within a pre-digital organisation. The findings emerging from this question are presented as *ten defining characteristics of*

DTL. These findings can also be translated into ten questions which afford DT leaders with the opportunity to evaluate the realities of their DT initiative. For example, this research suggests that unless you are hearing the Business Operational DT leader voices you may not be in a good position to empower employees to create a dynamic digital workplace. Furthermore, IT Operational DT leaders need to appreciate the importance of the dynamic digital workplace, especially from the business perspective. Finally, IT Strategic DT leaders are key to value creation and need to engage with Business Operational DT leaders to ensure that there is a greater shared understanding and alignment between the plans and actions of business and IT. However, while technology enabled change (central to DT) is the remit of IT Strategic and Operational DT leaders, for a successful DT outcome, Business Operational DT leaders need to be more proactively engaged in the ongoing DT conversation.

6.2 Historical Review of IT/DT enabled Transformation in Organisation

Digital Transformation (DT) entails various consequences that reshape business models, impact employment among leaders, employees, those in knowledge based workers and evolve organisational culture (Scuotto et al., 2021; Legner et al., 2017; Loebbecke and Picot, 2015). This research study presents a unique focus on identifying what is required and how it should be implemented when leading out an IT enabled transformation and later a DT transformation initiative across an organisation. In doing so this research study has addressed the first research question, i.e. "*What are the defining characteristics of "doing" digital transformation"* ?

Therefore, addressing the 'so what' of DT and highlighting these defining characteristics from a historical perspective, it is apparent that over the past five decades, the role of IT enabled transformation has been growing significantly in its influence on organisations going through the process of transforming. Through the identification of these *six defining characteristics of doing digital transformation,* this

research study had a barometer where it could to compare how influential these defining DT characteristics had been over the past half century on organisations transforming.

On review, each of these standout eras were synonymous with the emergence of key enabling technologies, beginning with *Mainframe System Architectures (1960s/1970s),* moving on to *End User Computing (PCs 1980's),* proceeded by *Enterprise Architecture* (1990's Client/Server) and the paradigm shift to *Service Oriented Architecture* (ERP & Data Warehousing) in the 2000s . These decades prepared the foundation to the transitioning of enterprises to becoming a *Digitalized Organisation* over the past decade (2010s - onwards). The evolution to Digitalization (Cloud Computing, Big Data, A.I, Blockchain etc) and subsequently to a Digitally Transformed organisation has further advanced the influence that its fore runner IT enabled Transformation brought to organisations in the past, acting as an agent of change functionally and enterprise wide affecting the purpose, processes and people within the organisation (Cross et al., 1997, Gouillart & Kelly 1995).

Examining the influence of technology based transformation on organisations changing and evolving in previous eras', one can ascertain that there is a degree of familiarity when reviewing the effects and the impact of Digital Transformation (DT) on organisations when comparing with that of past IT enabled transformations. Such previous transformations included key components such as business process redesign (Davenport 1993, Hammer and Champy 1993), workplace change (Bartlett and Ghoshal l996), business model rejuvenation (Greenwood, & Hinings, 1996), strategic influence (Hamel & Prahalad 1994) and organisational transformation itself (Gouillart and Kelly 1995). The movement towards digitalisation for organisations has created a perception that maybe DT is new and different, without the burden of previous concepts, but when examined the idea of actually reinventing the wheel with DT meaning the perceived novelty of what DT aims to provide to organisations is actually negated (Andriole, 2017; Kane, 2018). Digital Transformation (DT) is currently conceptualised in almost in the same way that Information Technology enabled transformation has been conceptualised in the past with regards to its role in organisations transforming (Besson & Rowe, 2012; Vial, 2019). It has however

stimulated a debate when revisiting previous examples of IT enabled transformations on organisations transforming, as to how Digital Transformation (DT) is seen as being or offering something different (Yoo, 2013; Yoo et al., 2010). With respect to all of this commentary, this research study brings something different by highlighting that the association of these *six key defining characteristics of doing DT* when combined present something unique for organisations transforming than those from previous eras.

Charting the historical aspect of these IT enabled transformation eras, many of those key ingredients which emerged at different times are now appearing in a more complete fashion in (DT) digital transformation initiatives. Therefore while there is an acceptance that there are similarities and nuanced differences in terms of transformation agenda and driving forces, the key differentiator between Digital Transformation and IT enabled Transformation in driving organisations changing, lies in how digital technology, value propositions, and organisation identity interrelate during the process. In (DT) digital technologies are central to redefining value propositions which occasions the emergence of new organisational identity. IT enabled Transformation, in contrast, involves the use of digital technology to support an existing value proposition, implying that the existing identity of an organisation is reinforced. In fact digital transformation (DT) like all transformations are difficult and complex undertakings, perilous and multi-faceted, where efforts come under many banners such as process reengineering, standardisation, changing the workplace environment right sizing architecture, workplace restructuring, cultural change and dynamic leadership (Gupta et al., 2011; Cross et al., 1997; Davenport, 1993; Hammer & Champy, 1993).

Therefore, it is vital to ascertain as to how the findings from this research, which concentrates on what is required to lead a digital transformation (DT) initiative compare to what was required to do something similar as did IT enabled transformation in the past decades?. This question is answered by conducting a review of the literature and identifying if similarities exist in the past with IT enabled transformation in organisations. To do this effectively it is worthwhile highlighting again the *six defining characteristics of "doing" digital transformation* which were in

this study uncovered, and ascertain as to how influential these characteristics were in IT enabled transformations that occurred in previous decades (see Table 6.1), and so by analysing these previous five decades focusing on the presence of these *six defining characteristics of "doing" digital transformation* one can illustrate the role that they have played individually or combined in these eras

6.2.1 1960/1970s – The era of Mainframe Systems Technology:

These decades marked the significant rise of technology in the organisation beginning with the use of mainframe systems in the late 1960s continuing into the 1970's and was concerned with supporting business objectives within functional units by aligning IT as a strategic resource to support these strategic objectives as they undertook change. To do so required assessing the capabilities of the systems available and building an IT strategy to achieve that level of success, i.e. ***Digital Strategy***. Therefore to get greater traction and performance from the IT function and while reducing costs and improving operational efficiencies were priorities there was a greater emphasis on IT as an enabler for supporting the business strategic objectives by creating an alignment with the technology that was available (Henderson & Venkatraman, 1993; Gorry & Scott Morton 1971). It was also hoped that IT became a way of gaining competitive advantage for many organisations looking to transform themselves into industry leaders (McFarlan, 1984; Parsons, 1983; Porter & Millar 1985; Rackoff et al., 1985).

This period saw the evolution of mainframe based systems (i.e. IBM, Xerox, Digital etc), which began providing the necessary architectural platform to support organisations to undergo a complete or partial transformation. The use of these mainframe systems provided organisations with key enabling technology to deliver an IT enabled transformation during the 1970s, i.e. ***Digital Platform***. These mainframes were focused on providing the architecture to enhance customer and stakeholder experiences and delivering on the business objectives and improving business operations (Bakos & Treacy, 1986; Burns & Dennis, 1985). The IT enabled function has been seen as a catalyst for organisational transformation over the past few

decades playing a significant role through the adoption of emerging technologies at various intervals, in creating alignment between business and IT practices and management (Rockart et al., 1996, Ross et al., 1996).

The first real movement in IT enabled transformation which came in these decades saw a focus on building efficiencies and cost-savings, **i.e. *Value Creation***. This was achieved by way of having an IT leverage mandate, using the IT capabilities available at the time, **i.e. *Digital Platform*** and exploiting them to create value propositions and benefits for all stakeholders involved. Many of the IT based systems developed during the 1960s and 1970s were directed at the operational level of activity using improved technology based systems, supported by the IT function or department and were identified as merely as a means of cost reduction which was consistent with being in an IT leverage mandate (Anthony, 1965; Gorry & Scott Morton, 1971).

The movement from the 1970s and the establishment of mainframes as the typical technological environment supporting IT enabled transformation paved the way for the next decade (1980s), which was dominated by distributed computing and the evolution of the personal computer (PC) and end user computing, which created a significant technological change for those working in all sorts of roles and which impacted many parts of organisations changing.

6.2.2 1980s – The Decade of End User Computing:

The 1980s saw a sea change in the role of IT as it moved from a typical leverage mandate of IT based technologies and applications to that of a more expansionary mandate for the role of IT in organisations transforming. This period technologically was dominated by emergence of End User Computing (Personal Computers), which acted as an innovative and dynamic architectural platform, transformative of the work environment for all employees in those organisations. This was based on the availability of a more distributed IT architecture giving those working in organisations a stronger technological foundation to undertake tasks, providing a greater choice of

applications and superior connectivity to systems to employees of organisations to undergo a complete or partial transformation (Greenwood & Hinings, 1996; Shafer et al., 2001).

This period of distributed computing and the enhancement of end user technology provided a more effective means of supporting the business strategic objectives of organisations and to illustrate the effectiveness of the impact that both Information Technology (IT) and Information Systems (IS) brought to organisations, by enhancing organisations strategic performance (Ward, 1987; Bakos & Treacy, 1986). Such improvements were achieved using a greater ambidexterity in approach by creating a well-constructed and aligned Business and IT strategy, i.e. ***Digital Strategy*** by way of appropriate technologies to satisfy the requirements of stakeholders so ensuring that the right systems were in place to support business strategies (Biggart & Hamilton, 1987; Grudnitski, 1984; Montazemi & Conrath, 1986).

In the 1970s there was a clear focus on just leveraging IT for internal support of business functions. It wasn't used specifically externally to support the needs of customers. However with the movement to more distributed computing environment, it presented organisations to extend their IT enabled transformation to concentrate on engaging with customers more effectively, i.e. ***Customer Focus***. This addresses customer demand, and the disturbances stemming from, business operations changes which have become problematic. Therefore, organisations, for example those in public sector organisations during this period, began exploring the opportunities that emerging transformational technologies provided to enhance organisational agility and the flexibility needed to adapt to changing environments and meet government and customer demands (DiMaggio & Powell, 1983; Davenport & Short, 1990).

The 1980s also focused on using the emerging technologies of the time to create a cohesive architecture that was comprised of both servers, which could support the needs of various organisational business units, i.e. ***Digital Platform***. This harnessed technological capabilities and aligned them to address the many problems facing

organisations which were core to organisational transformation (El Sawy and Nanus, 1989; Henderson & Venkatraman, 1993).

