



FACULTY OF THE BUILT ENVIRONMENT

DEPARTMENT OF CONSTRUCTION ECONOMICS AND MANAGEMENT

***Exploring the dynamics and project success dimensions from a senior management
stakeholder group perspective for Digital Transformation Projects***

BY

JP SWART

(SWRJOH018)

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Project Management

Supervisor: Karen Le Jeune

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ABSTRACT

The rapid changes in digital technologies have compelled organisations to embark on digital transformation initiatives to remain competitive in the modern business landscape. However, the success of these complex projects is not guaranteed, posing challenges and deterring organisations in the pursuit of digital transformation. This research study explored the multifaceted dimensions of project success that contribute to successful digital transformation projects. The research adopted the viewpoints of the senior management stakeholder group (SMSG), who are crucial stakeholders overseeing these strategic initiatives. The study conducted in-depth interviews with SMSG participants using a qualitative approach to gather rich insights. The findings revealed a multifaceted set of factors contributing to project success, ranging from people-related factors like effective leadership and management skills to process-oriented methods and techniques. The study confirmed the importance of existing project success theories and highlighted the unique dimensions that are particularly challenging in the context of digital transformation. The findings emphasise the significance of considering a holistic set of factors, encompassing people, processes, technology, and customer focus. Additionally, incorporating various stakeholders' perspectives and understanding the influence of contextual factors can contribute to a successful and healthy transition during digital transformation initiatives.

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ABBREVIATIONS

CSF – Critical Success Factors

CIO – Chief Information Officer

CDO – Chief Digital Officer

CRM – Customer Relationship Manager

CMMS - Computerized Maintenance Management System

DT – Digital Transformation

DTP's – Digital Transformation Projects

ERP – Enterprise Resource Planning

IT – Information Technology

PM – Project Manager

PMO – Project Management Office

POD – Proof of Delivery

PSF – Project Success Factors

SMSG – Senior Management Stakeholder Group

1. INTRODUCTION

1.1. BACKGROUND TO THE STUDY

In our lifetime, we have seen how smartphones have eradicated many products and transformed industries. Technology has rapidly changed the business landscape, and advances have proven beneficial to some and detrimental to others. For example, the photography industry and the use of film in cameras is a fading memory; applications on smart devices and GPS technology have replaced physical maps in car cubby-holes, and we are navigating into a digital future. The smartphone is but one of the elements in the large ecosystem of digital innovation that is disrupting the status quo, a small device yet powerful enough to threaten the existence of the companies (and many employee livelihoods) that do not accept the need to adapt. “Digital transformation” (DT) and “Digital disruption” are the buzzwords echoed by the revolutionary mobile workforce, scarcely roaming the hallways of the once-filled offices of the remote working generation, challenging businesses and individuals to rethink the business status quo.

Humans are creatures of habit; largely, we prefer to remain in our comfort zones, and breaking established routines and practices does not come quickly (Duhigg, 2012). Add the ever-increasing complexity of technological advances, resulting in complex transformation initiatives requiring unique approaches that are fit for purpose and uniquely tailored over the project lifecycle to ensure successful implementation.

Project management as a discipline has seen substantial growth (Fernandes *et al.*, 2013) and has gained popularity in many industries. It has proven an effective tool to drive implementation that requires change, addressing needs, resolving current issues, breaking away from the old and creating something new from the traditional project management methodologies in the construction industry (Seymour and Hussein, 2014). Agile methodologies aim to address the shortcomings of conventional approaches and the unique and complex

needs of technology project challenges. However, project success remains an elusive outcome. The evolution of project management methodologies from traditional to agile approaches has not been the silver bullet to addressing project failures. Projects in digital transformation environments come with added complexity. These Digital Transformation Projects include aspects of managing organisational business changes (change management) and traditional technology implementation (Information Technology project management), culminating in the dual management challenge termed “Technochange Management” (Markus, 2004).

The recent and ongoing surge in the digital transformation of businesses has emphasised the need for increased project success. These initiatives offer high risk and high rewards for companies that can successfully execute at a pace faster than the competition. This study aims to investigate the project success dimensions in Digital Transformation Projects and explore the alignment between the Project Manager and the Senior Stakeholder Management Group.

1.1.1. Digital Transformation

Digital transformation (DT) refers to integrating digital technology into all aspects of a business, fundamentally changing how it operates and delivers value to its customers. DT involves more than just adopting new technologies; it also requires reimagining business processes and models to drive innovation and improve efficiency Barthel and Hess (2019).

DT has gained significant traction and emerged as an essential phenomenon in modern business (Vial, 2019). The impacts of innovation are unavoidable, pervasive and ubiquitous (Osmundsen *et al.*, 2018). Businesses pursue DT for various reasons, with the most practical reason being the improvement of results (Hess *et al.*, 2016). The most radical is to prevent the dire consequences of being left behind and succumbing to business obsolescence (Harison and Boonstra, 2009; Mazzone, 2014). Some companies deliberately use technology to drive organisational change (Markus, 2004). Digital platforms are reshaping industries, and established businesses are now threatened by start-ups and new entrants competing in entirely

new ways and disrupting entire industries (Peppard and Ward, 2016; Hyvönen, 2018). Such businesses include technology companies, such as Google, Amazon, and Facebook, which are the market leaders and rated among the most valuable companies. From the threat of new entrants competing to the business mechanics and processes often requiring an entire digital overhaul, DT is a critical component of modern business.

Digital Strategy has been widely researched (Bharadwaj *et al.*, 2013; Matt *et al.*, 2015; Hess *et al.*, 2016) and is an important aspect. However, research on making strategy a reality through projects is scarce (Chanias and Hess, 2016). A critical gap, as strategy primarily depends on the successful execution of initiatives through projects, programmes, and portfolios (Grundy, 1998; Shenhar *et al.*, 2001; Müller *et al.*, 2019).

Companies do not have the luxury of remaining stuck in their “old ways”. DT of businesses is essential to gaining a competitive advantage in the marketplace. It has become a critical component of staying relevant and not becoming obsolete; thus, the survival of businesses largely depends on their DT in the current era (Mazzone, 2014).

1.1.2. Digital Transformation Projects

DT projects are the initiatives that organizations undertake to implement digital technologies and processes to transform their operations, products, services, and business models. These projects aim to leverage the capabilities of digital technologies to foster innovation, optimize operational efficiency, enhance customer experiences, and gain a competitive edge in the market (Correani *et al.*, 2020).

The opportunity that DT offers is, without a doubt, attractive for small and large enterprises alike. However, despite the tremendous promise, only one in six organisations realise the results set to achieve (Gale and Aarons, 2018). Some researchers argue that these DTP's are not manageable with typical project management methodologies (Markus, 2004; Barthel and Hess, 2019). Grundy (1998) highlighted the important role of projects in executing the business

strategy. A critical consideration to achieve DT is the direction defined in the strategy, and then initiatives are executed as projects (Matt *et al.*, 2015). Historically, Information Technology (IT) projects have been used for projects with technology implementation but have come short in addressing the organisational change aspect that is often a result of the technology change (Markus, 2004). This concept is termed “Technochange Management”, abbreviated as technology-driven organisational change. Business aspects are prioritised with the technology (hardware/software) implementation considerations, effectively combining IT solutions and complementary organisational changes to enable the DT (Markus, 2004).

Markus (2004) critically noted that the multiplicity of factors involved in Technochange Management could not be solved with traditional IT project management methodologies. The discipline does nothing to eliminate the source of failure. The dismal success rate of projects in general without added complexity that comes with Technochange management attributes significant risks to companies embarking on such projects. DTP’s are complex endeavours requiring cross-departmental collaboration and management of resources in parallel timelines (Barthel and Hess, 2019), not to mention the challenges brought about by geographical dispersion. Very little scientific research is dedicated explicitly to DTP’s (Henriette *et al.*, 2015). While significant insights can be obtained from related research, research still lacks a clear picture of the project characteristics and how to increase the chances of achieving success (Barthel and Hess, 2019).

1.1.3. Project Success Dimensions

The successful implementation of DT projects requires careful consideration of various dynamics and factors contributing to project success. Project success dimensions are a fundamental concept in project management, representing the multiple criteria by which the achievement and effectiveness of a project are assessed (Davis, 2014). The traditional perspective, often strongly associated with the project manager’s point of view, predominantly emphasised the “iron triangle” of cost, scope, and time as the primary metrics for determining

project success (Pinto and Slevin, 1988). According to this perspective, delivering a project within the stipulated schedule, agreed budget, and specified scope was generally seen as an indication of a successful project.

Projects in general, especially IT- and Technology-related projects, have a poor implementation reputation and are deemed high risk for businesses (Iriarte and Bayona, 2020). The Standish Group (2014) reported that one-third of software projects are cancelled before completion, more than half of projects run over the estimated cost baseline, and a mere 16% of software projects are successful when measured against the criteria of meeting schedule (time) and cost baselines. Further to the project failure rate, experts estimate that as many as 75% of organisational change efforts fail, painting a gloomy picture for transformation projects and programmes (Markus, 2004; Flyvbjerg and Budzier, 2013).

What constitutes project success is a much-debated topic (McLeod *et al.*, 2012). The traditional iron triangle measures, namely, time, cost and quality, have been challenged for their adequacy within the dynamic project environment (Atkinson, 1999). An essential criticism is that most existing literature on project success factors builds on Pinto and Slevin (1988) success factors instead of exploring new factors (Davis, 2014). Research and practice have shifted from the simplistic definition of project success, which narrowly focused on meeting cost, schedule and performance targets, to a multi-dimensional definition that includes objective and subjective criteria (Williams, 2016). Project success literature reiterates the importance of top management support for projects to be successful (Pinto and Slevin, 1988; Belassi and Tukel, 1996; Atkinson, 1999; Cooke-Davies, 2002; Davis, 2014). DT even more so identifies the importance of the Senior Management stakeholder group involvement in these DTP initiatives, often the head of the company, the CEO, playing the crucial role of leading the DT of the business (Chanas *et al.*, 2019). However, much, if not most, of the current literature research still focuses on the project manager's view of success and lesser so on other internal or external stakeholders of the organisation, especially that of the senior management's perspective is

lacking and deemed a gap in the literature (Davis, 2014). This study aims to explore project success dimensions for DTP's from a senior management group's perspective and find areas of alignment (and misalignment) to the PM-defined project success factors in research.

1.2. PROBLEM STATEMENT

Existing research primarily defines project success factors from the Project Manager's (PM) perspective, often employing objective, positivist methods for evaluation. However, this approach overlooks the subjective perceptions and expectations of the Senior Management Stakeholder Group (SMSG) in the context of Digital Transformation Projects (DTP's). The lack of alignment between the PM-defined success factors and the SMSG's subjective measurements remains largely unexplored. This study will address this research gap by investigating the SMSG's perceived project success dimensions in DTP's and examining its alignment or misalignment with PM-defined success factors. This analysis is crucial to improving project outcomes and ensuring a more comprehensive understanding of project success in DT.

1.3. RESEARCH QUESTIONS

1. How does the Senior Management Stakeholder Group interpret the concept of DT?
2. From the Senior Management Stakeholder Group's perspective, what specific dimensions influence the success of DTP's they are involved in?
3. To what extent do the project success dimensions identified by the Senior Management Stakeholder Group align or diverge from those defined from the project manager's perspective, as documented in existing literature?

1.4. RESEARCH PROPOSITION

Understanding project success dimensions from the Senior Management Stakeholder Group's perspective can assist the project team, particularly the project manager, realign their efforts for improved outcomes in the dynamic Digital Project environment.

1.5. RESEARCH AIM

This research examines the SMSG's role in defining project success dimensions in DTP's and identifies any misalignment in understanding between PM-defined success dimensions and the SMSG's perspective.

1.6. RESEARCH OBJECTIVES

1. Explore the definition of DT from an SMSG perspective in the Digital Projects environment.
2. Determine the project success dimensions from an SMSG perspective in DTP's.
3. Identify the similarities and differences in project success dimensions between the PM-defined list and SMSG perceived dimensions.

1.7. RESEARCH METHODS

To achieve the research objectives, the following methods will be employed:

1. A comprehensive literature review will be conducted to examine the importance of DT in businesses, the dynamics of DTP's, project success dimensions, and the SMSG's role in projects.
2. Employ qualitative research methods, including interviews with senior management stakeholders, to garner first-hand accounts and nuanced understandings of their perspectives on DTP's and their success dimensions.
3. The findings will be analysed thematically and discussed in detail. These methods will be further explained in the Research Methodology chapter of the research paper.

1.8. RESEARCH ETHICS

The researcher will undertake the following measures to ensure the anonymity of the participants in this study:

1. No information concerning the time or place of the interview shall be made known or posted on social media.
2. No personal information of the interviewee, including their contact details, will be given out without the person's permission.
3. No pictures of the person will be captured.
4. No personal questions that does not have relevance to the study will be asked. Non-essential questions which may reveal the identity of the person will be avoided.
5. Every attempt on the researcher's part will be made to ensure the interviewee's anonymity. The interviewee's identity will, at all times, be kept confidential.
6. Each interviewee shall be assigned a four-character code consisting of two letters and two numbers, e.g. IN03. These codes shall be randomly assigned and have no relation to a person's personal information.
7. Only the researcher and academic supervisor will have access to the information gathered and the file that relates the interviewee's code to their actual personal identity. This file will have restricted access, and no outside person will have access.
8. Interview material will be permanently deleted from all software and hardware sources within 12 months of publishing the research study.

1.9. SCOPE AND LIMITATIONS OF THE STUDY

This research aims to explore the perspectives of DT and the success dimensions in DTP's from the perspective of senior management stakeholders (SMSG) and draw a comparison to the typical project manager (PM) defined success factors. The research seeks to establish the alignment and misalignment between the SMSG and PM perspectives to help PMs better align project aspects to meet SMSG requirements. The study will use selected literature definitions for DT and DTP's, recognizing that these concepts are much debated and that a unified definition has yet to be established.

It should be noted that many factors outside of the project lifecycle are critical to the success of DTP's. These complementary changes, however, will not be addressed in detail in this study, which is more focused on the success dimensions within the project lifecycle. Although SMSG from various industries were interviewed, the sample size is limited, and therefore, the findings may not be generalizable to a specific region or industry.

This research study has several limitations. Firstly, it is based on qualitative research methods and may not provide a comprehensive picture of all relevant perspectives. Secondly, the sample size of SMSG is limited and cannot be generalized to other industries or regions. Finally, this study focuses on the project lifecycle and does not examine complementary changes outside the project that may be critical to success. Despite these limitations, this study contributes to understanding the alignment and misalignment between PM and SMSG perspectives on project success factors in the context of DTP's.

1.10. STRUCTURE OF THE RESEARCH REPORT

Chapter One – A background to the research topic is discussed. This provides an overview of the challenges being researched and what the study aims to achieve. The research question and objectives are outlined, and the research methodology is outlined.

Chapter Two – This chapter reviews the literature on the subject at hand to investigate the study topic and explore the available research perspectives on the research topic.

Chapter Three - This chapter outlines the proposed research methods, design, samples, and the rationale for selecting these as the appropriate methodology.

Chapter Four – This chapter analyses and discusses the outcomes of the research findings.

Chapter Five – The research closes with the conclusion and makes recommendations based on the data analysis.

2. LITERATURE REVIEW

This literature review examines the current scholarly work on DT, DTP's, and Project Success Dimensions. The review commences with an introduction to DT, highlighting its significance, influence, and potential risks in maintaining relevance within business contexts. Subsequently, it investigates DTP's by exploring their intricacies and dynamics. Lastly, the review examines various perspectives presented in existing literature regarding project success.

2.1. DIGITAL TRANSFORMATION

2.1.1. *Introduction*

This section will introduce the topic of DT in the business environment. The definition (and perhaps lack thereof), drivers of change, integration considerations from a business perspective and role players are discussed to outline and set the starting point considerations for DTP's.

2.1.2. *Definition*

DT is a multifaceted endeavour to initiate substantial alterations within an organisation's structure, operations, processes, and models (Hess *et al.*, 2016; Clohessy *et al.*, 2017). The complexity associated with DT permeates both social and industrial landscapes, encapsulating significant changes driven by the integration of digital technologies (Majchrzak *et al.*, 2016). DT lacks a unified interpretation due to its innate dynamic nature and the multitude of perspectives at the organisational level (Morakanyane *et al.*, 2017).

DT is more than a mere step-change in technology; it embodies a series of strategic renewals and transformations implemented to create value across several levels within various entities (Gong and Ribiere, 2021). Consequently, organisations generally perceive the digitalisation process and its repercussions on their functions as DT. This perspective will likely evoke fundamental alterations in existing and forthcoming industry operations (Benzerga *et al.*, 2017).

This study uses the interpretation of DT as defined by Vial (2019), which denotes a transformative process that seeks to augment an entity by initiating substantial modifications to its attributes, facilitated primarily by a blend of appropriately applied information, computing, communication, and connectivity technologies. This definition substantiates the pivotal nature of large-scale change and the diversity of involved technologies, making it pertinent to the essence of the DT journey.

2.1.3. Drivers of Change

In the DT era, organisations' survival is contingent upon their strategic agility rather than simple factors like size, pace, compliance, and strength. DT prompts substantial shifts in organisational norms, extending beyond the bounds of mere technology implementation. DT can incite seminal changes in value generation, structural adjustments, financial operations, and the introduction of innovative business models (Matt *et al.*, 2015). Organisations are progressively integrating DT to enhance customer value, where technology is a determining factor and key facilitator of the services and products offered (Nandico, 2016).

However, technology constitutes only a single facet of the intricate dynamics characterising an organisation's necessity to maintain competitiveness in the digital era (Vial, 2019). DT necessitates a broad-ranging shift that transcends digitising resources, involving profound modifications in products, services, communication channels, and processes. In more far-reaching circumstances, changes in business models are even necessitated (Haffke *et al.*, 2016). All these aspects are consistently evolving, facing a substantial risk of market share reduction or obsolescence (Kreutzer and Land, 2014).

Novel digital technologies, collectively called SMACIT (Social, Mobile, Analytics, Cloud, Internet of Things), pose significant business opportunities and existential challenges (Sebastian *et al.*, 2020). Although the demand to respond and digitally transform is tangible, formulating strategies to adapt and manage the disruptions leaves companies grappling with critical

decisions on strategy, leadership, and implementation (Ahmed *et al.*, 2013; Chanias and Hess, 2016; Haffke *et al.*, 2016).

2.1.4. Integrating Technology and Business Strategy

The landscape of business strategies has dramatically evolved, pivoting from a previous focus on IT strategy to a more encompassing Digital strategy. This change draws attention to the incorrect and somewhat familiar perspective that leaders adopt, where DT is often misunderstood as solely a technological change rather than a holistic business transformation (Shift, 2015). However, the reality of DT entails that there is no single applicable combination of technological concepts that guarantee the attainment of desired business benefits (Tomičić Furjan *et al.*, 2020). DT essentially leverages technology as a catalyst to revolutionize the whole business structure. Therefore, DT cannot be justifiably dissected from the business strategy but should be considered an essential part (Kazim, 2019; Correani *et al.*, 2020). Previous investigations have shed light on leadership's pivotal role in successfully initiating DT within organizations. Other factors impacting successful DT include management approaches, governance, and organizational culture (Kazim, 2019).

Among these vital components, one of the most crucial catalysts that propel strategic execution is arguably the projects themselves (Grundy, 1998; Chanias and Hess, 2016). Consequently, refashioning the classical perspective, where IT strategy functionally serves the business strategy, is necessary (Bharadwaj *et al.*, 2013).

The proposed evolved approach suggests a synthesis of digital resources and business strategy, forming a new hybrid - 'digital business strategy'. According to Bharadwaj *et al.* (2013), the existing trend dictates an organizational paradigm shift from an IT-centric approach to a more business value creation and capture driver. This gives way to digital technologies becoming the infrastructural bedrock of new business development, impacting organizational logic and coordination patterns at individual and inter-organizational levels.

2.1.5. Role Players in Digital Transformation

Wrede *et al.* (2020) offer an initial exploration of the crucial responsibilities of top managers for firms transitioning into the digital era. Top management's instrumental role is often seen in defining organizations' path on their DT journey. This observation is reinforced by a global survey conducted by PWC (2020), which revealed that senior executives consider the active involvement of top management in the DT process as one of its critical success factors. DT's scope extends beyond mere technological adaptation and calls for organizational dynamics and hierarchy changes. This necessitates the emergence of specialized roles like a Chief Digital Officer (CDO), connoting the evolution of organizational hierarchies to keep pace with the digital age (Westerman *et al.*, 2014). To achieve success in aligning IT strategy with business objectives, it is essential for there to be close collaboration between top management, including CEOs and CIOs. The role of the CIO encompasses being the chief architect who designs future possibilities for the organization and as a technology provocateur or intelligent officer who ensures that IT aligns with overall business goals. While CDOs are vital in DT, Chief Information Officers (CIOs) are equally crucial in executing organisational IT agendas. An intertwined responsibilities model allows the CDO and CIO to form the backbone of an organization's digital strategy, ensuring a seamless transformation process (Weill and Woerner, 2013).

Sia *et al.* (2016) further advanced this discussion by suggesting that department leaders should also act as digital change agents beyond the technical aspects of the process. This would allow the transformation to spread across different managerial layers, leading to a consistent, organization-wide digital culture (Markus, 2004; Singh and Hess, 2017).

The literature attests that DT's scope goes beyond just adopting technology or changing operations. It mirrors an organization's preparedness to adjust its strategic orientation and managerial roles to stay in step with technological evolution. Therefore, understanding the role and involvement of senior management is critical for firms entering the DT journey and

achieving desired outcomes on the DTP's. DTP's are examined in more detail in the next section.

2.2. DIGITAL TRANSFORMATION PROJECTS

2.2.1. Introduction

This chapter will explore the topic of DT and focus on projects within this framework. The analysis will examine the dynamics of IT and DTP's and explore the concepts related to Technochange management and its associated challenges.

2.2.2. Definition

As discussed in the earlier chapter, which focused on the evolution and current state of DT (DT) and the challenges it presents, the definition of DT is not yet universally defined and agreed upon, and so is the case for DTP's, which also do not have a commonly agreed definition. For this study purpose, Barthel and Hess (2019:6) definition is used;

“projects that initiate, develop, implement, and exploit digital innovations, aiming to advance organizational digital transformation”.

The definition underscores the need for a comprehensive approach in DTP's, similar to Technochange management. They go beyond mere IT implementation, necessitating an integrated perspective of business and technology (Barthel and Hess, 2019). Markus (2004) focused on traditional IT projects with an internal focus (such as Enterprise Resource Planning (ERP)) projects when coining the term Technochange Management. Barthel and Hess (2019) contend that the same applies to projects with an external orientation (such as developing new digital services or products). DTP's inherently leverage Technochange management, requiring more than mere IT implementation to include digital innovation to realise the full benefits of DT.

2.2.3. IT Project Management

Often described as temporal organisations, IT projects aim to enhance an organisation's success by improving technological functionality, dependability and reducing operational costs while minimising disruption (Barthel and Hess, 2019). Project management, an expanding field, is defined by a growing body of professional associations, standards, methodologies, and tools aimed at enhancing project success (PMBOK, 2018). It is a critical proficiency that fosters collaboration between non-IT and IT stakeholders. Successful project management methodologies are characterised by well-defined processes, clear deliverables, and metrics for gate reviews (Fonstad and Robertson, 2006). More importantly, project management serves as a comprehensive aligning mechanism, ensuring that the organisation, technology, and people work in harmony to succeed at organisational adoption. This alignment is achieved through meticulous planning, coordination, and controlling the array of complex and diverse activities (Holotiuk and Moormann, 2018).

However, new strategies to increase project success through incremental upgrades of tools and methodologies such as PMBoK, Waterfall, Agile, and Scrum do not reflect the desired results. Recent surveys report continued drops in success rates with projects more challenging than a decade ago (Group, 2015; Alami, 2016). Project Management professionals seek improvements in project success rates while dealing with the increased complexity of projects (Project Management Institute, 2014) in the digital era, calling for a different approach to managing these projects (Markus, 2004).