Personal Computing (PC) became a very widely used and reliable technology enabler, transforming the end user environment in the work place, by providing a flexible and resilient infrastructure, increased the value and variety of applications and services which in turn provided cost savings and greater value propositions for all stakeholders, i.e. ***Value Creation*** (Zudoff, 1988; McFarlan 1984). This decade saw advancements that bridging between the provision of IT capabilities, how users information needs were enhanced and also how IT enabled the transformation of decision making by enabling a greater level of information for decision making through the capture and analysing of data (Sprague, 1987; Parsons, 1983).

The 1980s also brought much technological change, greater diversity in the workplace for employees and general improvements to applications and service delivery. Moving from the 1980s to the next decade (1990s), saw the emergence of an integrated enterprise architecture (EA) which was supported by technological advancements in infrastructure and application delivery i.e. Client/ Server. This provided a solid and scalable environment to continue enabling organisations for further change.

6.2.3 1990s – The Decade of Enterprise Architecture (Client / Server):

The 1990s saw organisations rate of transforming undergoing significant acceleration, based on the changing inputs and momentum of technological change brought about by greater integration of applications, infrastructure and processes. A key element of organisations changing during this decade was the impact of the rapid growth of the ICT sector and the massive spread of ICT based products and innovations such as Enterprise Resource Planning (ERP) and Data Warehousing in providing well designed and integrated IT enabled platforms which were supported by advancements in client/server technology incorporated by many organisations. The development of

these new technologies at the time were fundamental to understand the dynamics underlying the cycle or growth in the use of IT as a transformation enabler and also an example of intensive growth in highly different circumstances than in the 1980s (Gualerzi, 2001; Gualerzi & Nell, 2010). This decade continued to see organisations strategic objectives being achieved and fulfilled through the alignment of Business and IT strategic plans and using the best available technology in this era to implement those objectives.

In previous decades the importance of aligning the objectives of the organisation with that of an IT and later a DT strategy has been seen as the initial stage for IT enabled transformation. The 1990s further enhanced the importance of supporting the strategic objectives of the business with IT so as to continue the critical role it played in creating competitive advantage and organisational change, i.e. ***Digital Strategy.*** This is where the strategic vision of what IT is able to accomplish and to help change the organisation needs is illustrated clearly so that all understand what is involved and how it will improve the entire company, from those in strategic roles to those working in functional or operational based roles (Henderson & Venkatraman, 1999; Brown & Magill, 1994; Chan et al., 1997). To be effective in what they want to change and how they feel transforming helps everybody and grows the company there is a need to have a vision of what your future digital capabilities are going to be like as is outlined in in that digital strategy (Walsh, 1995; Scott & Morton, 1991).

The 1990s saw an enhanced role for IT in organisational change, especially with regards to enhance their relationships with customers, i.e. ***Customer Focus*** with business strategic objectives including a customer strategy as a central part supported by IT, i.e. ***Digital Strategy*** that would be supported by better ways of engagement and enhancing customers opportunities (Ghoshal & Bartlett, 1995; Rockart et al. 1996). This decade illustrated that using combinations of technologies like ERP and Data Warehousing, i.e. ***Digital Platform*** to provide a more IT focused customer experience and opening up new target audiences for organisations. It also saw the prioritisation of the role of the customer when designing and delivering products and services using

IT enabled transformation as an enabler of change, (Barrett and Walsham, 1999 Walsh, 1995; Orlikowski et al., 1996).

The move to a more integrated IT architecture comprised of key IT enabling technologies such as Client/Server applications and centralised converged infrastructures. This was comprised of storage and networks, enhancing IT enabled transformation to provide the necessary enabling architectural platform on organisations change, i.e. ***Digital Platform*** for complete or partial transformations. In this decade there was a move from end user and general purpose information technologies to more specialised platforms, with a focus on providing several types of applications so as to set in motion a greater level of transformation. It takes time for benefit to be achieved from general purpose type technologies so that they can make an impact on change, this depends on the diffusion process and the specific characteristics of the technology of choice (Bresnahan & Trajtenberg, 1995; Wessel et al., 2021). The 1990s saw client server technology improving the provision of a reliable and resilient infrastructure, increasing the capabilities of applications and services across many sectors and using these transformative new technologies for private or personal consumption (Fichman et al., 1998; Gualerzi & Nell 2010).

The 1990s saw the role of data becoming of strategic importance especially with organisations looking to improve competitive advantage based on informed decision making, i.e***. Data Driven***. This decade illustrated how the advancements in technology allowed the provision of information for decision making through the capturing and analysing of data in making organisations more dynamic, using a well aligned data strategy to unlock the value from data to inform business decisions. The advancements in the incorporation of data enabled greater support of the business strategy and decision making for leadership, therefore becoming a significant part of the IT strategy, i.e. ***Digital Strategy***. Furthermore with the level of maturity in technologies and applications becoming more powerful and providing the necessary foundation to capture, analyse and interpret data, in order to provide insights on customers. Furthermore it was used to outline the current state of the organisation in question and also its industrial competitors. Being ***Data Driven*** involves identifying where the

organisation are getting the data from and having the foresight to use the most appropriate technologies to ensure that the data sets are secure and always available to the organisational business units. This means be able to prioritise getting the best available technologies and applications in place to allow data to be presented in real-time to parts of the business in order to show the strong and weak areas of the organisation (accurate measurement) before, during, and after transformation (Chan et al., 1997; Ross et al., 1996). The changing organisational environment during this period also involved incorporating the outsourcing of certain tasks and services to third parties, resulting in significant changes externally and internally with the provision of IT services so impacting the presentation of data for business process redesign (Davenport, 1993; Cross, 1995).

The evidence of achieving benefits and efficiencies through IT enabled transformation continued in this decade, i.e. ***Value Creation***. The 1990s saw high growth rates and large expansions due to technological changes, through emerging application software and more resilient and scalable infrastructure, i.e. ***Digital Platform*** to support cost reductions and greater financial returns achieved from business strategic objectives such as outsourcing (Earl 1991, Loh & Venkatraman 1992), this was very evident with the biggest outsourcing deal for IT Services at the time (IBM-Eastman Kodak 1989, Henderson & Venkatraman, 1993). During this period the focus had been directed at creating and managing the internal infrastructure needs, the importance of the software and communication equipment industries computers and especially semiconductors and communication equipment. (Jorgenson & Stiroh, 2000; Weill et al., 1995).

The movement from the 1990s to the next decade which brought with it the new millennium an much change to organisations, saw the emergence of a more sophisticated and enhanced integrated Service Orientated Architecture (SOA), powered by web based technologies to provide key services and applications to support the strategic needs of changing organisations.

6.2.4 2000s – The Era of Service Oriented Architecture (SOA) Web Based Technologies:

The 2000s saw the movement to a service oriented architecture (SOA) which categorised Information Technology (IT) applications and services as strategic enablers for organisations, looking to change their business operations. This entailed reengineering of business process by digitisation and providing the necessary digital architecture for organisations planning to undergo a complete or partial transformation. Service Oriented Architecture (SOA) extended the enhancements brought by the Enterprise Architecture (EA) model in the 1990s, founded on client / server technology by using a web browser architecture to standardise and simplify access to services, applications and processes. It also provided the opportunity to improve the provision of a reliable, redundant and resilient infrastructure for the scalability of organisations portfolio of applications and services and to increase the availability of information for decision making through the effective capturing and analysing of data (Henderson & Venkatraman, 1993; Barrett & Walsham, 1999). The movement to a IT service designed architecture (SOA) during the 2000s instigated a period of a greater alignment between the key defining IT and DT enabled transformation characteristics that had operated manly in isolation earlier. Previous decades highlighted the emergence of the importance of the IT function in supporting organisations' strategic objectives began increasing. This decade saw a greater maturity in Business and IT strategic alignment, customer centricity, enhanced technology architecture, value attainment, cultural evolution and data usability began having greater influence in organisations changing (Cooper et al., 2000; Gal et al., 2008).

The 2000s saw a significant momentum towards a more digitalised workplace environment, created by new technologies that supported greater flexibility than was seen in previous eras began with a well aligned IT strategy, i.e. ***Digital Strategy***. This was directed by a digitally focused vision and mindset by executive leaders to support business strategic objectives and subsequently conveyed transparently objectives across organisational levels (McCarthy & Tsinopoulos, 2003; Dacin et al., 2002). Greater collaboration between business units and IT, governing the structure of the IT

transformational process and to determine the path of organisational change (Matt et al., 2015; Mithas & Lucas, 2010; Peppard et al., 2014). During this decade the mandate for organisations to change focused on the ability of IT that of transformation, i.e. to be a significant driver of that change. But in doing so the need for access to supporting technologies such as Cloud Computing and Big Data became critical to bring the ***Digital Strategy*** to life, it became clear that for organisations transforming that building a well-designed plan, i.e. ***Digital Strategy*** required an equally well constructed IT based architecture i.e. ***Digital Platform*** to support its enablement.

While the path of the IT enabled transformation was outlined in the strategy deployed, the IT enabled transformation improvements of this decade advanced the engagement with customers and provided a greater ***Customer Focus***. These improvements saw IT providing better technologies such as in cloud computing, i.e. ***Digital Platform*** to improve customer channels and relationships, but also increasing customer segments, therefore the customer became a central aspect of the focus on organisational change when designing and delivering products and services, even if that is to improve their own competitive position in the market (Cusumono, 2010; Tiwana et al., 2010).

The previous decades highlighted key characteristics and how they individually contributed to the role IT played in assisting organisations changing. In recent decades relationships began forming between certain characteristics such as IT or DT strategy and a corresponding IT or DT platform. One such significant key characteristic in IT and DT enabled transformation is a willingness to modify behaviours and therefore invoke what is a necessary, i.e. ***Culture Change*** by everyone involved**.** Such an idea began emerging in this decade whereby the need for favourable conditions throughout the organisation to achieve the appetite and support from across the enterprise that will be accepting of what the change or transformation will involve and the outcomes it will bring to all stakeholders. Achieving success for organisations transforming is necessitated by an understanding of the positives it will bring to operational areas and not just at strategic levels (Stettina & Heijstek, 2011).