2.2.4. IT Project Management Challenges

Flyvbjerg's work on megaproject management has significant implications for IT projects. As explained in the depiction of the "technological sublime," the thrill experienced by technologists, engineers and innovators in developing large-scale, boundary-pushing IT projects mirrors patterns in other spheres of megaprojects (Flyvbjerg, 2013). IT projects are harbingers

of innovation and reflect the spirit of the 'technological sublime.' They embody the excitement of developing something new: a faster computing system, revolutionary software, or a ground-breaking network infrastructure. However, they also bear the associated risks, including excessive cost overruns and high failure rates (Iriarte and Bayona, 2020), highlighting the lessons that can be taken from Flyvbjerg's work. The 'political sublime' concept also carries implications for IT projects. As IT projects often result in tangible outcomes that can enhance the reputation of politicians or decision-makers, they may be pursued more for politically motivated reasons than for their intrinsic technological or societal advantages. This can bring about challenges related to budgeting, proper resource allocation, and end-user satisfaction. In effect, Flyvbjerg's proposals on the 'sublimes' of megaprojects lend a valuable lens to understanding and evaluating the complex dynamics of IT projects. A greater internalization of these concepts could enhance more balanced decision-making to ensure that pursuing technological innovation does not cloud economic prudence or fail to account for broader societal impacts.

Markus (2004) states that IT project management does little to eliminate the source of failure. It is argued that project management methodologies and techniques focus on controlling the threats to project success; these include the fact that the technology will not be fit for purpose and that budget and allocated time will not be sufficient for completion. Key risks such as user adoption, misuse, and use of the technology without capturing the benefits are missing from these methodologies. Alami (2016) noted that as better technology creates strong support for large-scale projects, IT projects are becoming increasingly more complex and challenged with failure outcomes, identifying the lack of project management practice as a key shortcoming.

To achieve successful DTP's, it is vitally important for both business managers and IT specialists to understand the dynamics of DTP's and how to manage them well (Markus, 2004; Alami, 2016). The real benefits of DTP's come from creating new products and processes, where IT systems are fully exploited rather than being made to fit the perceived idea of the problem.

Where the holistic picture includes 1) Unbalanced Ecosystems, 2) the Complexity of the transformation initiatives, and 3) Poor project management practices are considered (Alami, 2016). This potential for misalignment calls for an integrated approach between IT and business units where the capabilities are understood from both sides and accordingly managed to realise the benefits (Markus, 2004). These “complementary changes” are required as IT alone is not enough to deliver the expected benefits of DTP’s.

DTP requires different considerations of several factors, including resistance to change, where the opposition comes from, and the solution’s fit for the existing organisation. Misfits often occur where there are misalignments in business processes, cultural misalignments, and incentive misalignments. Solution characteristics include being correctly implemented, fit for use (post-implementation) and where the benefits are actively managed and captured. The demands of successful DTP’s are significantly higher than those of IT projects, emphasising completeness, alignment, and active management of benefits (Markus, 2004).

2.2.5. IT Project Management Methodologies

IT project management methodologies are essential to orchestrating successful projects in information technology. Over time, various methods have been evolved and adopted to enhance project outcomes in various contexts (Kerzner, 2009). One of the fundamental methodologies in IT project management is the Waterfall model. This approach follows a linear sequence, progressing through distinct stages such as requirements, design, implementation, verification, and maintenance. The simplicity and clarity of each phase are key benefits of the Waterfall model, but its rigid structure allows little room for adaptability, making it less popular for projects with undefined or evolving specifications (Boehm, 1988).

Agile project management methodologies such as Scrum, Kanban, and Extreme Programming (XP) are often utilized in contrast to the Waterfall model. These methodologies encourage flexibility, iterative development, and constant feedback, enabling teams to respond to changes

quickly (Beck *et al.*, 2001; Cockburn and Highsmith, 2001). These methods, however, require a high degree of collaboration and may not be suitable for projects with fixed requirements or distributed teams (Abrahamsson *et al.*, 2003).

The PRINCE2 (Projects in Controlled Environments) model focuses on pre-defined project management processes and templates. PRINCE2's detailed framework supports projects of various sizes and complexities and is particularly favoured in the public sector (Wideman, 2002). Regarded as a standard rather than a methodology, the PMBOK provides a comprehensive guide for managing projects, offering a set of standard terminology and guidelines within the project management profession. PMBOK recognizes five process groups: initiating, planning, executing, monitoring, controlling, and closing (PMBOK, 2018).

The Lean Methodology emphasizes eliminating waste in all forms in a project, including redundant processes, unnecessary meetings, and useless metrics, to deliver value to the customer. Lean methodology also promotes continuous improvement (Womack and Jones, 1996). These methodologies have strengths and weaknesses, and the selection depends on the project's context, company culture, and specific requirements. In many instances, the challenge lies in successfully applying and adapting these methodologies to complex IT projects (Iriarte and Bayona, 2020). Despite the availability of diverse methods, IT project managers must make informed decisions regarding the most appropriate methodology to employ, contemplating factors such as project scope, requirements, team skills, and project risk (Wysocki, 2011).

2.2.6. Digital Transformation Projects Dynamics

DTP's represent a novel and unique class of technology projects. Unlike traditional IT projects, DTP's are characterized by an interplay of technological innovation, organizational change, and a broader business model impact (Parviainen *et al.*, 2017).

One of the key dynamics of DTP's is their disruptive nature. DTP's involve adopting novel technologies that ultimately lead to transformative changes in the organization's operating

environment (Ebert and Duarte, 2018). This distinguishes them as “super-disruptive” as they aim to address existing market needs with digital technology and identify and target new markets and opportunities (Matt *et al.*, 2015).

DTP’s are also characterized by their complex and cross-functional nature (Markus, 2004). They involve integration patterns that tightly connect various stakeholders and business components, requiring a holistic rather than a compartmentalized approach. This intricate interplay of multiple constituents demands companies to adopt flexible and iterative methodologies, often associated with agile project management methods (Berghaus and Back, 2017; Tumbas *et al.*, 2018).

Implementing DTP’s requires careful consideration of potential misalignments that may arise due to organizational resistance to change, existing structures, business processes, and cultural differences (Markus, 2004). Such an understanding leads to the recognition that DTP’s require a significantly different project management approach than a traditional, siloed IT project management approach (Barthel and Hess, 2019). Furthermore, the prevalent “silver bullet thinking” - the belief that IT projects can single-handedly solve organizational problems - is detrimental to DTP’s. The belief that a single solution can address all challenges (Brooks and Kugler, 1987), often leads to oversimplification and unrealistic expectations. This mindset neglects the complexities of digital transformation and can result in dependency on one tool or method, hindering adaptability and innovation. Project success requires a comprehensive approach that addresses various factors. Kraus *et al.* (2021) highlight that driving innovation through small bets and diverse practices is more effective than relying on a single approach. Therefore, it is crucial to adopt a holistic and flexible strategy to navigate the multifaceted nature of DTP’s. Successful DTP’s necessitate understanding the essential and interdependent nature of technology and human behavioural change (Markus, 2004).

2.2.7. *Digital Transformation Projects Require a Different Approach*

According to Flyvbjerg and Budzier (2013), “black swan blindness,” which refers to the failure to consider low-probability, high-impact risks that could significantly disrupt a project, is identified as another common cause of project failure. To mitigate this and improve project outcomes, Flyvbjerg suggests recognizing the complexity of projects, conducting more accurate estimations, and integrating enhanced risk management strategies (Flyvbjerg, 2013). DTP’s stand apart from traditional IT projects because they demand a unique approach. These projects involve various variables, including technological innovation and organizational change, necessitating a multi-perspective approach for effective management (Besson and Rowe, 2012). Furthermore, DTP’s are often characterized as complex due to the involvement of multiple stakeholders, navigating novel technologies, bureaucratic processes, and political constraints (Rodríguez *et al.*, 2016). Markus (2004) posits that many view IT project management alone as the panacea for these projects, with the high failure rate evidence against this assumption.

The expected benefits of IT projects cannot be fully realized if organizational conditions are not considered (Bharadwaj *et al.*, 2013). Although the traditional view on IT projects and project management offers many valuable insights, it is also prone to focus too heavily on a technical solution only. This leads to situations where critical aspects of organizational change are not appropriately addressed (Barthel and Hess, 2019). It is argued that DTP’s require a significantly different project management approach than the traditional, siloed IT project management approach (Barthel and Hess, 2019)—going beyond the simultaneous but separated execution of IT and organizational change projects as illustrated in Table 1 to bring about the desired DT. To effectively govern the Technochange, an integrated approach encompassing both IT and organizational change (Harison and Boonstra, 2009) is required.

Table 1 Digital Transformation Projects, IT and Organizational Change Projects - Adapted from Marcus (2004)

	IT projects	Digital Transformation projects	Organizational change projects
Target outcome	Technology performance, reliability, and costs	Organizational performance	Organizational culture and/or performance
Solution	New IT solutions	New IT applications plus complementary organizational changes	Interventions focused on people, organizational structure, and culture
(Human) Resources	The central role of IT, support by external partners	The central role of IT, in cooperation with organizational managers and change specialists	The central role of organizational managers in collaboration with HR and change specialists
Basic approach	IT project that produces outcomes and meets specifications and budgets on time.	Program of change initiatives consisting of IT projects and organizational change measures	Collection of change methodologies targeting several elements of the organization

Markus (2004) claims that project and change management methodologies do not sufficiently address the risk of people's resistance to change. That change management does not consider the organisational impact of IT. Technochange management combines IT solutions with organisational changes to achieve the appropriate fit and desired results. As seen from Table 1, IT projects are technically focused. Successful DTP's recognise that the solution and the process of arriving there are essential and interdependent (Markus, 2004). In contrast, DTP's include the technology and human behavioural change aspect evident in ERP and CRM implementations, impacting people, processes, and organisational performance (Barthel and Hess, 2019). As previously discussed, statistics show that failed attempts at these implementations have become the norm (Alami, 2016). The following sections will examine project success dimensions considering the different success dynamics and challenges.

2.3. PROJECT SUCCESS

2.3.1. *Introduction*

This chapter explores the topic of project success and narrow down project success dimensions. The discussion starts with a brief history highlighting the evolution of project success and the various success categories and components discussed, and attention is given to project success dimensions. The chapter then looks at the subjective measurements of project success and concludes with the key stakeholders of this research: the project manager and the SMSG.

2.3.2. *Historical Overview of Project Success*

The concept of project success has been a focal point of study in project management for many years. Researchers and practitioners have recognized the importance of understanding the dimensions and criteria that contribute to project success (Jugdev and Müller, 2005). Definitive shifts in research and practice have transformed the understanding of project success (Ika, 2009). It is no longer solely defined by meeting cost, schedule, and performance targets but rather encompasses a multifaceted evaluation based on objective and subjective criteria (Williams, 2016; Pollack *et al.*, 2018). During the 1970s, project management strongly emphasised the operational aspects of time, cost, and quality (Atkinson, 1999). The focus was mainly on the implementation stage of projects and relied heavily on the capabilities of project managers and team members (Davis, 2014). However, this period lacked empirical research, which primarily consisted of theoretical studies. There were noticeable gaps in understanding behavioural “soft skills” and limited attention given to client communication (Munns and Bjeirmi, 1996). As we transitioned into the 1980s, there was a noticeable shift in the discourse surrounding project success as it began to encompass its connection with client organizations (Pinto and Slevin, 1988). This marked a departure from focusing solely on technical aspects. During this particular period, several researchers, such as Kerzner and Pinto and Slevin, contributed to developing project critical success factor lists (Kerzner, 1987; Shenhar *et al.*,

2001). Pinto's work stands out for advancing research in this field, with the 10-success factor list, as per Table 2 below, having a significant impact on the research that followed.

Table 2 Pinto and Slevin (1988) Success Factors

Success factor	Description
1. Project mission	Clearly defined goals and direction
2. Top management support	Resources, authority and power for implementation
3. Schedule and plans	Detailed specification of implementation process
4. Client consultation	Communication with and consultation of all stakeholders
5. Personnel	Recruitment, selection and training of competent personnel
6. Technical tasks	Ability of the required technology and expertise
7. Client acceptance	Selling of the final product to the end users
8. Monitoring and feedback	Timely and comprehensive control
9. Communication	Provision of timely data to key players
10. Trouble-shooting	Ability to handle unexpected problems

During this decade, a broader range of stakeholders acknowledged the importance of success perceptions in project management (Morris and Hough, 1987) and emphasised the significance of selecting an appropriate project manager for successful outcomes. The 1990s witnessed further research into frameworks for Critical Success Factors (CSF) to analyse and evaluate projects effectively (Lester, 1998). The study also explored the dynamic nature of success factors and highlighted support from top management as crucial elements contributing to project success (Turner and Keegan, 1999; Müller and Turner, 2007).