The 1990s highlighted the influence of key technologies such as Enterprise Resource Planning (ERP) and Data Warehousing in providing an integrated IT enabled platform to support business strategic objectives and organisations journey of change (Lee et al., 2006). For this decade it was the turn of Cloud Computing to provide the necessary enabling transformational platform, i.e. ***Digital Platform*** during the 2000s, this paradigm shift to a centralised scalable and resilient platform comprised of systems, applications and services provided a greater means to expand and support organisational transformation (Ganguly et al. 2009). Cloud Computing architectures furthered the development of IT enabled organisational transformation from the impact established by ERP which provided frameworks and guidance for better understanding on how best IT-related transformation can be implemented successfully (Besson & Rowe, 2012; Crowston & Myers, 2004; Orlikowski, 1996). A well architected IT or Digital platform has been the foundation of IT enabled transformation from the 1970s to the present day, with the constant evolution in technologies and applications the importance of its contribution has gained greater traction through recent years. It has also illustrated how important it has been for the implementation of a successful IT or Digital Strategy.

The evolution to a more comprehensive well architected IT or Digital platform that technologies like Cloud Computing provide, means a greater means to gather and analyse both structured and unstructured data, and harness it for more informed decision making (Bharadwaj et al., 2013; Hess et al., 2016). This movement allowed organisations to become more focused on having information in real-time, **i.e**. ***Data Driven*** where organisations were able to concentrate on using appropriate technologies to mine through the data made available and in do so support key decisions that form the basis of organisations looking to change. The focus on the incorporation of data as a strategic option became a significant and transparent in organisations IT and subsequently the Digital Strategy during this decade, with the prioritisation of getting real time data as quickly and as accurately to business operations so that it became a key part of IT's transformational mandate.

Since the 1970s, IT has been key to building value propositions, i.e. ***Value Creation***, initially this took place when IT was in a leverage type mandate, where it was seen as effective in cost reduction, but since then IT began expanding its role by delivering value un a more expansive and transformative way by leveraging the improvements in technology over time and newer agile approaches (Benlian et al., 2010; Shafer et al., 2001). For organisations transforming there has to a clear value proposition for all involved. Achieving ***Value Creation*** means not just focusing on a return on investment as outlined in business strategic objectives, or attaining greater increasing revenue opportunities, and obviously achieving cost savings but also ensuring that all stakeholders gain from the process. During this era and the advancement in technologies that came with it, there were more sophisticated ways and multiple sources of extracting value and subsequently measuring that value from these inputs created. This allowed a greater accuracy in data analysed giving improved return from both organisational change and technology, across all levels of the organisation (Henfridsson & Bygstad, 2010; Yoo et al., 2010).

The evolutions and advancements in IT enabled transformation that took place during this era illustrated the connectedness of key aspects of IT and DT transformation and their impact on organisations changing. Those connections can be seen where an effective ***Digital Strategy*** requires an integrated ***Digital Platform*** to support it. Furthermore, ***Value Creation*** and ***Customer Focus*** have to be outlined as being the focus of an aligned ***Digital Strategy***. Yet the need for a ***Culture Change*** that will be accepting of the transformation proposed is paramount for it to be a success. This connectedness of these defining characteristics of DT is further advanced in the next decade which is focused on the establishment of Digital Transformation (2010s to present) as a driver of organisations changing.

6.2.5. 2010s - The Decade of Digitalisation and Digital Transformation:

Digital Transformation can be described as an organizational shift to big data, analytics, the cloud, mobile communication technologies, and social media platforms

to provide goods and services (Bresciani et al., 2021; Nwankpa & Roumani, 2016; Nasiri et al., 2020) also described digital transformation as a tool for transforming business processes, cultures, and organisational aspects to meet changing market requirements brought about by digital technologies. The similarities of Digital Transformation and those of the previous decades of advancements in IT enabled Transformation include key components such as technology, processes, data and people. Comparing the advancements of these past eras to what this research study has uncovered with the emergence of DT, and specifically the uncovering of *six defining characteristics of "doing" Digital Transformation*, this research illustrates how IT 'type' transformations continue to enable organisational change. As mentioned the emergence of these *six defining characteristics of "doing" digital transformation* highlighting how strategically significant a role they play in invoking change Equally significant is how uniquely the associations and interplay between these characteristics contribute effectively in determining their impact on organisational change (Besson & Rowe, 2012; Vial 2019). Organisations are more likely to succeed with digital transformation by focusing on internal abilities, leadership, relationships, and the alignment of digital transformation with business strategy, which, in turn, enhances their agility to respond to environmental turbulence (Li et al., 2021).

When planning an organisational change the need for strategic objectives to be aligned with technology requires a well-designed plan, i.e. ***Digital Strategy*** to outline the strategic action to be defined and choices to be made, delivered and incorporating a digital vision and mindset, this is key to the commencement of a successful DT initiative (Vial 2019, Wessel et al., 2021). Clarity in this digital vision, so that it is transparent and conveyed effectively from the top of the organisation to the functional and operational levels is key to success (Bharadwaj et al. 2013; Matt et al. 2015). It furthermore shapes the way business processes can be improved and reengineered to align with business strategic objectives. A successful ***Digital Strategy*** as a defining characteristic of DT must set out the purpose for the organisation transforming so that other key characteristics may align and support it (El Sawy et al 2015, Gerow et al. 2014).

The focus on having the right IT or DT strategy in place for Digital Transformation and organisational change is key to providing a the necessary ***Customer Focus*** for

organisations**,** whereby creating new digital channels of engagement with customers (Haffke, 2016; Henderson & Venkatraman,1999), builds on existing and harnessing new relationships, but also enable the opportunity for organisations to create and enhance customer digital experience for existing and new customer segments (Horlacher et al. 2016, Singh & Hess 2017). Further advancing the needs of the customer and placing it central to the transformation of organisations, making it a strategic objective requires the need for digital capabilities to support the transformation (Morakanyane et al., 2017; Clohessy et al., 2017).

Supporting and enhancing organisations' transforming requires a well architected back-bone that can facilitate enabling technologies, i.e. ***Digital Platform***, to support and align strategic objectives and stakeholder needs. This means incorporating changes that are driven and built on a foundation of right sized and scalable digital technologies such as big data, analytics, cloud, mobile and social media platforms (Nwankpa & Roumani 2016, Piccinini et al. 2015) creates operational excellence by exploring and exploiting digital technologies foundations for digital transformation (Nwankpa & Roumani, 2016; Singh & Hess, 2017) for systems integration through agile and scalable digital operations digital services platform for repositories of data within organisations (Sebastian et al., 2017; Ross et al., 2016).

This decade illustrated the need for all parts of the organisation to be enthusiastic about be willing to change functionally or enterprise wide. A culture amendment requires support and a positive response from stakeholders and employees alike, to be embracing of the idea of the organisation changing. It requires the evolution of a culture change from its present position to that of one that embodies a ***Digital Culture.*** This is core to enabling a new strategic focus, with customers and employees at the heart of the transformation and affording value propositions for all involved (Dalvi et al., 2013). This culture evolution means having an inherent passion for digital transformation which can be embraced top down and from the bottom up, where both management and employees are receptive of it (Haffke et al., 2017, Horlacher et al., 2016; Singh & Hess, 2017). But being able to empower employees to develop skills and competencies in digital transformation (Kane et al., 2015; Peppard, 2016) requires a digital champion, to promote and illustrate how beneficial digital transformation (DT) is to an organisation. The need for informed decision making through having

access to the most current information to assist customers and employees alike in transforming means being focused on data.

For organisations transforming this era illustrated the further need to be more focused on the importance of data, i.e. ***Data Driven*** as a means of supporting the interaction between a digitalised culture and digital strategy through a well-designed data architecture of emergent digital technologies and using this to enhance customer needs (Dremel, 2017; Bennis, 2013). Having this in place means that data can be analysed and used to make informed decisions and create value and leveraging data for strategic enhancement (Piccinini, 2015; Ross et al., 2016; Eden et al., 2019).

The transition to a digitalized workplace environment which many organisations undertook in 2010s, enabled the provision of value propositions enterprise wide as a key part of organisational change. Having a value proposition for all involved needs to be strategic objective for employees and customers alike, it requires leveraging digital capabilities, technologies and innovations to ensure that necessary i.e. ***Value Creation***, required to entice all involved across the organisation to embrace the changes proposed (Liere-Netheler et al., 2018; Nwankpa and Roumani 2016)**.** Creating that level of value by achieving a return on investment, increasing revenue opportunities and reducing the costs of doing business (Haffke et al., 2016; Fitzgerald et al., 2014), furthermore creating that necessary value is achieved by way of empowering people to develop the key skills and competencies that will advance the organisations ability to transform itself.

6.2.6 Summary

This research study has identified the need for an understanding that there is a distinction in how the interplay between strategic objectives, customer audiences, digital technologies, information availability and the value propositions from it are illustrated. The relationships created between these key characteristics is what is new with digital transformation and are driven and built on a foundation of what has occurred before with IT enabled transformations in previous eras. Within an enterprise, digital transformation is defined as an organizational shift to emerging and

emergent enabling technologies such as big data, analytics, cloud computing, a digitalised platform and a dynamic workplace environment. As organisations continuously transform and evolve to the changing business landscape, digital transformation are the changes built on the foundation of digital technologies, ushering unique changes in business operations, business processes and increased value propositions (Paavola et al., 2017; Remane et al., 2017).