In the 21st century, there has been a shift towards stakeholder-focused project success. Previously, more emphasis was placed on short-term success factors during the project life

cycle without much consideration for the broader long-term goals of the organization (Turner and Zolin, 2012). However, recent research has highlighted the importance of project managers and project owners/sponsors in ensuring continuity and achieving success throughout all project stages. Over time, a noticeable change in perspective regarding success factors has occurred. The past decades, such as the 1970s, focused mainly on structural aspects, while those like the 1980s were more task-oriented. Today's approach to measuring project achievement considers complex measurable elements, soft dimensions, and team orientation (Davis, 2014). From a deterministic perspective in the early years to an interpretivism interest in later years. During this decade, a broader range of stakeholders acknowledged the importance of perceptions of success (Morris and Hough, 1987; Munns and Bjeirmi, 1996).

2.3.3. Project Success Categorization

Project success can be categorized into several dimensions to encompass a comprehensive viewpoint. A popular framework by Cooke-Davies (2002) establishes two success categories: project management success, which focuses on process, and product success, which focuses on outcomes and longer-term impact. These categories come with varying criteria, such as adhering to the predetermined project objectives in terms of scope, cost, time, and quality for project management success, realising business benefits, stakeholder satisfaction, and contributing to strategic objectives for product success (Cooke-Davies, 2002; Jugdev and Müller, 2005). Wateridge (1998) also presents five aspects of project success: meeting pre-set objectives, the project staying within budget and schedule constraints, stakeholders' satisfaction, benefits for the parent organization, and benefits to the broader stakeholders. Moreover, the success criteria and success factors framework' by Munns and Bjeirmi (1996) provide more explicit definitions, suggesting that success criteria are the measures by which success or failure of a project is judged, while success factors are those inputs to the management system determining success with these criteria. Both notions are closely related; while criteria represent the objectives, factors assist in achieving those objectives.

Similarly, De Wit (1988) distinguishes between project success (delivering the necessary functionalities on time and within budget) and project management success (achieving results by effectively managing resources). The balance between these categories and understanding their interplay are fundamental to gauge project success accurately. By considering these multiple dimensions of project success, organizations can obtain a holistic and multi-perspective appreciation of their project performance. Further, researchers have also emphasised the need for the success criteria to be tailored specifically for different projects, as the 'one-size-fits-all' approach may not be effective (Shenhar *et al.*, 2001). Thus, understanding project success with a multi-dimensional perspective, considering both project management and product or outcome success, offers a more comprehensive evaluation of the project impact.

2.3.4. Project Success Dimensions

Scholars argue that project success is not simply a binary concept of “failure” or “success” but rather a multi-dimensional construct influenced by various factors (Cooke-Davies, 2002; Turner and Zolin, 2012). The literature identifies four key dimensions: efficiency, effectiveness, relevance, and sustainability (Atkinson, 1999; Baccarini, 1999; Shenhar *et al.*, 2001).

Drucker (1966), often called the father of modern management, conceptualised success in the organizational context as effectiveness and efficiency. Read as “doing the right things” and “doing things right”, spanning organizational, team, and individual levels. While it provides a broader understanding of success dimensions, it also distinguishes it from the narrower, group-restricted notion of project management success (Jugdev and Müller, 2005). Efficiency, expressed in resource utilization - commonly time and cost - reflects how well the project adhered to its initial planned schedule and budget. Efficiency can indicate project management success and is often visualized using traditional parameters like time, costs, and quality. Effectiveness relates to the project’s outcome, primarily manifesting in the degree of realisation

of project objectives and output and keeping up with this dimension asserts the project's impact and contributions towards achieving desired functionalities.

The relevance dimension indicates the extent of project alignment with larger organizational and strategic objectives, determining if a project contributes substantially to the organisation's strategic plan (Morris and Hough, 1987; Jugdev and Müller, 2005). Finally, and more recently, the sustainability focus addresses the forecasted endurance of project benefits for stakeholders and the organization post-completion, shedding light on the long-term viability of the project (Ika and Pinto, 2022). Significantly, these dimensions are intertwined, collectively generating a holistic perspective of project success. Shenhar et al. (2001) identified four dimensions of success for projects with business and forward-looking aspects from a business perspective, as illustrated in Table 3.

Table 3 Emerged four success dimensions (Source: Shenhar, 2001)

Success Dimension	Measures
Project Efficiency	Meeting Schedule Goal Meeting Budget Goal
Impact on the customer	Meeting functional performance Meeting technical specifications Fulfilling customer needs Solving a customer's problem Customer using the product Customer Satisfaction
Business Success	Commercial Success Creating Large Market Share
Preparing for the future	Creating a new market Creating a new product line Developing a new technology

The first dimension is project efficiency, which encompasses meeting time and budget requirements. The second dimension focuses on the project's impact on customers, including product functionality and customer satisfaction levels. The third dimension relates to direct business success metrics such as sales, market share, and profitability. Lastly, the fourth

dimension involves preparing for the future by considering technological advancements, exploring market opportunities, and enhancing core competencies. This final dimension often requires a long-term evaluation taking several years into account in order to assess its effectiveness accurately.

2.3.5. Project Success Dimensions in Digital Transformation Projects

Project success, particularly in DTP's, is multifactorial and intricate. Markus (2004) emphasizes that a receptive organizational culture and readiness for change are critical elements from a socio-cultural perspective. Regarding management, Mahmood *et al.* (2019) maintain that top management's active involvement and commitment are crucial to DTP success. Aligning DTP's with broader strategic objectives is also a significant factor influencing successful outcomes, as Brown and Brown (2019) highlighted. From a market and competition viewpoint, enhancing value propositions and competitive standing, alongside improved revenue generation, have been pointed out as marks of successful DTP's by Besson and Rowe (2012). On the operational side, maintenance of cost and schedule discipline remains a cornerstone, according to Flyvbjerg and Budzier (2013), a sentiment echoed by Williams (2016). Considering these diverse aspects, Barthel and Hess (2019) advocate for a comprehensive, balanced, overarching view of project success. Assessment of success should methodically consider the interplay of different factors and their collective contribution to the overall outcome, necessitating both objective evaluations and discursive interpretations. DT brings about additional urgency, and technology brings complexity to how they are managed. illustrates the increased risk (or reward) that is associated with technology projects in Table 4 below, associated with the uncertainty that comes with technology.

Table 4 Description of success dimensions for various project types - Adapted from Shenhar et al. (2001)

Success dimension	Project type: level of technological uncertainty			
	Low-tech	Medium-tech	High-tech	Super high-tech
Project efficiency	Critical	Important	Overruns Acceptable	Overruns most likely
Impact on customer	Standard product	Functional product, added value	Significantly improved capabilities	Quantum leap in effectiveness
Business success	Reasonable profit	Profit, return on investment	High profits, market share	High, but may come later Market leader
Preparing for the future	Almost none	Gain additional capabilities	New product line, new markets	Leadership - core and future technologies

The risk and potential benefit increases as technology uncertainty increases, which often makes up a fundamental part of DTP's.

2.3.6. Multidimensionality of Project Success Dimensions

Project success has consistently undergone scholarly debate due to its inherent ambiguity, subjectivity, and multi-dimensional nature, which are tightly bound to a specific context (Ika, 2009). Predominantly, there has been an inclination towards the quantitative measurement of project success, highlighting the tangible, measurable facets of the project lifecycle. Nevertheless, academic insights have recently shifted this spotlight to a more comprehensive, multi-dimensional construct of project success (Shenhar *et al.*, 2001; Ika, 2009; Davis, 2014). This expanded view incorporates technical, economic, behavioural, business, and strategic dimensions, recognizing their interconnectedness. Indeed, as Jugdev and Müller (2005) argued, project success morphs into an intricate networked construct, considering individual, project, team, and organizational success.

Davis (2016), expanding on Pinto and Slevin (1988) seminal work, further broadens this perspective by capturing 'hard' results-oriented dimensions and 'soft' process-oriented aspects, extending the narrative beyond tangible indicators. The model proposes a ten-dimension thematic structure incorporating unique and well-known established elements of the ever-evolving project management landscape - a fusion and extension of Pinto and Slevin (1988) traditional success criteria.

In this context, conventional measures such as time, cost, and quality compliance are broadened. Davis (2016) prioritizes customer-centric perspectives, focuses on stakeholder benefits, and highlights the dynamics within project teams. This approach recognizes the complexity of assessing project success by considering tangible and intangible outcomes. Hence, the alternative evaluation model represents a transition towards a broader evaluation of project success by understanding how project success is perceived by key stakeholder groups involved. Achieving a project's objective is understood through an appreciation of the intricate nature of project management and paints a holistic image of fulfilling success in a project (Atkinson, 1999; Cooke-Davies, 2002; Ika, 2009).

Table 5 is a comparative analysis of the thematic categories previously identified concerning Pinto and Slevin's framework. Davis (2016) identified ten project success dimensions, out of which seven find parallels in Pinto and Slevin's approach. These gaps involve specific stakeholder groups, client/customer issues, and a detailed look into time, cost, and quality parameters. The comparison also points to the necessity of specifying the perceptions of specific stakeholders such as top management, personnel, clients, and key players.

Table 5 Comparison of thematic categories to Pinto and Slevin (1988) - Adapted from Davis (2016)

Pinto 10 Success Factors List	Davis Dimension (Thematic Category)
1) Project Mission "Clearly defined goals and direction"	1) Organisational Characteristics
2) Top Management support "Resources, authority and power for implementation"	2) Personnel Skills and Issues
3) Schedule and Plans "Detailed specification of implementation process"	3) Systems
4) Client Consultation "Communication with and consultation of all stakeholders"	4) Communication
5) Personnel "Recruitment, selection, and training of competent personnel"	2) Personnel Skills and Issues
6) Technical Tasks "Ability of the required technology and expertise"	5) Technical Aspects
7) Client Acceptance "Selling of the final product to the end users"	6) Satisfaction 7) Meeting Expectations
8) Monitoring and Feedback "Timely and comprehensive control"	3) Systems
9) Communication "Provision of timely data to key players"	4) Communication
8) Troubleshooting "Ability to handle unexpected problems"	3) Systems
None	8) Benefits to Stakeholder group
None	9) Client/Customer Specific
None	10) Time/cost/quality

2.3.7. Critique of simplistic measurement of Project Success

Ika (2009) noted that simplistic approaches to measuring project success set to achieve relatively simple, easily applied and agreed-on measures. Thus, the measure of cost, time, and quality fit such criteria and have been widely accepted with some variants to include client satisfaction (Murphy *et al.*, 1974) and alignment with strategic organisational objectives (Lipovetsky *et al.*, 1997).

The perception factor of project success is not as simplistic as the early deterministic measures defined in project management research (Pollack *et al.*, 2018). Jugdev and Müller (2005) critiqued the focus of the often-seen, popular success factor lists as narrowly focused on the operational areas and disregarding the organisational strategic intent. This disconnect partly results from the stakeholder focus and highlights the need to include the strategic, senior management level understanding of success factors. An essential criticism of PSFs is that most existing literature authors (Belassi and Tukel, 1996; Wateridge, 1998) on project success factors built on Pinto and Slevin's (1988) success factors instead of exploring new ones (Davis, 2014). Davis (2014) noted the need to examine and improve the perceived importance of success factors and processes when analysing perceptions of success. The longitudinal study by Davis (2014) found varying views in the literature on the definition of project success, with 22 out of 29 articles having different meanings. Further findings are that the current literature focuses on the project lifecycle goals (Turner and Zolin, 2012).