Time Period / Characteristics	**1960/1970s**	**1980s**	**1990s**	**2000s**	**2010s**
Information Technology Era	***Mainframe Systems***	***End User Computing (PC's)***	***Enterprise Architecture (EA) Client / Server***	***Service Oriented Architecture (SOA) Integrated Enterprise Systems***	***Digital Technology & Cloud Based Systems***
Digital Strategy	King 1978 King 1975	Ward 1987, Bakos & Treacy 1986 Gorry & Morton 1989	Henderson & Venkatraman, 1999, Brown & Magill, 1994; Chan, et al 1997;	Ganguly et al. 2009, Dacin et al. 2002	Bharadwaj, et al., 2013 Andriole 2017
Customer Focus		Sprague 1987 Porter & Millar 1985	Ghoshal and Bartlett 1995, Rockart et al. 1996, Hammer & Champy, 1993	Besson & Rowe, 2012; Crowston & Myers, 2004; Gualerzi 2001	Dalvi et al. 2013; Yoo et al., 2010
Culture Change			Schein 1996	Kim et al. 2006	Vial 2019, Westerman et al. 2014, Li et al 2021
Digital Platform	Morton 1967 King 1978	Grudnitski 1984; Montazemi & Conrath 1986), Davis 1982;	Fichman et al 1998 Weill et al. 1995	Cooper et al. 2000, Gal et al 2008 McCarthy et al. 2003	Chesbrough et al 2010, Clohessy et al 2017, Piccinini et al. 2015
Data Driven			Davenport 1993, , Järvenpää & Ives, 1996; Orlikowski, 1996	Markus et al 2002; Jorgenson et al. 2002	Bresciani et al 2019 Günther et al. 2017 Hong et al 2017
Value Creation	Anthony1965; Gorry and Scott Morton 1971	McFarlan 1984; Parsons 1983; Porter & Millar 1985; Rackoff et al. 1985	Earl 1991; Loh & Venkatraman 1992; Lacity & Hirschheim 1993	Kim et al. 2006 Gualerzi 2001	Chanias et al 2017 Majchrzak et al. 2016 Neumeir et al. 2017

Table 6-1 DT Defining Characteristics Across Five Previous Eras

6.3 Historical Review of IT/DT Enabled Transformation and The Role of Leadership in The Organisation:

Leaders and leadership must ensure that their organisations embody digital mindsets and the agility required to respond to disruptions related to digital technologies, they must provide a coherent digital strategy, a disruptive approach to innovation, commitment to undertake change and foster employee new skill sets (c.f. Scutto et al 2022, Al Nuami et al 2022, Vial, 2019). This research study has provided the following conceptual model for leadership (i.e. *Silhouette of DT Leadership*), comprised of *ten defining characteristics of digital transformation leadership* (DTL) coupled with the association of *six virtuous cycles relationships* which have emerged between those *ten defining characteristics of digital transformation leadership* (DTL). This answers the fourth research question in this study, which is addresses following, "*What are the characteristics of Digital Transformation Leadership (DTL) that impact on the outcome of a DT initiative within an organisation"?.* These findings (i.e. DTL characteristics) uncovered from the data gathering and data analysis process of the interviews with 'key informant' practitioners, focused on assisting those in leadership who are responsible for leading the implementation of digital transformation (DT) initiatives or programmes in an organisation.

By identifying these *ten defining digital transformation leadership characteristics* and the interplay or the relationships (*six virtuous cycles* relationships) between these characteristics, this research study has provided something unique for practitioners and also for those in academia, which to date has been absent from current literature. From a historic perspective, the influence of IT enabled Transformations in organisational transformation (ITOT) has been growing since the 1970s, and with it the influence of IT Leadership and IT Transformation leadership, where at that stage it was left to IT and IS managers to drive IT as an enabler for the underpinning of change in organisations' business strategies, further customer engagement, lowering

operational costs, supporting innovations for employees and growing internal cross-functional collaboration (Cross 1997, Bresciani et al 2021). The movement to digitalisation has led to significant growth of digital transformation (DT) initiatives in organisations of all sectors and with that the role of IT leadership and IT Transformation leadership has taken on greater emphasis and responsibility still focusing on the areas of strategy, value creation, customers and employee experience but also expanding into new areas where IT began providing a greater impact such as the use of data, redesigning the business model, increasing IT capabilities and developing an openminded culture (Singh & Hess 2017, Horlacher 2016). The evolution of digitalisation is not only a continuation but an enhancement of IT as an enabler for organisational transformation but has meant that the role of IT Leadership has been critical and followed suit with new roles such as the chief digital officer (CDO) and chief data officer (CDaO) taking key positions in leading DT initiatives.

So in summary the uniqueness of this research study for DTL (Digital Transformation Leadership) is that it presents the *ten defining characteristics of DTL* that have emerged over the previous five decades albeit not at all at the same time, which provide key insights for practitioners undertaking Digital Transformation (DT) initiatives, but also that it has shown from a connectedness with IT enabled transformation from past decades, but also highlights the evolution of the integration of all of these characteristics found in DT initiatives but seen as relevant for IT/DT leaders (Biggart & Hamilton, 1987; Swift & Lange 2018) and this research study has positioned itself to highlight and support what has been illustrated in current literature (c.f. Vial, 2019; Wessel, 2021; Besson & Rowe, 2012).

6.3.1. IT enabled Transformation Leadership in 1970s & 1980s:

The cost of information technology has plummeted since the 1960's, generating enormous investments in IT applications to stimulate increasingly complex organisational change (Benjamin & Levinson, 1993 p.24). The 1970s increasingly saw IT enabled transformation beginning to provide huge impetus with the emergence of mainframe technology and data systems. With it came huge improvements in organisational performance and the potential for all kinds of 'havoc and disruption'

for employees, customers, and other stakeholders alike. IT managers in leadership positions (IT Systems and Software Managers) began influencing change in operations within organisations by influencing the business strategy by outlining how IT could be used as a successful enabler to support transformation across an organisation, conveying a technology enabling strategy and vision approach which focused on customer improvements and experiences underpinned the change required by the use of IT systems and software to accelerate that change (Porter & Millar 1985, Benjamin & Levinson 1993; Schein 1996).

The 1970s and 1980s saw the leadership types driving IT enabled transformation coming from IT and IS managers, whereby engaging with Business leaders was crucial in underlining the presence and growing influence of this model of transformation. This was to devise, plan and align an IT based strategy as the basis to guide significant organisational change, even at a time when the mandate for IT was very much in a leverage mode, so IT began establishing itself as a driver for organisational change (**C1#** communicating and executing a digital strategy and vision by leveraging executive management support (Parsons, 1983; Venkatraman, 1990; Benjamin & Levinson, 1993)**.**

While this was a primary focus at the time for business leadership it wasn't the only objective, but having a digital strategy in place allowed organisations to consider the welfare and importance of their customers during this transformation process , where customer initiatives that were developed during this period played a key role in getting IT leadership to create positive changes with the relationship between customers and the organisations providing services to them through the availability of new technologies and innovations that created customer enhancements (**C2#** prioritising the customer value proposition by implementing an integrated digital platform) **(**Benjamin & Blunt, 1992; Schein 1996; Benjamin & Levinson 1993). Furthermore these technology advancements allowed IT leadership to use them to instigate change across the enterprise for both processes and people **(C5#** underpinning the organisational change by using appropriate digital capabilities) which was seen as central in the advancement of organisations transforming (Zuboff, 1988; Davenport &

Short, 1990; Venkatraman 1991) which commenced in the 1970s and further developed with the move into the 1980s.

During these decades saw and expansion and improvement in applications and technologies which gave IT leadership the opportunity to facilitate enterprise wide initiatives with IT at the core which fostered the emergence of cross-functional teams to be developed across multiple business units (**C6**# collaborating cross functionally by adopting a disruptive approach to innovation) (Zmud, 1988, Brown 1999). The greater interaction between different departments in organisations was advanced through the use of effective top-down design tools to achieve greater coordination between teams by way of better coordination, communication, decentralisation and more inclusive decision-making across the organisation (Zmud 1988, Brown & Magill, 1994; Loh & Venkatraman, 1992) and decentralizing (Boynton et al., 1992; Rockart, 1988).

The 1980s also highlighted the importance of IT enabled transformation as a means of creating value for organisations, moving that mandate for leadership away from just leveraging IT enabled transformation to that of a more expansionary view where providing value propositions to stakeholders from the process became a priority (**C9#** realising value creation by balancing cost reduction and revenue generation) for organisations during organisational transformation, the role of IT leadership became critical in steering the direction of IT enabled transformation by way of emerging technologies, new innovations and strategies like outsourcing would provide not only cost reduction, but be a force to help with increasing revenue within the organisation (Ward & Taylor 1996; Earl 1992; Lacity & Hirschheim 1993).

These advancements brought about by the emergent and emerging technologies coming to prominence in the 1980s decade, allowed IT leadership to have a greater influence on transformations both strategically and operationally with new positions of Chief Information Officer (CIO) operating closely with other members of the C-Suite and IT/IS Managers in the provision of greater services, advancements included making end user systems available to employees (**C10#** empowering employee experience by creating a dynamic digital experience). This allowed a greater

availability of technology, software and applications which improved the employee experience of technology, created a more dynamic work environment powered by more integrated systems, led leadership to foster a greater degree of collaboration between organisational units, accessed through more powerful end user devices than previously available (Bakos & Treacy, 1986; Biggart & Hamilton 1987). These new and emerging technologies allowed IT to be delivered as an "off the shelf" commodity freeing up staff to work closely with the business to improve operations and in the workplace these new skillsets, create an equal balance between business, technical, and people skills. Such a radical change in the skill set of IT staff has been supported by a number of human resource initiatives such as skills testing, self-assessment, and personal development planning (Cross et al.,1997; Benjamin & Levinson 1993).

6.3.2. IT enabled Transformation Leadership 1990s/2000s/2010s:

The 1970s and 1980s saw IT establish itself as a key enabler in organisations ability to transform. These decades also highlighted how IT leadership began taking a central role in leading out on IT enabled Transformation, in so creating the alignment of Business and IT Strategies so as to create a message for all stakeholders around the benefits of change and transformation which they will understand, embrace and accept (Horlach et al. 2017, Demirkan et al. 2016). IT enabled Transformation leadership's influence on organisations changing became more apparent with greater advances in technology, innovation, processes improvement through the establishment and impact of digitalisation, technological advancements and innovations as was prevalent from the 1990s'onwards. These evolutions were complimented by the emergence of new influential IT Leadership roles such as chief information officer (CIO), chief technology officer (CTO) and in later years the chief digital officer (CDO), creating a significant change in the landscape of IT Leadership (Horlacher et al. 2016; Singh and Hess 2017), resulting in a voice for IT Leadership at the C-Suite table and allowing greater cooperation with Business and IT functions, therefore driving organisational change both strategically and operationally.

The decades that followed from the 1990s to 2010s and beyond, saw IT becoming more transformative and the role of IT transformation leadership becoming

synonymous with the emergence of digitalisation. This in turn has had a profound effect on organisational change, leaving Digital Transformation a key enabler for organisational transformation itself. IT leadership in previous decades, focused on and was tasked with helping transform areas such as business strategy, customer engagement, advancing IT capabilities, innovating the workplace and lowering operating costs. These priorities continued with DT, but there were also new focuses brought to bear in areas that are key to supporting how organisations change. This research study highlighted ten defining characteristics of digital transformation leadership (DTL), some of these characteristics can be shown to have been present with IT leadership when conducting IT enabled transformations in previous decades, however it is only in recent decades during the emergence of digitalisation in organisations that all of these ten defining characteristics of DTL can be seen as critical for DT leadership when undertaking a transformation initiative.

It is evident that from the past IT enabled Transformation requires the input of IT or DT leadership, to provide the necessary level of support from the senior leadership to design, build and convey the strategic vision and objectives right through the organisation (***C1#*** *communicating and executing a digital strategy and vision by leveraging executive management support*) (Holotiuk & Beimborn, 2017; Oestreicher-Singer & Zalmanson, 2012; Sia et al., 2016) this has been illustrated by the introduction of a system or application to change a business function or indeed an enterprise wide initiative such as an enterprise resource planning (ERP) implementation, then getting that message across in a clear and coherent way is critical (Brown & Magill, 1994; Chan et al., 1997; Scott & Morton, 1991).

Devising a digital strategy, which is transparent and supported by those in executive positions is of critical importance for IT leadership cognisant of creating improvements for customers and driving these changes to the relationship that previously existed between customers and organisations through the provision of a new and in some cases a greater digital experience for customer cohorts (***C2#*** *prioritising the customer value proposition by implementing an integrated digital platform*) this is facilitated by way of improved connectivity in end to end systems

that emerging technologies provide (Setia et al., 2013; Sia et al., 2016; Tumbas et al., 2015; Günther et al., 2017).

Unique to DTL in the movement to DT, is how they must inform themselves of the organisational opportunities and benefits from DT Transformation initiatives and this requires DTL leadership to drive enhancements in key components such as (people, processes, and technologies) and therefore guiding organisational change, organisational values and collaborative organisational units (**C3#** *understanding the journey of organisational change by embracing digital disruption*) (Svahn et al., 2017; Karimi & Walter, 2015; Neumeier et al., 2017). This movement to understanding organisational change that comes with digital transformation for IT leadership by genuinely changing how they operate and deliver their products/services by promoting a digital cultures that will flourish, meaning a cultural reset is required that needs to be fostered by IT and DT leadership proposed, to do so needs a mindset change (***C4#*** *inspiring the organisation to change by adopting an open culture and digital mindset*) (Sambmurthy & Zmud, 2000; Kahre et al., 2017). As IT enabled Transformation evolved over the 1990s, this research study has uncovered from data gathering and analysis of key informants that the same occurs when conducting a DT initiative across an organisations. Therefore IT enabled transformation and DTL leadership requires the ability to get that message across their organisations has emerged as an important phenomenon in the strategic aspect of IS research (Bharadwaj et al., 2013; Piccinini et al., 2015) as well as for those who are in practitioner based positions (Fitzgerald et al., 2014; Westerman et al., 2011). At a high level, DT encompasses the profound changes taking place in society and industries through the use of digital technologies (Agarwal et al., 2010; Majchrzak et al., 2016), IT Leadership was tasked with supporting organisational change through the management, procurement and responsibility of the enterprise architecture, which had evolved through technological advances in applications, systems and infrastructure has changed IT architectural capabilities, (***C5#*** *underpinning the organisational change by using appropriate digital capabilities)* (Chanias, 2017; Hong & Lee 2017; Yoo et al., 2010).

This era began with a greater interaction between business functions who were using integrated systems (ERP) that allowed a greater degree of collaboration on projects,

meaning that IT leadership were required to be more adept in dealing with cross functional initiatives that had enterprise wide objectives in the organisation (**C6#** *collaborating cross-functionally by adopting a disruptive approach to innovation*). It can be seen that leaders and managers get involved in changing technologies almost by accident without really intending to but realise the benefits from the change when these new systems prove their worth, a clear example being for leadership the value created by introducing a strategically enhanced systems that support enterprise wide transformation (i.e. ERP) systems, used by many organisations to provide strategic benefits and process improvements from cross-functional integration and processes, (Horlacher et al., 2016; Singh & Hess, 2017; Mithas et al., 2013).

Further uniqueness is highlighted by this research study regarding how as part of DT initiatives, whereby IT and DT transformation leadership should concern themselves with what changes occur and how that can be achieved when transforming the organisations business model (**C7#** *redefining the business model by optimising functionally aligned processes*) and using technologies such as social media, analytics as key drivers in doing so (Liere-Netheler et al. 2018, Remane et al 2017, Fitzgerald et al. 2014).

During the early decades of IT enabled transformation, the role of data didn't play a significant part in organisational transformation however with the movement to digitalisation in recent times (DT) meant that the role of data emerged as a key component in the driving of change and uncovering value for stakeholders involved in the transformation initiative, (**C8#** *unlocking the value of data-driven decisions by capturing and analysing high quality data)* so for IT leadership the ability to implement informed decision-making is dependent on the pipeline of data in the organisation and how the use of analytics collected through various digital touchpoints (Scarborough et al., 2015; Kane, 2018; Vogelsang et al., 2018).

While data provides a means of unlocking value, a key objective is to create value for all those involved in the DT initiative (**C9#** *realising value creation by balancing cost reduction and revenue generation*), (Srivastava & Shainesh, 2015). Strategy (Bharadwaj et al., 2013; Matt et al., 2015) as well as changes to an organization,

including its structure (Selander & Jarvenpaa, 2016), processes (Carlo et al., 2012), and culture (Karimi & Walter, 2015) are required to yield the capability to generate new paths for value creation (Svahn et al., 2017). Notwithstanding these contributions, we currently lack a comprehensive understanding of this phenomenon (Kane, 2018; Matt et al., 2015).

Finally the evolution of enterprise architecture from the 1990s onwards saw specialist roles for, using technology based systems and applications from client/server environments which allowed them to request and analyse financial data in more innovative ways (***C10#*** *empowering employee experience by creating a dynamic digital workplace****)*** that created huge improvements in the workplace of employees (Neumeier et al., 2017; Schilke et al., 2018). This uniqueness highlights four of the ten defining characteristics of DTL associated with IT enabled organisational transformation as occurring only during recent decades, whereby having and understanding of digital change through digital disruption, changing to a more inclusive open culture, changing the business model through digital improvements and being able to unlock value from data driven decisions using high quality data, when incorporated for DTL is key to providing a successful outcome for a DT implementation as suggested by the key informants in this research study and illustrated by current literature.

IT leadership has provided a key role in IT enabled Transformation historically over the past five decades its responsibilities have changed, as IT has had to take on a more central role in enabling organisations to change and evolve (transform). Significant evolutions have taken place at different times in areas especially such as technological advancements, process improvements, data enhancement and employee diversification in the workplace, IT leadership has had to respond to these changes and has had to lead from the front over these time periods of these IT evolutions. Examining the specifics of the types of IT enabled Transformation that have taken place, its apparent that changes that have impacted areas such as the business models, business strategy, organisational culture, technology, customer relationships, operational efficiency and data management and many more. However most of these happened at different intervals responding to specific technological changes that have

advanced organisations transforming. In fact it is really since Digital Transformation has started to build momentum and be fundamental in organisational change that all of these DTL characteristics significant changes have emerged as happening together

Time Period / Characteristics		1970s & 1980s	1990s, 2000s, & 2010s
C1	communicating and executing a digital strategy and vision by leveraging executive management support	X	X
C2	prioritising the customer value proposition by implementing an integrated digital platform	X	X
C3	understanding the journey of organisational change by embracing digital disruption		X
C4	inspiring the organisation to change by adopting an open culture and digital mindset		X
C5	underpinning the organisational change by using appropriate digital capabilities	X	X
C6	collaborating cross functionally by adopting a disruptive approach to innovation	X	X
C7	redefining the business model by optimising functionally aligned processes		X
C8	unlocking the value of data-driven decisions by capturing and analysing high quality data		X
C9	realising value creation by balancing cost reduction and revenue generation	X	X
C10	empowering employee experience by creating a dynamic digital workplace	X	X

Table 6-2 DTL Characteristics Across Five Previous Eras

6.4 Conclusions & Implications of the Research

The implications of this research are outlined in the following section, included are two models concerning how to implement a Digital Transformation (DT) initiative effectively, this section also includes two models of digital transformation leadership when leading out a DT initiative.

6.4.1. 24 Practitioner Priorities of the six defining characteristics of doing Digital Transformation:

The first set of findings in this research study focused on the identification of what are the defining characteristics for "doing" digital transformation?. Illustrating the findings from the data gathering and data analysis of the key informants we identify *six defining characteristics* of "*doing" digital transformation*, which are key for those leading digital transformation initiatives, these being *Digital Strategy, Customer Focus, Culture Change, Digital Platform, Data Driven and Value Creation* (See Chapter 2) and in (table 6-3) . These *six defining characteristics of DT* produced *twenty four practitioner priorities* (4 per characteristic see table 6-4 below*)* which were unearthed from the expert views of the four key informant cohorts interviewed, i.e. Business Strategic (BS), Business Operational (BO), IT Strategic (IS) and IT Operational (IO). For practitioners these twenty four priorities have been identified through the analysis of the key informant responses as being crucial to a positive outcome when undertaking a digital transformation implementation.

DT Characteristics	Description
Digital Strategy	is delivering a clear strategy enabled by the digital capabilities aligned to the business strategic objectives using digital enabling technologies with the support of employees.
Customer Focus	is designing customer-centred services using a suitable digital platform, in creating a digital experience for target sets of customers and translating the needs of customers into digital touchpoints.
Culture Change	is aligning the need for transforming digitally getting people to respond positively around the change and building an emotional connectedness to the change.
Digital Platform	is architecting a technology enabled digital platform to enhance digital experiences for all involved and delivering on the business objectives and improving business operations
Data Driven	is building digital capabilities to capture key business data aligned to a data strategy to extract value from data use, what the data is saying from the business context.
Value Creation	is demonstrating how the exploitation of technology translates and measures data into value propositions to enable effective ways of working that benefits all stakeholders.