Quantitative studies on project success factors are grounded in the objectivist tradition that assumes a universal, objective set of success criteria. These studies predominantly utilise surveys compromising exploratory or evaluative questions with Likert scales, statistical techniques in which success is measured using a simple formula that is unequivocal and easy to apply (McLeod *et al.*, 2012). Despite the level of project success research, the characterisation of project outcomes as successes or failures remains problematic due to the limited and primarily quantitative approaches in project success literature (Iriarte and Bayona, 2020), and

thus attributed to project management knowledge being fragmented and incomplete (McLeod *et al.*, 2012). From a subjectivist perspective, project success and failure are social phenomena, subjectively and intersubjectively constructed by individuals and groups of individuals (Packendorff, 1995; Barber, 2005; Alderman and Ivory, 2011) and in need of qualitative measurements for deeper understanding.

2.3.8. Subjective nature of project success assessment

Assessing the success of a project is not simply a systematic progression but rather a complex, ongoing process that interprets observations and experiences across the project's lifecycle. This interpretation is deeply rooted in the subjectivity of an individual's evaluative beliefs and desires, which may fluctuate depending on the project and evaluative context (McLeod *et al.*, 2012). Researchers have suggested frameworks for evaluating project success that take into account these complexities by investigating temporal progressions of evaluations and integrating multiple stakeholder perspectives (Ika, 2009; Davis, 2014). These stakeholders carry diverse expectations influenced by socioeconomic conditions, historical contexts, and organizational structures. For example, Freeman and Beale (1992) illustrate how different stakeholders might prioritize other aspects of success; while architects might gauge success based on aesthetic standards, engineers might prioritize technical proficiency.

The assessment of project success is not an objective description based on independent criteria but rather a subjective evaluation from the perspective of the individuals involved.

Stakeholders may interpret project outcomes differently at different times and construct their sense-making processes to determine success. The criteria stakeholders use for evaluating projects are context- and perspective-dependent, focusing on various dimensions such as process, product, and organizational objectives.

Project success can be measured differently because it reflects the needs and perspectives of those evaluating it - beneficiaries assess impact, managers assess management effectiveness,

and politicians consider visibility (Haass and Guzman, 2020). Therefore, defining an “absolute success” becomes challenging when diverse stakeholder values are involved. Instead, we should emphasize the concept of “perceived success”, where multiple stakeholders may have differing views on whether a project was successful (Baccarini, 1999). The perception of project success varies among stakeholders due to individual personalities, nationality, project type, and contract type (McLeod *et al.*, 2012). De Wit (1988) suggests that measuring project success objectively may be unattainable. He argues that different stakeholders can see a project as successful or unsuccessful in various stages of the project lifecycle. This aligns with discussions on evaluating temporal aspects of project success, emphasizing the need to assess it across different timeframes. Turner and Zolin (2012) emphasise these assessments’ subjective nature and highlight that relying solely on traditional measures like cost, schedule, and quality may lead to a distorted understanding of success. Therefore, there is a clear demand for empirical research aimed at comprehensively understanding complex and dynamic contexts in projects and project management. This heterogeneity in perception of project success is influenced by various factors such as individual personalities, nationality, project type, and contract type.

De Wit (1988) argues that an objective measure of project success may be an unrealistic aspiration. He asserts that success is complex to measure, and a project may represent success or failure to different stakeholders at different stages of the project lifecycle. This aligns with discussions on temporal dimensions of project success evaluation, indicating the necessity of measuring project success across varied timescales. The inherently subjective nature of these evaluations underscores the argument that relying solely on the traditional measures of cost, schedule, and quality may lead to a distorted understanding of project success (Wateridge, 1998; Atkinson, 1999; Turner and Zolin, 2012; Pollack *et al.*, 2018). Hence, there is a clear call for empirical research to understand the complex and dynamic contexts of projects and project management (Packendorff, 1995; McLeod *et al.*, 2012).

2.3.9. Lack of SMSG perspective alignment of Project Success

As noted in the previous sections, there is a shortage of measuring project success factors across multiple stakeholder groups. Further to the potential to inhibit project success, this can also inform misleading decision-making, employee demotivation, and an unproductive organisational culture (Turner and Zolin, 2012). Davis (2014) noted the importance of the SMSG's involvement in regular communication throughout the project as a success factor; the essence is that the SMSG ensures that the project delivers the organisation's strategy, a vital link between the project and the organisation, to ensure best value is delivered. Notably, literature reiterates the criticality of top management support for successful projects (Pinto and Slevin, 1988; Belassi and Tukel, 1996; Atkinson, 1999; Cooke-Davies, 2002; Davis, 2014). However, the mentioned literature research focuses on the project manager's view of success and less on other internal or external stakeholders (Ika, 2009). The SMSG's perspective has been highlighted as lacking measurement and is deemed a literature gap (Davis, 2014). This misalignment has the potential that the PM does not understand, include and meet a vital stakeholder group's requirements, which could lead to perceptions of project failure from the SMSG. Davis (2014) used the stakeholder group classification of Senior management, Project Core Team and Project recipient, categorised as follows.

Table 6 Stakeholders classified into groups - Adapted from (Davis, 2014)

Stakeholders classified into groups.

Stakeholder group	Categorised stakeholders into group
Senior management	Board, director, executive, executive management, investor, project executive, portfolio director, programme director, owner, senior management, sponsor, top management, project sponsor
Project core team	Engineer, other organisational involvement (e.g. business departments), project leader, project manager, project personnel, project team leader, project team, team members
Project recipient	Client, consumer, customer, end users, users

It can be seen from Table 7 below the potential for misalignment reflecting the PM-defined project success factors, compared to the Senior Management Stakeholder group and reflecting the minimal overlap (gaps highlighted in orange in the table below) between these. Hence, the reason for ‘top management support’ as a project success factor on the project managers' list is that they do not have many success factors in common (Baccarini, 1999; Jugdev and Müller, 2005; Davis, 2014).

Table 7 highlights the alignment gaps between the SMSG (Sponsor / Owner / Executive) and the Project Core Team. There is some overlap in the following areas: the relevant SMSG stakeholders are indicated in brackets:

1. Cooperation/collaboration/consultation (Owner)
2. Time (Sponsor)
3. Identifying/agreeing on objectives and mission (Executive)
4. Project manager competencies and focus (Sponsor)

5. Project delivering strategic benefits (Sponsor)
6. Top management support/commitment (Executive)

And no overlap in areas of;

1. Stakeholder satisfaction (quality)
2. Make use of the finished product/acceptance
3. Cost/budget

Table 7 Analysis of success factors across stakeholder groups - Adapted from Davis (2014)

#	Success Factor Theme	Project Manager	Client	Senior Management Stakeholder Group			User (etc.)	Project Team
				Sponsor	Owner	Executive		
1	Cooperation/ collaboration/ consultation/ communication	1	1		1		1	1
2	Time	1	1	1			1	
3	Identifying/agreeing objective / mission	1				1		1
4	Stakeholder satisfaction (quality)	1	1				1	
5	Make use of the finished product/acceptance		1				1	1
6	Cost / budget	1	1				1	
7	Project manager competencies/focus	1		1				
8	Project delivering the strategic benefits	1		1				
9	Top management support / executive commitment	1				1		

There are apparent gaps in the project success factors as perceived by the PM and the SMSG groups. This could translate into the PM placing misaligned emphasis on project aspects that do not deliver value to a key and very influential stakeholder (if not the most important

stakeholder) on the project. Better alignment could ensure a realigned focus and increased project success are delivered to the SMSG.

The chapter started by exploring the concept of DT. Such is essential for business survival, and there is an emphasis on a call for change. This was narrowed down to projects, specifically in DT, that act as enablers of the business. The challenges in current IT project environments were discussed, and the differences in dynamics between IT projects and DTP's were outlined. The chapter ended with a review of the project success literature and how the subjective measurement of these could add a different perspective. Specifically, the subjective measurement of the SMSG was explored, and understanding this group's perspective could lead to better alignment of success dimensions and improved project outcomes.

3. RESEARCH METHODOLOGY

The objective of this qualitative research, grounded in the principles of phenomenology, is to explore the lived experiences of the SMSG involved in DTP's in the dynamic DT environment. The study employs the methodological tools of semi-structured interviews to obtain participants' perceptions, insights, and beliefs on the dimensions of project success. The ultimate goal of the study is to address the ensuing research questions:

1. How does the Senior Management Stakeholder Group interpret the concept of DT and DTP's?
2. From the Senior Management Stakeholder Group's perspective, what specific dimensions influence the success of DTP's they are involved in?
3. To what extent do the project success dimensions identified by the Senior Management Stakeholder Group align or diverge from those defined from the project manager's perspective, as documented in existing literature?

This chapter delineates the selected research methodology, philosophy and design. The participant selection process and the application of selected research instruments. It further outlines the methodology employed for data gathering, acknowledges the study's constraints and assumptions, and provides insights into ethics safeguards.

3.1. RESEARCH PHILOSOPHY

The research philosophy is a researcher's belief system to shape how new knowledge should be researched and developed (Saunders *et al.*, 2009). It is necessary to make the philosophical belief known before a position on a particular research methodology is adopted to have a deep understanding of how the research is conducted (Pring, 2000). The philosophical assumptions, including beliefs and values, are essential in deciding which research methodology to adopt (Jackson, 2013). The philosophical assumption is vital as it guides the evidence gathered, its origin, and how it should be interpreted to help answer the research questions (Easterby-Smith

et al., 2012). The philosophy on which research methodology decision-making can be based on the assumptions about the ontology and epistemology philosophy (Merriam and Tisdell, 2015).

3.1.1. Ontology

Ontology is the philosophical study of the nature of reality and truth (Jackson, 2013). Some believe that reality is based on one reality, and others believe that reality is based on multiple realities depending on the context (Guba and Lincoln, 1994). Therefore, philosophy about reality can be divided into two types of ontologies: realism and relativism. Realism is a belief system in that only one truth or reality exists and, therefore, does not change. The truth can be discovered using objective measurements, and once one establishes what the truth is, it can be generalised to other situations (Killam, 2013).

On the other hand, relativism is a belief system in which multiple versions of reality are shaped by context and one's experience and cannot be generalised. The truth is created by how things are perceived and the context in which they present themselves. It can, therefore, only be transferred to a similar context (Killam, 2013).

3.1.2. Epistemology

Epistemology refers to the researcher's relationship with what is being researched and how the researcher should obtain the knowledge (Killam, 2013). This relationship is dictated by the researcher's ontological belief (realism or relativism). In other words, what the researcher believes reality will dictate the relationship the researcher should have with what is being researched (Jackson, 2013). There are two fundamental beliefs on the researcher's relationship, as presented in Table 8.

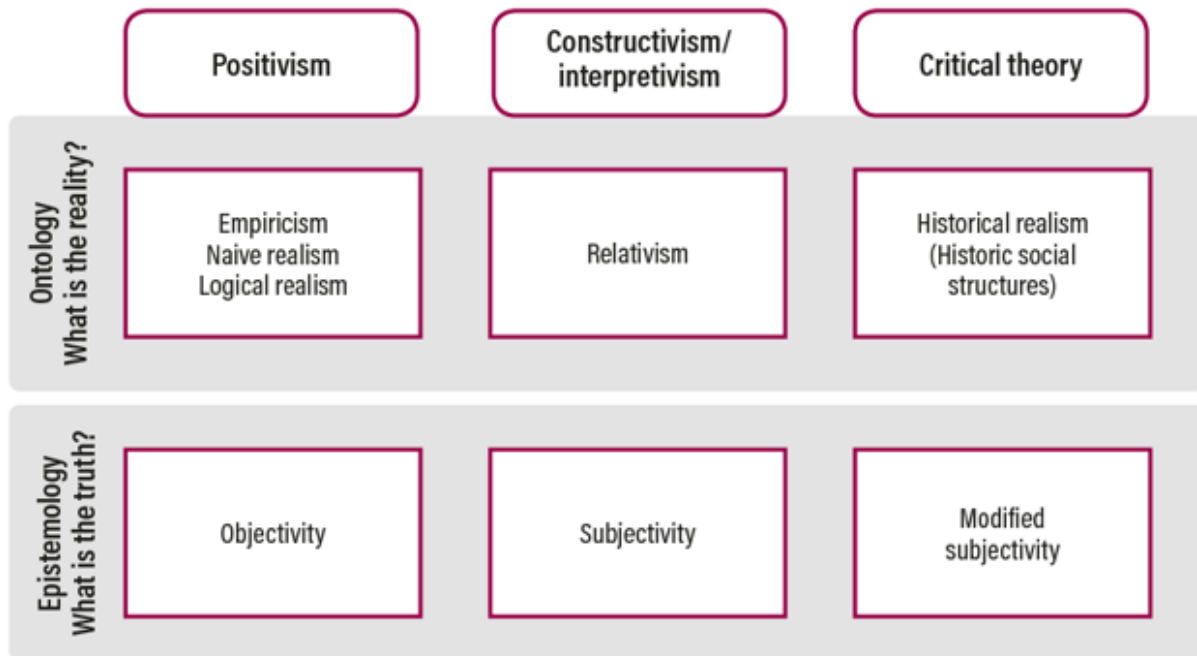
Table 8 Epistemological Perspectives

	<i>Positivist/ Postpositivist</i>	<i>Interpretive/Constructivist</i>
Purpose	Predict, control, generalize	Describe, understand, interpret
Types	Experimental, survey, quasi experimental	Phenomenology, ethnography, hermeneutic, grounded theory, naturalistic/qualitative
Reality	Objective, external, out there	Multiple realities, context-bound

Positivism Perspective

Positivism is a belief system that says only one truth or reality exists and, therefore, does not change. This truth can be discovered using objective measurements, and once one establishes what the truth is, it can be generalised to other situations (Killam, 2013). Positivist researchers believe new knowledge should be gathered objectively, and the researcher should be far removed from what is being researched (Killam, 2013). In this case, positivist epistemology is driven by realism ontology.

Figure 1 Research Philosophies - Adapted from Phillips and Burbules (2000)



Interpretivist Perspective

Interpretivism, on the other side, provides an alternative to positivism. It believes reality is socially constructed; there is no single observable reality but multiple realities or interpretations. The researcher and social world impact each other (Ormston *et al.*, 2014). Interpretivism believes reality does not exist without a context, and there are different forms of reality (Crossan, 2003).

Interpretivist Research in Project Management

Müller and Jugdev (2012) encouraged an increase in interpretivist research as the acceptance of post-positivistic and realist research in project management research has increased. They noted that “much can be learned about project success by our acceptance of different world views.”

The popular objectivist framework aims to achieve a universal tool for achieving project goals and success. Besides the typical objectivist project success perspective, Ika (2009) suggested two research alternatives: contingent and subjectivist. The contingent approach is context-specific, and the subjectivist framework proposes project success as a social construct. This research takes an interpretivist approach, in line with Project management success research that has identified the need to move beyond the positivist approach and recognise the need for interpretivist research to understand better the complex reality where multiple stakeholders have varying expectations and understanding of project success.

3.2. RESEARCH METHODS

The selected approach is a qualitative methodology that helps to understand people's motivations, beliefs, and actions. Qualitative research describes approaches that analyse data in natural language using words and expressions of experiences such as social interactions and artistic presentations. Researchers tend to centralise examining meanings within an iterative process of evolving findings (Wertz, 2010). This brings subjective descriptions of experiences as legitimate data for analyses (Levitt *et al.*, 2018). Merriam and Tisdell (2015) summarised the characteristics of qualitative research as per Table 9 below.

Table 9 Characteristics of qualitative research - Adapted from Merriam and Tisdell (2015)

Point of Comparison	Qualitative Research
Focus of research	Quality (nature, essence)
Philosophical roots	Phenomenology, symbolic interactionism, constructivism
Associated phrases	Fieldwork, ethnographic, naturalistic, grounded, constructivist
Goal of investigation	Understanding, description, discovery, meaning, hypothesis-generating
Design characteristics	Flexible, evolving, emergent
Sample	Small, non-random, purposeful, theoretical

Point of Comparison	Qualitative Research
Data collection	Researcher as a primary instrument, interviews, observations, documents
The primary mode of analysis	Inductive, constant comparative method
Findings	Comprehensive, holistic, expansive, richly descriptive

3.3. RESEARCH DESIGN

A phenomenological research design provides an understanding of the themes and patterns portrayed by the study's participants. The participants in the study were asked open-ended interview questions so that their specific experiences could be identified. This research conducted semi-structured interviews with the Senior Stakeholder Management Group (SMSG), which is involved in DTP's in South Africa. The direction of the interview questions hinged on the participants' personal experiences and perceptions. As integral to the phenomenological outlook, the goal is to authentically appreciate phenomena, delivering a depiction of human experience as it is individually encountered, allowing the essence to manifest.

While small qualitative studies may not adhere to conventional generalisation practices, they possess specific merits that exempt them from this requirement. The value of such studies is rooted in participants' context-dependent responses to research questions, thereby necessitating an examination of the generalisation of research findings. As Yin (2003) postulated, qualitative research possesses the potential for generalisation. Analytical data can be generalised, not necessarily to a sampled population, but to a theoretical construct of the studied phenomenon, a theory possibly bearing wider applicability than the examined case.

3.3.1. Research Instrument

This study uses five (5) semi-structured interviews to gather appropriate research data from the SMSG in the DTP environment.

The semi-structured interview question was formulated with Merriam and Tisdell (2015) guidelines in mind;

1. The interview protocol includes a mix of more and less structured interview questions.
2. All Questions to be used flexibly
3. Typically, specific data is required from all respondents
4. The most significant part of the interview is guided by a list of questions or issues to be explored
5. No predetermined wording or order

Informed consent from each participant is obtained (refer to Appendix 1) along with the distribution of an explanation of the study.

3.3.2. Data Collection

In qualitative research, non-probability sampling techniques are commonly employed due to the smaller sample sizes typically involved in addressing real-world issues. However, this does not imply that sampling within this context should be conducted casually; careful consideration and justification are necessary when selecting research cases and participants (Taherdoost, 2016). The different sampling methods include quota sampling, snowball sampling, convenience sampling, and purposive sampling. Since this study is exploratory, purposive sampling is the most appropriate method to minimise selection bias.

The data collection commenced with the identification of potential interview candidates through a LinkedIn search. The search employed keywords to identify relevant roles in the SMSG, including owner, sponsor, executive, senior, director, and portfolio manager. Keywords

for relevant experience encompassed digital, digital projects, technology, IT, and transformation. After reviewing the extensive list of profiles, the selection was narrowed down to twenty-five (25) potential participants who were deliberately chosen based on the previously mentioned criteria related to their involvement in DTPs and their experience in SMSG roles. Due to the SMSG's senior executive roles and their busy professional lives, accessibility and availability were constraints. The goal was to have between five (5) and seven (7) candidates agree to participate in the interview process.

The identification phase was followed by inviting potential candidates from the long-list via LinkedIn messages to participate in the study (see [Appendix 1](#) for the invitation to participate). From the pre-selected candidates, five (5) individuals agreed to take part in the study.

In qualitative research, purposive sampling is a widely accepted method for selecting participants who can provide valuable, relevant, and diverse insights into the research topic. For this research, a sample size of five (5) individuals selected through purposive sampling is justified by the depth and quality of information that can be obtained from these carefully chosen participants. This approach allows the researcher to focus on individuals with specific expertise and experience in digital transformation, ensuring that the data collected is highly relevant and informative.

As Palinkas *et al.* (2015) noted, purposive sampling effectively identifies and selects information-rich cases for in-depth study. Additionally, Robinson (2023) emphasizes that purposive sampling is not intended to create a representative sample but rather to focus on particular phenomena and processes. Therefore, a small, purposively selected sample can provide valuable insights and significantly enhance the understanding of DTP's.

Semi-structured interviews were used to gather the data. At the time of the research, the COVID-19 pandemic and the imposed restriction made face-to-face interviews challenging due

to the transmission risks involved in such meetings. Online interviews were conducted as an alternative with associated benefits;

1. Cost-effective and suitable for geographically distant or dispersed interviewees
2. Enables a complete recording of the session

The interviews took place via online video conferencing facilities (Microsoft Teams) and were recorded for transcription purposes; the allocated interview time was between 60 – 80 minutes. Participants were notified, and consent was given for the interview to be recorded as part of the consent stage and as part of the introductory phase of the interview. The researcher took notes, listened, and asked questions to better understand the participants' experiences.

Interviews allow for the attainment of specific information relevant to the research. Bryman and Cramer (2012) acknowledge that interviews are advantageous over participant observation as they enable the researcher to study issues that were not amenable to observation. Interview techniques are beneficial for understanding the respondents' experiences with the phenomenon. An interview schedule (refer to [Appendix 2](#)) was developed by the researcher before the interviews to ensure the research questions were covered and to allow a time structure for the interview. The interview schedule was used as a guideline. However, the researcher allowed flexibility and fluidity in the conversation so that the participant could express their experiences freely as proposed by Leedy and Ormrod (2012) and Merriam and Tisdell (2015).

The initial contact with participants was established through LinkedIn messages and emails to confirm their interview attendance. Confirmation was provided to participants indicating that their records would be securely maintained for a minimum period of three years following the completion of the research and then destroyed. Each participant was informed about the voluntary and confidential nature of their participation in this study. They were assured that their identities would remain confidential and not directly linked to any data. To ensure the

maintenance of ethical standards throughout the research, participants were informed about the purpose of the study, and their informed consent was obtained before the initiation of the study.

Secondly, steps were taken to safeguard the privacy and confidentiality of the participants by (a) avoiding any requirement for them to disclose their names, departments, client names, or organisation names, thereby ensuring anonymity of their responses and shielding them from potential retributive action, and (b) placing security measures to prevent unauthorised access to collected data. Raw data is stored on Word files and preserved on a secured Microsoft One Drive Cloud data storage device protected by a password. Data confidentiality was maintained throughout the application of coding. Upon acceptance of the completed dissertation and the conclusion of the five years, the Word files, including the transcripts, will be permanently deleted from the Cloud data storage device.

3.3.3. Data Analysis

The data analysis procedure unveils patterns, coherent themes, significant categories, and innovative ideas and generally enhances comprehension of a phenomenon or process (Suter, 2006). Acknowledging Patton (1990), the intent behind interviewing is to ascertain information that cannot be directly observed by eliciting insights from interviewees' perspectives. Data gathered from the semi-structured interviews was scrutinised, dissected, and deciphered into themes and meanings, thereby laying the groundwork for codification using Interpretative Phenomenological Analysis. This is a 5-stage iterative process with summarised actions pertaining to the activities summarised in Table 10 below;

Table 10 The Stages of Interpretative Phenomenological Analysis - Adapted from Willig (2013)

Stage	Activity	Actions
1	Reading and re-reading the interview transcription	Significant responses from the reader, statements, sentences, or quotes are identified in the transcripts (open coding).
2	Identifying themes	Identification of and labelling of major and minor themes.
3	Structuring the analysis	Clusters of themes are labelled in a way that captures their essence.
4	Production of a summary table of the themes	Quotations selected that illustrate themes. Abandoning of themes that are not well-represented.
5	Construction of a cohesive narrative	The narrative is based on the summary table; quotes from participants are included to add depth and richness

Neuman (2012) portrayed the data analysis process as a search for patterns to explicate the objectives of the investigated phenomena. The stage is included in the research at hand.

- Stage 1: Following each interview, a Microsoft Teams automated transcription feature was used to export transcribed Microsoft Word documents, followed by doing the first reading and watching the recordings for the transcript finalisation. This was followed by several re-reading of the transcriptions. During the reading process, minor corrections were made, and the video recordings were listened to, where the automated transcription had interpretation errors.
- Stage 2: Initial coding was done to each transcript in Atlas.ti. An open-coding system for granular analysis of participants' narrative responses was used, dissecting these line-by-

line, phrase-by-phrase, and word-by-word (Creswell, 2009). Emergent themes from the transcripts were systemically categorised and encoded.

- Stage 3: Following the completion of categorisation, the data was coded in correspondence with indicators identified in the literature review, primarily to Davis (2016) defined Thematic Success Dimension categories and other key observed categories aligning with the research questions, memos and notes taken during the interview process.
- Stage 4: Themes were summarised and analysed in Atlas.ti with networks and supporting quotations.
- Stage 5: Finally, the narrative discussion was developed in Chapter 4 of the research paper to summarise the findings.

3.4. VALIDITY AND RELIABILITY

In qualitative research, validity and reliability have different meanings than quantitative research. Validity embodies the integrity of the study design and the fidelity with which the findings mirror the collected data, while reliability stands for consistency in the analytical processes utilised (Noble and Smith, 2015).