Table 6-3 The Six Defining Characteristics of doing (DT)

Key Informants / Characteristics	***Business Strategic***	***Business Operational***	***IT Strategic***	***IT Operational***
Digital Strategy	***Communicating*** *the digital strategy from the top down (to all).*	***Understanding*** *the role of people within the digital strategy*	***Delivering*** *a clear strategy (what) by the digital capabilities (how)*	***Aligning*** *the business/digital strategic visions with the technology used.*
Customer Focus	***Creating*** *digital experience with target sets of customers.*	***Translating*** *the needs of customers into digital touchpoints.*	***Designing*** *customer centred services using a suitable digital platform.*	***Supporting*** *(effective) customer engagement through a digital platform.*
Culture Change	***Communicating*** *the message to people to ensure positivity around the change*	***Understanding*** *employee sensitivity to change (the why of the change)*	***Aligning*** *transforming digitally (from the top down)*	***Building*** *an emotional connectedness to change (in all).*
Digital Platform	***Delivering*** *the business vision using appropriate technologies.*	***Improving*** *business operations with the right blend of technology.*	***Designing*** *the foundations for a digital platform to enhance digital experiences*	***Implementing*** *technologies to solve a defined business problem.*
Data Driven	***Designing*** *a data strategy to extract value from data use.*	***Interpreting*** *what the data is saying from the business context.*	***Building*** *digital capabilities to source purposeful business data.*	***Capturing*** *high quality data for business use.*
Value Creation	***Translating*** *data into value propositions (for key stakeholders)*	***Measuring*** *the value delivered to customers (and all stakeholders)*	***Demonstrating*** *how the exploitation of technologies translates data into value.*	***Leveraging*** *technology to enable effective ways of working*

Table 6-4: Mapping the 6 Defining Characteristics of doing DT with 24 Practitioner Priorities of doing DT.

Digital Strategy, in how it is designed, deployed and co-ordinated is critical. For practitioners the importance for those in Business and IT Strategic roles the communicating and delivering the digital strategy is key to ensure that all across the organisation identify with the purpose of the digital transformation. Furthermore for those in Business and IT based operational roles having the understanding and aligning the business and digital strategic visions with the right technologies is vital for success.

A strong *Customer Focus* through creating new digital channels of engagement, fostering stronger relationships and improving the customer digital experience needs to be to the forefront of a successful deployment. For practitioners the importance for those in Business and IT strategic positions of designing and creating digitally based services that result in an attractive digital experience is key to ensure the customer base is not only consolidated but also expanded. Those in Business and IT operational roles see translating and supporting customers' requirements through an integrated digital platform and enabling emerging technologies as key to ensuring the implementation has a positive result.

Having a *Culture Change* which is open and inclusive encouraged and adopted is seen as a critical part of a successful DT initiative . For practitioners the importance of getting buy-in for the digital transformation initiative enterprise wide especially for those in Business and IT Strategic roles means effectively communicating and aligning the right message to all stakeholders for the right acceptance level. Those in Business and IT Operational roles agree that to ensure the necessary behavioural changes are attained there must be a clear understanding as to what the DT initiative provides and the positivity that will be felt be all.

The requirement to create a successful *Digital Platform* so it is designed, delivered and supported by emergent and emerging technologies again plays a critical role in a DT initiative. For practitioners, those in Business and IT Strategic roles identify the importance of delivering a business vision through an innovative well designed platform ensures the implementation of the digital transformation. For those in Business and IT Operational roles implementing the right sized technologies and

improving operational efficiencies are core objectives for the digital transformation initiative.

Being *Data Driven* is seen as critical for a successful DT implementation. Having a coherent data strategy, supported by the necessary technology platform for gathering and analysing data is critical for informed key decision making. For practitioners those in Business and IT Strategic roles see the importance of designing and building a data strategy and the digital capabilities to support and create value. Furthermore for those in Business and IT Operational roles see successfully capturing and correctly interpreting the data is seen as a must for the digital transformation initiative to be a success.

Being concerned with *Value Creation*, identified as the delivery of value propositions for all stakeholders associated with the digital transformation initiative by way of leveraging technology and innovation is critical for implementing a successful DT. For practitioners the importance of creating value for those in Business and IT Strategic roles involves translating data into value through demonstrating how exploiting technologies produces benefits for stakeholders. Furthermore for those in Business and IT Operational roles see creating value as by way of leveraging technologies and measuring that value derived from those technologies to all involved both internally and externally as a core objective for the digital transformation initiative.

6.4.2. A conceptual model of Critical Success Factors (CSFs) for "doing" Digital Transformation associated with the identification of six defining characteristics for "doing "Digital Transformation (DT):

The second set of findings in this research study focused on *What are the relationships between the six defining characteristics for "doing" digital transformation?*. The identification of these findings from data gathering and data analysis of the key

informants responses, present *nine critical success factors (CSFs) for "doing" digital transformation*, which are key for those tasked with leading digital transformation initiatives. These *nine critical success factors of "doing" DT* (see Figure 6-1), which highlights the relationships between the *six defining characteristics of "doing" DT* and are outlined previously (seen in Chapter 3) were uncovered from the analysis of the four key informant cohorts interviewed, these being Business Strategic (BS), Business Operational (BO), IT Strategic (IS) and IT Operational (IO). For practitioners these nine critical success factors focused on how the six defining characteristics of "doing DT" and providing key insights for those tasked with when undertaking a digital transformation implementation.

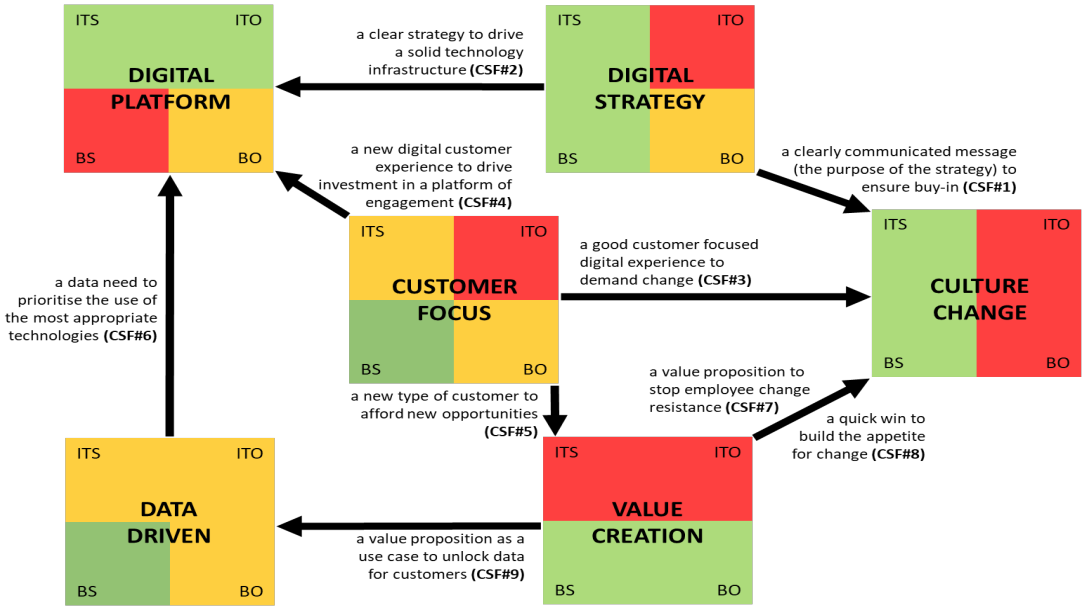


Figure 6-1 A conceptual model of the CSFs for DT in a pre-digital organisation.

Digital Strategy according to IT and Business Strategic key informants is identified as being key to drive technological enhancement and to develop a digital architecture to enable the design of an integrated Digital Platform (***CSF#2: A Clear Strategy to Drive a Solid Technology Infrastructure***). **(Digital Strategy)** also when transparent and understood is also a key enabler to create an appetite for change and to create an open culture for acceptance of DT from all parts of the organisation **(Culture Change)** (***CSF#1: A Clearly Communicated Message to Ensure Buy-In***).

Customer Focus according to IT and Business Strategic key informants is seen as the catalyst in creating a good customer digital experience through a well-designed and integrated digital architecture **(Digital Platform)** supporting new digital channels of engagement for customers (***CSF#4: A New Digital Customer Experience to Drive Investment in a Platform of Engagement***). Also for practitioners undertaking a DT initiative IT and Business Operational key informants see that **(Customer Focus)** as prioritising the importance of the customer to drive a more open culture in the organisation delivering a strong digital experience to specifically to demand change **(Culture Change)** therefore **(*CSF#3: A Good Customer Focused Digital Experience to Demand Change*)**. Furthermore for practitioners according to both Business and It key informants having a (**Customer Focus)** which provides a digital experience and creates benefits for the customer **(Value Creation)** and in so developing new digital services, value propositions from digital capabilities to new and existing customers in response to customer changing needs and desires (***CSF#5: A new type of customer to afford opportunities to***).

Data Driven according to Business and IT key informants at Strategic and Operational levels see the connection with a **(Digital Platform)** as highlighting importance of strategically capturing data from the best technologies available so as to analyse and interpret high quality data for better decision making (***CSF#6: A Data Need to Prioritise the Use of the Most Appropriate Technologies***).

Value Creation according to Business and IT Strategic key informants see relationship between it and **(*Culture Change*)** as identifying new cultural and behavioural changes from employees as core to successfully "doing" DT **(*CSF#7: A Value Proposition to Stop Employee Change Resistance*)**. These key informants advocate for practitioners undertaking a DT initiative that the relationship between **(*Value Creation*)** and **(*Culture Change*)** requires quick wins from changes made, to foster an appetite or willingness for change creating an openness to ensure that there is connectedness between management and employees alike **(*CSF#8: A Quick Win to Build the Appetite for Change*).** Finally for these Business and IT Strategic key informants (Value Creation) and its relationship with (Data Driven) identifying the appropriate

technologies required to gather, analyse, and measure the data for their customer base so as to enhanced customer experience, expand customer segments and customer prioritisation, **(*CSF#9: A Value Proposition as a Use Case to Unlock Data for Customers*).**

6.4.3. A model comprised of ten defining characteristics of Digital Transformation Leadership (DTL) from an empirical study mapped to eight characteristics of Digital Transformation Leadership (DTL) as uncovered from current literature.

The third set of findings in this research study focuses on the identification of *What are the characteristics of digital transformation leadership*?. Illustrating the findings from the data gathering and data analysis of the key informants we identify *ten characteristics* of *digital transformation leadership (DTL)* as is outlined (Chapter 5), which the key informants see as critical for those leading digital transformation initiatives. These key informants represent the views of the four key informant cohorts interviewed, these being Business Strategic (BS), Business Operational (BO), IT Strategic (IS) and IT Operational (IO). This illustrates what is required for digital transformation leaders and how they go about leading the implementation of a DT initiative. Furthermore this research study has also identified *eight characteristics of digital transformation leadership* (DTL) from current literature (Chapter 4) which highlighted eight persona types of digital transformation leadership, this refers to 'who these leaders might be'. Therefore for practitioners, the mapping of these eight DTL personas to the ten DTL characteristics from the empirical study represents 'what' is required for leadership and 'how' they might go about achieving a positive outcome when implementing a digital transformation implementation.

According to IT and Business Strategic key informants digital transformation leadership (DTL) when driving a DT initiative need to be ***Digital Strategists***, focusing on a digital vision and mindset whereby and getting the message across the organisation effectively **(*C1: communicating and executing a digital strategy and vision by leveraging executive management support)*,** but also ensuring that the

objectives include adding value from the DT initiative ***C9: realising value creation by balancing cost reduction and revenue generation***.

For IT and Business Strategic key informants believe that practitioners in digital transformation leadership (DTL) roles when driving a DT initiative need to be ***Customer Centrists*** whereby the focus is on creating customer value propositions through efficiently providing digital services from a digital architecture for their customer segments by **(*C2: prioritising the customer value proposition by implementing an integrated digital platform*).**

IT and Business Strategic key informants believe that practitioners in digital transformation leadership (DTL) roles when driving a DT initiative need to be ***(Digital Culturalists)*** where they are focused on changing the culture to a more open and inclusive **(*C4: inspiring the organisation to change by adopting an open culture and digital mindset*)** and encouraging those around them to embrace digitalisation (***C3: understanding the journey of organisational change by embracing digital disruption***).

IT and Business key informants believe that practitioners in digital transformation leadership (DTL) roles when driving a DT initiative need to be a ***Digital Architect*** advocate the importance of a redundant, robust, resilient, highly available and scalable digital backbone required to provide digital services so as to invoke organisational change **(*C5: underpinning the organisational change by using appropriate digital capabilities)*** and to foster the cooperation of all business units in the DT initiative ***(C6: collaborating cross functionally by adopting a disruptive approach to innovation*)**.

Furthermore IT and Business Strategic key informants believe that practitioners in digital transformation leadership (DTL) roles when driving a DT initiative need to be an ***Organisational Agilist*** with a strong focus on assisting organisational change by using digitalisation to support cross functional connectedness between business units (***C6: collaborating cross functionally by adopting a disruptive approach to innovation*)** and furthermore and simplification of operations and also **(*C7: redefining the business model by optimising functionally aligned processes*).**

IT and Business Strategic key informants believe that practitioners in digital transformation leadership (DTL) roles when driving a DT initiative need to be a ***Business Process Optimiser*** leading on cross functional business process optimisation by reengineering and improvement through digitalisation **(*C7: redefining the business model by optimising functionally aligned processes*).**

Also IT and Business Strategic key informants believe that practitioners in digital transformation leadership (DTL) roles when driving a DT initiative need to be ***Data Advocates*** leading on leveraging data for strategic enhancement of data driven culture and mindset supported by a data architecture using emergent and emerging digital technologies ***(C8: unlocking the value of data-driven decisions by capturing and analysing high quality data)*** and ***(C9: realising value creation by balancing cost reduction and revenue generation*).**

Finally IT and Business Strategic key informants believe that practitioners in digital transformation leadership (DTL) roles when driving a DT initiative need to be a ***Digital Workplace Landscaper*** **(*C10: empowering employee experience by creating a dynamic digital workplace*)** leading on resource evolution and overcoming barriers to change by developing a digital workplace for employees through identifying appropriate technical solutions.

Who	What
Digital Strategist	leading on prioritising digital transformation as a strategic objective by creating and communicating a digital vision and mindset
Digital Architect	leading on designing and implementing a digital platform through innovation and using the most relevant (current and emerging) digital technologies to deliver a resilient digital architecture
Organisational Agilist	leading on cross functional connectedness and simplification of operations through positive organisational change
Digital Culturalist	leading on advocating and cultivating a passion and fostering an ambidextrous approach to digitalisation and instilling a digital culture
Customer Centrist	leading on enhancing the customer value proposition by optimising and delivering digital services to customers

Data Advocate	leading on leveraging data for strategic enhancement of data driven culture and mindset supported by a data architecture using emergent and emerging digital technologies
Business Process Optimiser	leading on cross functional business process optimisation by reengineering and improvement through digitalisation
Digital Workplace Landscaper	leading on resource evolution and overcoming barriers to change by developing a digital workplace for employees through identifying appropriate technical solutions

Table 6-5 (DTL) Persona Descriptions.

DTL Persona (Who – What)	***DTL Characteristics (What – How)***
Digital Strategist	***C1:*** *communicating and executing a digital strategy and vision by leveraging executive management support*
	C9: *realising value creation by balancing cost reduction and revenue generation*
Customer Centrist	***C2:*** *prioritising the customer value proposition by implementing an integrated digital platform*
Digital Culturalist	***C3:*** *understanding the journey of organisational change by embracing digital disruption*
	C4: *inspiring the organisation to change by adopting an open culture and digital mindset*
Digital Architect	***C6:*** *collaborating cross functionally by adopting a disruptive approach to innovation*
	C5*: underpinning the organisational change by using appropriate digital capabilities*
Organisational Agilist	***C6****: collaborating cross functionally by adopting a disruptive approach to innovation*
Business Process Optimiser	***C7****: redefining the business model by optimising functionally aligned processes*
Data Advocate	***C8:*** *unlocking the value of data-driven decisions by capturing and analysing high quality data*
	C9: *realising value creation by balancing cost reduction and revenue generation*
Digital Workplace Landscaper	***C10****: empowering employee experience by creating a dynamic digital workplace*

Table 6-6 Distribution of Relationships between (DTL) Leaders & (DTL) Characteristics.

6.4.4. The Silhouette of Digital Transformation Leadership (DTL) illustrating the six defining virtuous cycle relationships between the ten defining characteristics of Digital Transformation Leadership (DTL):

The fourth set of findings in this research study focuses on the identification of *six virtuous cycles relationships* of the *ten characteristics of digital transformation*

leadership. These key informants represent the views of the four key informant cohorts interviewed, these being Business Strategic (BS), Business Operational (BO), IT Strategic (IS) and IT Operational (IO). This illustrates what is required for digital transformation leaders and how they go about leading the implementation of a DT initiative. These six enabling relationships that emerged from this research study's analysis are described as the underlying practices of DTL, these being ***Collaborative Change, Digital Influence, Collaborative Tooling, Employee Spirit, Prioritised Platformitisation,*** and ***Democratising Data***. These six relationships are all "virtuous cycles" (c.f. Akkermans & van Helden, 2002), and a virtuous cycle is best explained where two factors are "seen to reinforce each other" (Akkermans & van Helden, 2002) so as one factor goes up, the other factor will also increase.

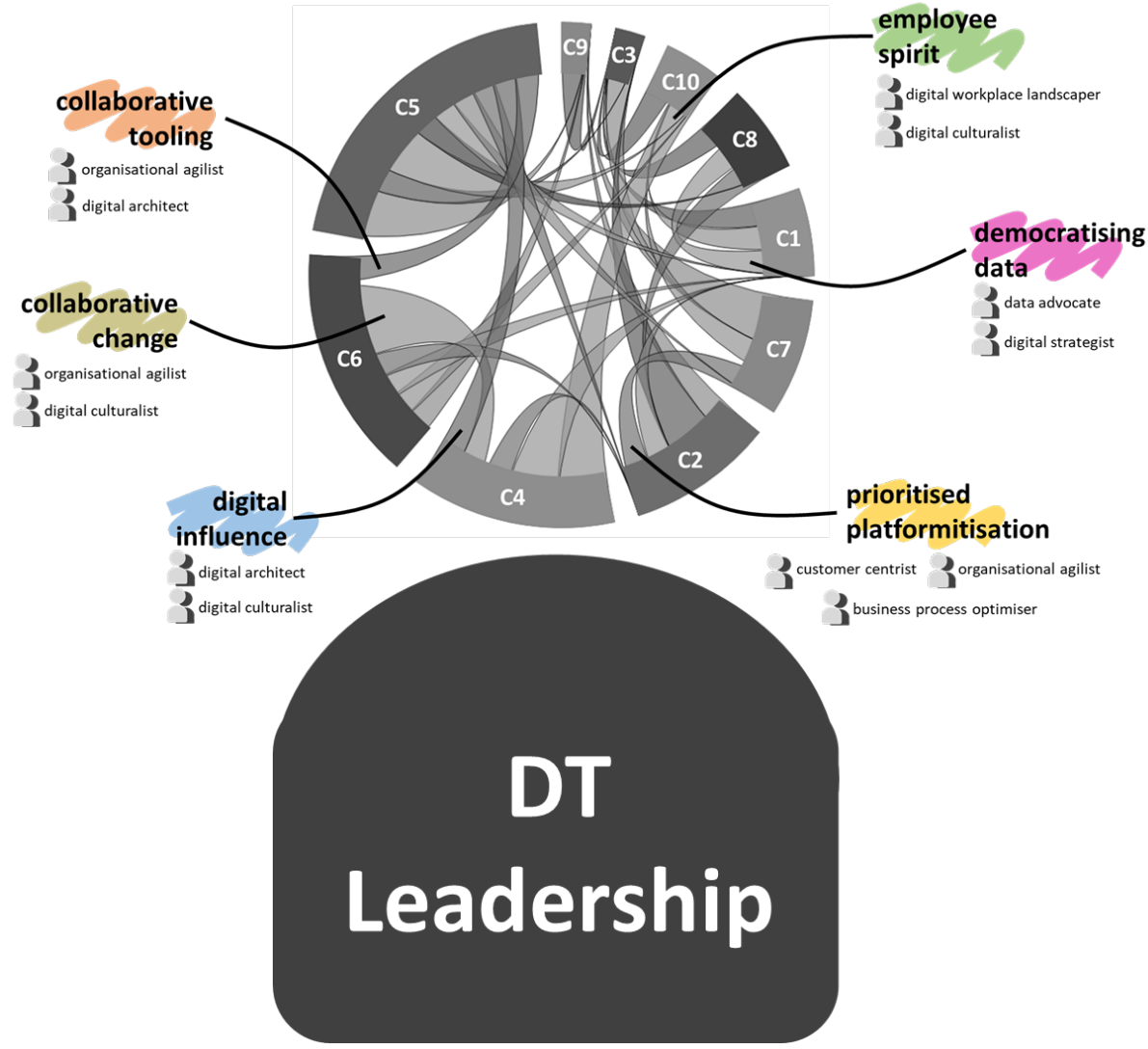


Figure 6-2 The Silhouette of DTL (colour coded to highlight the Underlying Practices associated with DTL)