Table 11 Terminology and criteria used to evaluate the credibility of research findings - Adapted from Guba (1994)

Quantitative research terminology / Application to qualitative research	Alternative terminology associated with the credibility of qualitative research
Validity The precision with which the findings accurately reflect the data	Truth value Recognising that multiple realities exist, the researchers outline personal experiences and viewpoints that may have resulted in methodological bias and clearly and accurately present participants' perspectives.
Reliability The consistency of the analytical procedures, including accounting for personal and research method biases that may have influenced the findings	Consistency It relates to the 'trustworthiness' by which the methods have been undertaken and is dependent on the researcher maintaining a 'decision trail'; the researcher's decisions are clear and transparent. Ultimately, an independent researcher should be able to arrive at similar or comparable findings. Neutrality (or confirmability) They are achieved when truth value, consistency and applicability have been addressed. Centres on acknowledging the complexity of prolonged engagement with participants and the fact that the methods undertaken and findings are intrinsically linked to the researcher's philosophical position, experiences, and perspectives. These should be accounted for and differentiated from participants' accounts.

To address the abovementioned criteria, this research has from a Validity perspective:

- Research literature and journal articles were used to establish the best-suited methodology.
- Descriptive research notes/memos were made with each interview to reference during the coding and thematic categorisation.

- Research design and review by a PhD-qualified research coach with qualitative research experience to assist the researcher in uncovering taken-for-granted biases and assumptions.
- Semi-structured video-recorded interviews allowed for a repeated revisiting of the data to check emerging themes and remain true to participants' accounts of rich and verbatim quotes from the SMSG to assist readers in making judgements about the final themes.
- Diversity in the sample by selecting SMSG from different industries involved in different types of DTP's.

3.5. RESEARCH ETHICS

Research ethics is an essential aspect of the research methodology process. Ethics stems from a variety of issues that affect the research process. The concept of respect for persons includes four essential actions:

1. Assuring that participation is voluntary (voluntary participation)
2. Determining that individuals recruited into the project are competent to participate (competence)
3. Preserving confidentiality for participants (confidentiality), and
4. Providing a thorough and accurate informed consent process (informed consent).

Two levels of consent were used to inform the participants of the research's objective before interviewing them. Secondly, the documentation was signed related to anonymity (and other required UCT documentation) post the interview. All information related to interview participants and the organisation they present or have done work for has been coded to be anonymous.

3.6. LIMITATIONS

Despite the representation of SMSGs across distinct industries within this study, the small sample size limits the generalizability across different sectors or geographical locations. Also, this study strictly focuses on the project lifecycle, neglecting potential influential changes happening concurrently outside the project scope. Despite these constraints, the research still contributes valuable insights.

3.7. SUMMARY

The chapter presented the research methodology of this research study. The research approach adopted resides in the interpretivist paradigm, and therefore, qualitative research is adopted with semi-structured interviews and open-ended questions as data collection methods were utilised. Finally, this chapter discussed the appropriateness of the research design, the population, assumptions and limitations, and ethical assurances. The following chapter presents the results of this study, where they will be examined and assessed.

4. RESEARCH RESULTS, DISCUSSIONS AND FINDINGS

4.1. INTRODUCTION

This chapter presents the findings and discusses outcomes and results from the data collection process based on the research methods outlined in Chapter 3. The qualitative research study explores the project success dimensions from an SMSG perspective in the dynamic DTP environment and how these can contribute to more successful projects in the DT of organisations.

4.2. DATA COLLECTION

Purposive sampling was used to identify potential research candidates. One of the participant criteria for the study is that participants have to be of the senior management stakeholder group (SMSG), as outlined by Davis (2014), which includes business professionals in Executive positions, Owners, Directors, Senior Management, and Sponsor roles.

The participants represent companies in various environments utilising digital solutions. These initiatives ranged in project type, from large complex ERP implementations to entrepreneurial ventures of new product development. The participants' experience varied in different sectors, including management consulting, supply chain, facilities maintenance, and financial industries. Participants' experience is expanded on in the Interview Candidates table below. All participants have a wealth of business experience and represent senior roles in their respective companies. All participants have over 20 years of work experience, are actively involved with DTP's, and have at least five years' experience in the SMSG role for DTP's.

Table 12 outlines the details of each candidate, including the Abbreviation used for the individual and the company they represent. Other details include the Company services, their SMSG role, years of experience, and the recent DTP on which experiences could be shared.

Table 12 Interview Candidates Profile

Person Reference	Company Reference	Company Services	Senior Management Stakeholder Classification	Years of Experience	DTP Type
IN01	AuditCo	Audit and Technology Management Consulting	Director / Project Executive	25 years +	Implementation of SAP4 ERP
IN02	FinTech	Financial Technology	Executive / Entrepreneur	22 years +	Development of Fintech Application
IN03	SCTech	Supply Chain Technology	Executive / Project Sponsor	20 years +	Implementation of Digital Supply chain technology solutions
IN04	CMMS-Co	Maintenance Technology	Executive / Project Sponsor	22 years +	Implementation of Asset Maintenance Technology solutions
IN05	TechCo	Management Consulting	Owner / Project Sponsor	30 years +	Implementation of ERP technology system

4.3. RESULTS AND ANALYSIS

4.3.1. DEFINITION OF DIGITAL TRANSFORMATION

This chapter presents the findings of the SMSG perspective and an understanding of the definition of DT. Figure 2 below presents the coding categories, highlighting the most frequently occurring themes to define DT.

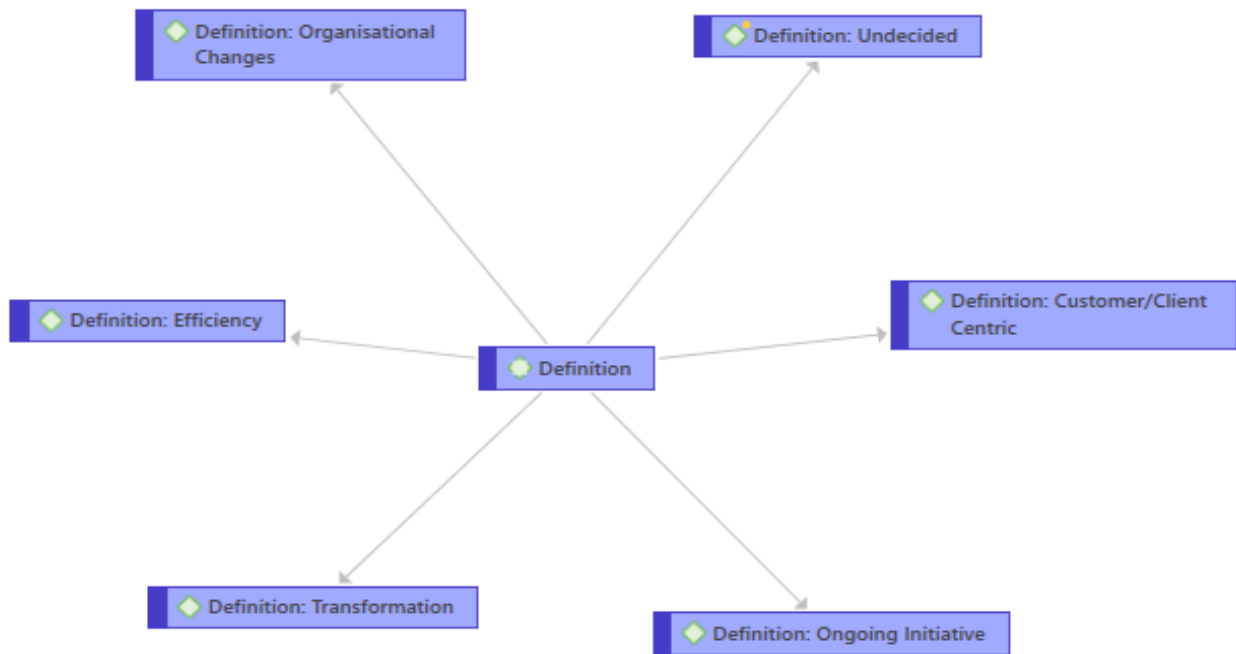


Figure 2 Digital Transformation Coding Network

Customer / Client Centricity

According to IN01, DT is best described as customer and staff-facing and focused on mobile technologies.

“we use the term digital transformation to refer to the primarily mobile or emerging technologies... typically customer or staff facing.”

Focused on customer channels and business enablement, IN01 stated, *“mobile technology, to enhance the customer experience in your route to market”*.

Whereas IN02 emphasised the need for DT to be customer-focused;

“the customer experience, how your customers engage with your brand, your product that effectively speaks to the whole concept of digital transformation.”

Transformation / Organisational Changes

DT brings about Organisational change, IN03 shared their own business transformation about having undergone an organisational restructure, changing the functional business areas and the way they work together to align them for DT and noting the importance of an organisational culture change;

“Very importantly, what underpins this all is a different culture”

IN05 further elaborated on the change in culture aspect, noting that one needs to build a company of digitally aware people and look beyond the available resources in the company to build a recruitment programme to support the future enablement of the organisation.

IN04 notes the holistic change to suit the DT needs;

“it’s about changing the organization, its processes, its platforms, and then how people interact with both the processes and the platform.”

DT was highlighted in the literature as a means of bringing about transformation. IN03 noted that a complete re-engineering of their product offering had impacted their technical approach and other business functions such as sales and finance. They further go on to emphasize the importance of the transformation for business to stay current;

“I think it is so critical for either whether it be sort of almost survival orientated for these companies or for them to almost reinvent themselves.”

IN05 noted that the DT-induced business transformation would impact the way people work, where they work, and the roles they fulfil.

The SMSG noted that efficiencies are a driver for DT. IN04 noted that tools and technology play an important role in realising efficiencies in organisational performance, with increased contributions to sustainability, profitability and cost reduction over time. IN02 noted the importance of DT to create efficiencies and increase value, with DT being less about the technology and more about the value realised;

“Digital transformation is leveraging digital tools and technologies, and processes to improve customer and operational efficiencies and increase the shareholder value of a business... digital transformation is not really about the tech or the engineering... but effectively is trying to understand how those technological tools can be employed. To make businesses run better, more efficiently.”

Ongoing Initiative

DT and the need for continuous improvement was highlighted by IN04, noting that organisations are continuously looking to do things better, faster, and customised to client requirements, thus;

“You will never reach an endpoint in the digital transformation journey. There will always be things, processes, people that require a platform (or improvement)”

IN02 noted the need to assess, calibrate, and recalibrate the strategy to ensure the DT outcomes are achieved and keep abreast with the continuously evolving landscape.

DT is not a single initiative; it is an ongoing program, as noted by IN05;

“it has to be a broad-based program. So you can't decide to write an app and call that a digital transformation program. That's just one little strategy. You know, that needs to be part of a bigger picture”

Undecided

IN05 alluded to the broad definition DT currently has, noting on separate occasions;

"I guess it can be just about anything, I suppose if it's something that truly transforms your business using technology"

"it's an interesting term that's bandied around for just about anything in this day and age"

IN01 also noted the difference in understanding of the DT definition from this research, noting that their understanding of DT is that it is customer- or staff-facing, not back-office (including ERP).

4.3.2. DAVIS PROJECT SUCCESS DIMENSIONS

The coding process included the assignment of codes in Atlas.ti, represented in the following sections. The codes were assigned according to Davis (2016) project success dimension themes, having founded her themes on an elaborate study of previous project success factors literature, including the seminal work of Pinto and Slevin (1988). The categorisation further included coding as 'Project success dimensions' or a success dimension that had presented itself with 'Project challenges'. Participants regularly shared the challenges when sharing about the success factors, and these were deemed valuable to highlight where achieving success dimensions are deemed more challenging than others and where PM's can learn from potential misalignment. This section discusses the individual theme results and summarises these in a Table that presents the findings of the comparative analysis and the coding frequencies.

Benefits to Stakeholder Group

The Benefits to Stakeholder Group success dimension refers to the specific advantages or positive outcomes that various stakeholders can expect from a project's completion. This dimension focuses on how the project's results align with the interests, objectives, or needs of

the involved stakeholder group. As depicted in Figure 3, the theme includes accessibility, improved efficiency, cost savings, and customer experience.