According to IT and Business Strategic key informants digital transformation leadership (DTL) practitioners should be cognisant of relations or virtuous cycles of relationships between the *ten defining characteristics of DTL* when driving a DT initiative. This begins with understanding and acknowledging the need for *Collaborative Change,* which reflect the personas of ***Organisational Agilist*** and ***Digital Culturalist***, required for DTL. *Collaborative Change* is formed by the relationship between two DTL characteristics ***(C6: collaborating cross functionally by adopting a disruptive approach to innovation*)** and **(*C4: inspiring the organisation to change by adopting an open culture and digital mindset*)** creating a mutual enabling relationship *(C6→C4→C6)* to be employee-centric and appreciating the relevance of cross-functional collaboration as an internal organisational activity is critical for DT, involving breaking down silos and inviting all employees into the activities associated with DT. This inspires change through an open and digital mindset, which will in turn enable cross-functional collaboration allowing DT leaders to build a digital culture, to cultivate a willingness to take risks and to experiment with digital technologies.

According to IT and Business key informants, for digital transformation leadership (DTL) when driving a DT initiative, practitioners should be cognisant of the importance of *Digital Influence* aligned to the personas of ***Organisational Agilist*** and ***Digital Architect***, which are required for DTL. *Digital Influence* highlights the relationship between the two DTL characteristics of (***C4: inspiring the organisation to change by adopting an open culture and digital mindset*)** and (***C5: underpinning the organisational change by using appropriate digital capabilities***) creating a mutual enabling relationship between these two characteristics *(C4→C5→C4)* allows this virtuous relationship to translate into a proposition, fostering both the open culture and the digital mindset required to enable organisational change by introducing digital capabilities which will itself enable further openness to change. DT leaders must work to ensure that they cultivate a digital mindset within the organisation as they undertake a digital transformation journey, often altering corporate culture in order to open the organization to new digital opportunities. Connecting digitally enhanced change from an open and digital mindset to a greater desire for change, as a result of the introduction of digital technologies, has not been examined to date.

According to IT and Business key informants digital transformation leadership (DTL) when driving a DT initiative, practitioners should be cognisant of relations or virtuous cycles of relationships between the *ten defining characteristics of DTL*. This begins with understanding and acknowledging the need for *Collaborative Tooling* which reflect the personas of ***Digital Architect*** and ***Digital Culturalist*** are required for DTL which highlights the relationship between the two DTL characteristics of **(*C5: underpinning the organisational change by using appropriate digital capabilities*)** and **(*C6: collaborating cross functionally by adopting a disruptive approach to innovation*)** creating a mutual enabling relationship between these two characteristics *(C5→C6→C5)* which promotes a virtuous cycle between the DTL characteristics. This virtuous relationship translates into a proposition, which is, embracing digitally enhanced change enables cross-functional collaboration which will itself enable greater use of digital tools and technologies. DT leaders need to focus on redesigning the organisational structure in order to promote agility and flexibility, as enablers for creating cross-functional collaboration and alignment between organisational functions. Connecting cross-functional collaboration from digitally enhanced change, to a greater use of digital technologies, has not been examined to date.

According to IT and Business Strategic key informants digital transformation leadership (DTL) when driving a DT initiative practitioners should be cognisant of relations or virtuous cycles of relationships between the *ten defining characteristics of DTL*. This begins with championing the need for ***Employee Spirit,*** this reflects the personas of ***Digital Culturalist*** and ***Digital Workplace Landscaper***, which highlights the relationship between the two DTL characteristics of **(*C4: inspiring the organisation to change by adopting an open culture and digital mindset*)** and **(*C10: empowering employee experience by creating a dynamic digital workplace*)** creating a mutual enabling relationship between these two characteristics *(C4→C10→C4)* where it promotes a virtuous cycle between the DTL characteristics. This virtuous relationship translates into a proposition, which is focused on encouraging employees to believe inspiring the organisation to change enables a digitally enhanced employee-centric workplace which will enable an ongoing culture and mindset shift supporting the flexibility and ambidexterity of employees coupled with their differing

perspectives which will have a significant impact on the outcome of a DT initiative. DT leaders are encouraged experimentation with new technologies and new approaches to work. Connecting an enhanced employee-centric workplace from inspiring change, to a greater desire for ongoing digitally enhanced change, has not been examined to date.

IT and Business Strategic key informants digital transformation leadership (DTL) when driving a DT initiative believe that practitioners should be cognisant of relations or virtuous cycles of relationships between the *ten defining characteristics of DTL*. This begins with understanding and acknowledging the need for ***Prioritised Platformitisation*** which reflect the personas of ***Customer Centrist, Organisational Agilist*** and ***Business Process Optimiser*** which highlights the relationship between the two DTL characteristics of (***C2:*** **prioritising the customer value proposition by implementing an integrated digital platform)** and **(C7: redefining the business model by optimising functionally aligned processes)** creating a mutual enabling relationship between these two characteristics *(C2→C7→C2) w*hich promotes a virtuous cycle between the DTL characteristics. This virtuous relationship is customer-centric ensuring the DT initiative has clear strategic focus translates into a proposition, that prioritises a digital customer-focused platform enables the operational efficiencies of a digital business model for customer-value inspired by a digital platform uses new digital technologies such as social media, mobile access, analytics or embedded devices to enable major business improvements. So connecting the operational efficiencies of a digital business model, inspired by a customer-focused digital platform, to the actual delivery of a customer-centric digital platform, has not been examined to date.

According to IT and Business Strategic key informants digital transformation leadership (DTL) when driving a DT initiative practitioners should be cognisant of relations or virtuous cycles of relationships between the *ten defining characteristics of DTL*. This begins with understanding and acknowledging the need for ***Democratising Data*** which highlights the relationship between the two DTL characteristics of **(*C8: unlocking the value of data-driven decisions by capturing and analysing high quality data*)** to (***C1: communicating and executing a digital***

strategy and vision by leveraging executive management support) creating a mutual enabling relationship between these two characteristics *(C8→C1→C8)* which reflect the personas of ***Data Advocate*** and ***Digital Strategist*** and in turn this promotes a virtuous cycle between the DTL characteristics, this virtuous relationship translates into a proposition which embraces data-driven decisions which enables and steers the digital strategic vision to enable data-driven decisions and the need for high quality data. DT leaders should have a strong appreciation for the role of data, not treating data merely as a by-product of running the business, they devise strategies for exploiting the business's data. connecting the existence of a data-driven digital strategy, to an increased appetite for high quality data to support data-driven DT initiative decisions, has not been examined to date.

6.5 Limitations and Recommendations For Future Research:

The intention of this research study was to achieve the highest standards in qualitative research, that included being objective, being accurate and being relevant and while that was achieved, the study is not without some limitations. Despite the best efforts of those involved in research studies there will always be constraining factors that act as inhibitors. These in many cases are the time and resources that area available to those conducting the research. This research study purpose was building theory from using the key informant methodology and while it has been successful, there is a natural limitation with that approach. This is illustrated by the fact that the results of the study presented, reflect the focus on the insights of a number of key experts (16 key informants) who could provide a breadth of experience, knowledge, and critical insights from having worked in many organisations. The opportunity cost of this approach was the loss of depth that following a case study methodology would have brought to the research. While this study has a few limitations these can be addressed by future research.

Some recommendations for future work would be to increase the number of interviewees to give a greater volume of practitioners, however as we chose the key

informant techniques and we have already illustrated our reasoning for using that approach, it is therefore not uncommon to have a smaller number of interviewees; this can range from 6 interviewees (c.f. Flores & Ekstedt, 2012) to 32 interviewees (Benova et al., 2019). Furthermore, when using the key informant technique, the focus is on having appropriately qualified individuals participating in a study so as to get that uniqueness and the breadth of experience that these specialists provide, over that of a larger quantity of individuals (that you may see in a case study). The researchers recognise that while there are very good reasons in adding to the number of key informants in this study which in turn could be very beneficial and revealing for our "concept development" work on Digital Transformation Leadership (DTL) defining characteristics, it is perhaps more beneficial to move to a larger population of DT leaders as part of a study focused on "construct elaboration" (Gioia et al., 2012 p.16). So what could be expanded on with regards to this area of research, when there are opportunities to look especially at developing the (DTL) characteristics and the virtuous cycle relationships associated with those (DTL) characteristics further. (Figure 6.2: *The six DTL Characteristics Virtuous Cycles Relationships*). Therefore, one can imagine that the foundations are laid, through proposing the ten DTL characteristics in this study, to further progress this line of enquiry by either qualitative, quantitative or a mixed method approach. Therefore, there is an opportunity to look more closely at the differences in DTL characteristics by industry, sector (public v private), organisation type small and medium enterprises versus multinational corporations (SME v MNC) and organisation size (# of employees); while further examining the difference in DTL characteristics by DT initiative (single or multiple) and classification (local or global) within an organisational context.

Finally, despite potential limitations of this study this research has produced two conceptual models for theory and practice, one in the leading digital of digital transformation programmes and other in Digital Transformation Leadership, these again are highlighted as follows, 1) a conceptual model of CSFs for "doing" digital transformation (DT) in a pre-digital organisation. 2) a conceptual model of the Silhouette of Digital Transformation Leadership (DTL) characteristics. This research study has focused on assisting those in practice but also contributed to theory) by unearthing the characteristics and relationships associated with those characteristics

around Digital Transformation Leadership (DTL). It has also contributed to research by identifying the defining characteristics and critical success factors (csfs) that enable those characteristics when implementing a digital transformation programme in a pre-digital organisation.

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