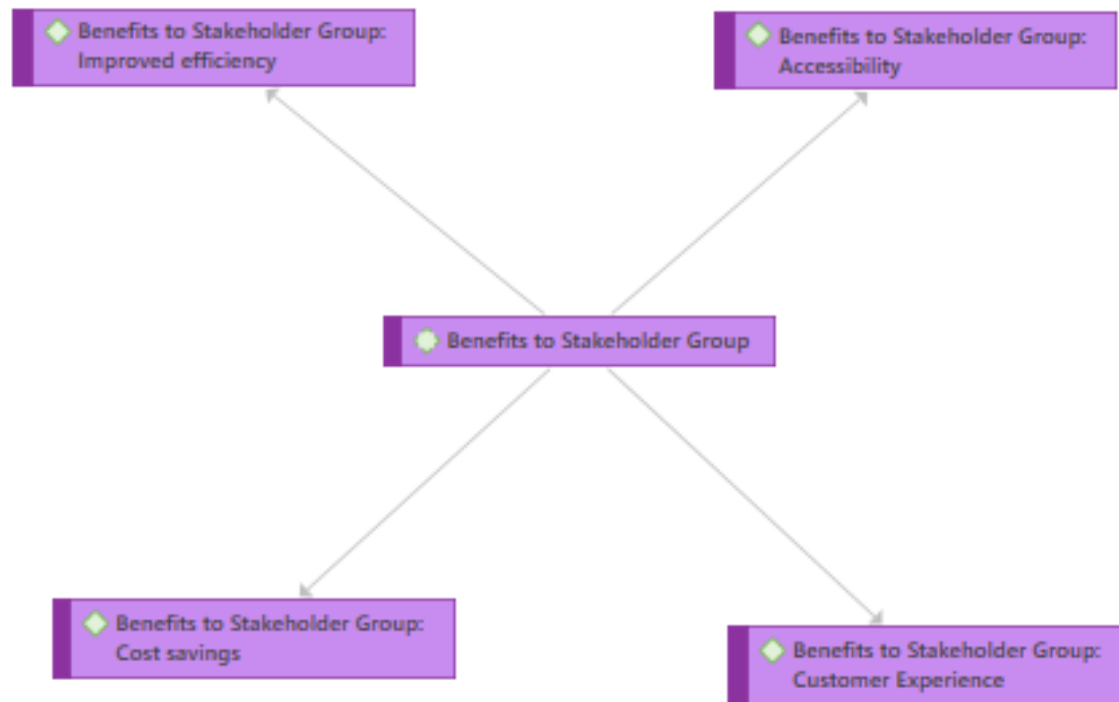


Figure 3 Benefits to Stakeholder Code Network

IN02 noted that because of the technology replacement, the benefits for the client included *"better governance, risk and control"* along with increased efficiency and standardization.

IN04 emphasised that highlighting customer benefits during technology implementation was crucial: *"...how vital this function is and its critical impact on customer journey and experience..."*.

IN03 stressed forecasted benefits and continuous demonstration to end-user stakeholder groups as factors affecting buy-in. They stated, *"Being able to quantify impact... helped significantly with buy-in."* They mentioned that an agile approach was crucial in ensuring

alignment with the end user stakeholder group - "...start simple and grow the complexity over time and getting something into the users' hands as soon as possible...".

Meeting Expectations

The Meeting Expectations success dimension refers to how well a project meets the predetermined requirements and objectives agreed upon by stakeholders. Evaluating the project's success is based on its ability to deliver on its commitments and stakeholder satisfaction. As depicted in Figure 4 the theme includes Effective scoping, qualitative feedback, soft skills, customer adoption, and desired outcomes.



Figure 4 Meeting Expectations Code Network

When discussing meeting expectations, the SMSG emphasised the importance of identifying the right stakeholders and defining outcomes to achieve these goals at the early project stages. IN04 pointed out that getting all relevant parties in a room ensures everyone's voices are heard and helps align with desired outcomes. Understanding stakeholders' requirements is crucial for successful project delivery. Once the outcomes were understood, reporting against them became important - both qualitative and quantitative feedback played key roles.

IN02 had future-focused expectations: *"For me, the KPI is at the end of the day in terms of customer volumes."* The true outcome emerges only after product delivery during benefits realisation stage. IN02 focused less on project success KPIs but was more interested in realising changes from delivering products: *"Fundamentally, I was more concerned about whether or not we achieved our goal; if our product worked effectively so we can take it to market."*

Time/Cost/Quality

The Time, Cost, Quality success dimension, often referred to as the 'Iron Triangle' of project management, measures project success based on the efficient management and balance of three fundamental constraints: completing the project within the agreed-upon schedule ("Time"), staying within the allocated budget ("Cost"), and meeting the expected standards of performance and functionality ("Quality"). As depicted in Figure 5 the theme could be categorised as significant, not significant, and complex.

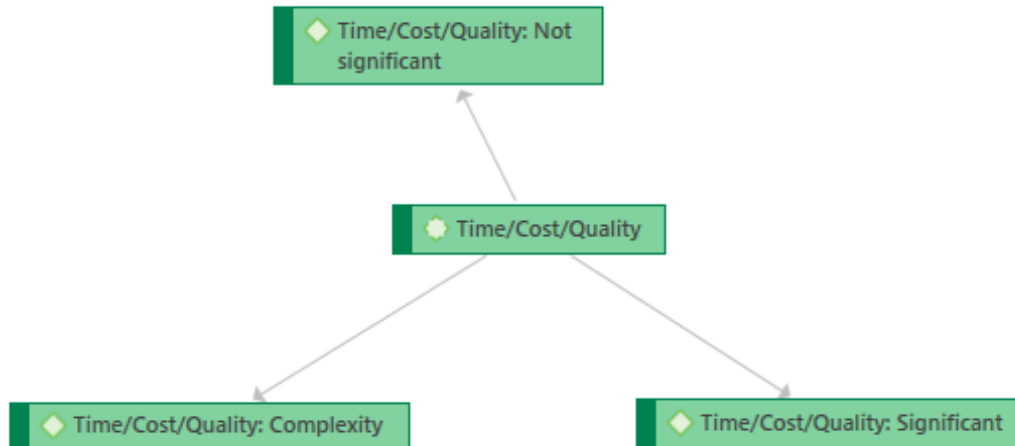


Figure 5 Time, Cost, Quality Code Network

On discussing the iron triangle of time, cost, and quality, the SMSG had varying experiences and opinions, with particular comments on the complexity and challenges this success dimension poses. IN02, from a product development perspective, had not deemed it significant, noting that "the agile approach was probably less looking at these *particular KPIs*."

IN04, implementing a new CMMS solution, noted, "...*they (the client) didn't have some stringent, let's say iron triangle, requirements...*"

Several participants' feedback indicated that strict compliance and equitable distribution among the three factors were not straightforward, demonstrating complexity in meeting the iron triangle requirements. IN01 expressed, "...*in practice, it never plays out like that*", emphasizing that "*quality is non-negotiable*." The complexity was further highlighted: "...*it's not a proportionate scale between time and cost*." Similarly, IN03 emphasised where costs remain the primary focus while time and quality become secondary: "*It becomes more complex when we put more emphasis on their budget first...*"

IN05 had noted challenges with staying on time requirements: *"So there was a bit of a blowout on time which caused some delays..."* IN02 emphasised the criticality of aligning these with the client's requirement: *"...any project needs to have the iron triangle, especially when it's got to do with digital transformation."* Furthermore, they stressed being flexible as the project progresses: *"...if the client is changing any one of those constraints... you need to be tweaking accordingly"*. IN05, agreeing with the criticality of having these measures as a standard requirement, stated: *"I think they are critical for success but consider them kind of like "hygiene"... if you commit to delivering something within a specific timeframe and cost then we must measure against it. Additionally, for changes initiated by clients, there must be accountability."*

Client/Customer Specific

The Client/Customer Specific success dimension refers to the degree to which the project aligns with and satisfies the client's or customer's unique needs and requirements. As depicted in Figure 6, this dimension encompasses client satisfaction, the fulfilment of client specifications, and the overall perceived value of the client. The theme included Marketshare, ROI, Customer journey, system uptime, insights and automation, and feedback.



Figure 6 Client, Customer Specific Code Network

Many of the client-specific success measures identified by the SMSG are related to understanding the customer journey. IN02 emphasised the importance of understanding and mapping the customer journey for reference: *"Mapping that customer journey is fundamentally important..."* Investing time upfront to comprehend the customer journey and using it as an ongoing point of reference was highlighted: *"We spent quite a bit of time trying to understand and articulate the customer journey... It's not just a one-off process..."* Furthermore, IN02 stressed the need to involve customers in this ongoing initiative by considering their feedback, complaints, and issues.

From a broader DT perspective, IN05 emphasised the importance of assigning roles within the implementation organization at the executive level to prioritise customer satisfaction. *"...my*

first suggestion would be to structure your business around someone who can best serve the customers' needs, keep them satisfied, and expand your market share... This person should lead the digital transformation strategy while working hand-in-hand with someone knowledgeable about available technologies. The chief customer officer will articulate their vision for what they want customers to achieve and experience... while their counterpart in technology reveals how this can be achieved... You need both: a visionary leader along with an enabler..."

IN02 emphasised the importance of client-focused success in expanding market share and highlighted the necessity for meeting client revenue targets to justify the investment. IN04 observed the client's emphasis on product uptime, operational efficiencies through automation, and leveraging performance indicators and data insights for effective decision-making: *"The first aspect pertained to automating tasks... Additionally, there was a focus on uncovering insights... Lastly, there was potential in utilizing these insights to drive various actions..."*

Technical Aspects

The Technical Aspects success dimension pertains to the technical efficacy and reliability of a project's deliverables. It evaluates how well the project meets its technical goals and performance criteria, including functionality, system integration, specifications, and the application of technical innovation. As depicted in Figure 7 the theme could be categorised as Complexity and systems integration.

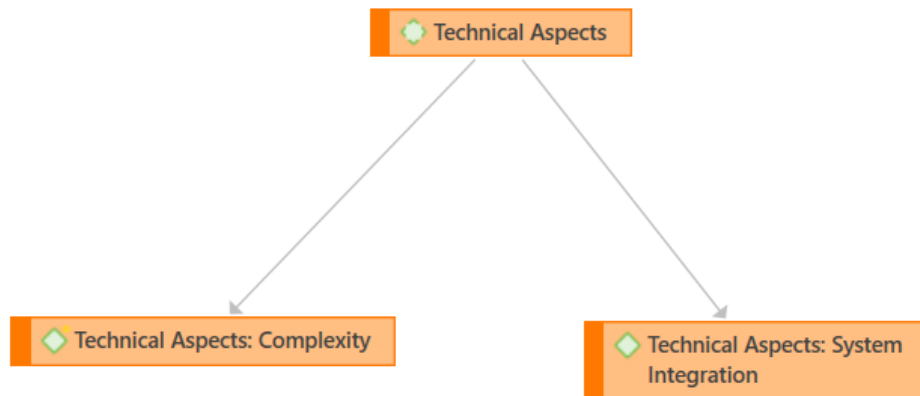


Figure 7 Technical Aspects Code Network

The SMSG identified technical complexity as a critical factor, especially in large DTP's. IN01 noted the incentive to oversimplify requirements to expedite implementation: "...*incentivised to make it simpler than it is to get [it] going.*" This simplification poses scoping challenges, particularly when transitioning from mainframes to new technologies. IN03 added that clients' limited understanding of DT can lead to miscommunication and impact engagement.

IN01 highlighted the complexity of existing systems and habits: "...*old lady legacy. Bad habits... years and decades of undocumented bad habits...*" Customization also increased complexity, with IN01 advising standardization. IN03 mentioned initial headaches from evolving configurations and processes but expected incremental improvements.

IN01 argues "*training is overemphasised...*", advocating on-the-job training post go-live: "*Training is useless...people really only understand while they use this system.*" IN04 suggests continuous, drip-fed training. IN01 notes reporting challenges due to complexity, with people realising actual needs only when using the new system: "*what people think they need and what they actually need in the end is vastly different.*"

Communication

The Communication success dimension evaluates the effectiveness, clarity, and timeliness of information exchange among project stakeholders throughout the project lifecycle. This includes the degree to which communication facilitates understanding, collaboration, and decision-making among team members, clients, and other parties involved in the project. As depicted in Figure 8 the theme could be categorised as alignment, expectations management, regular updates, and collaboration.

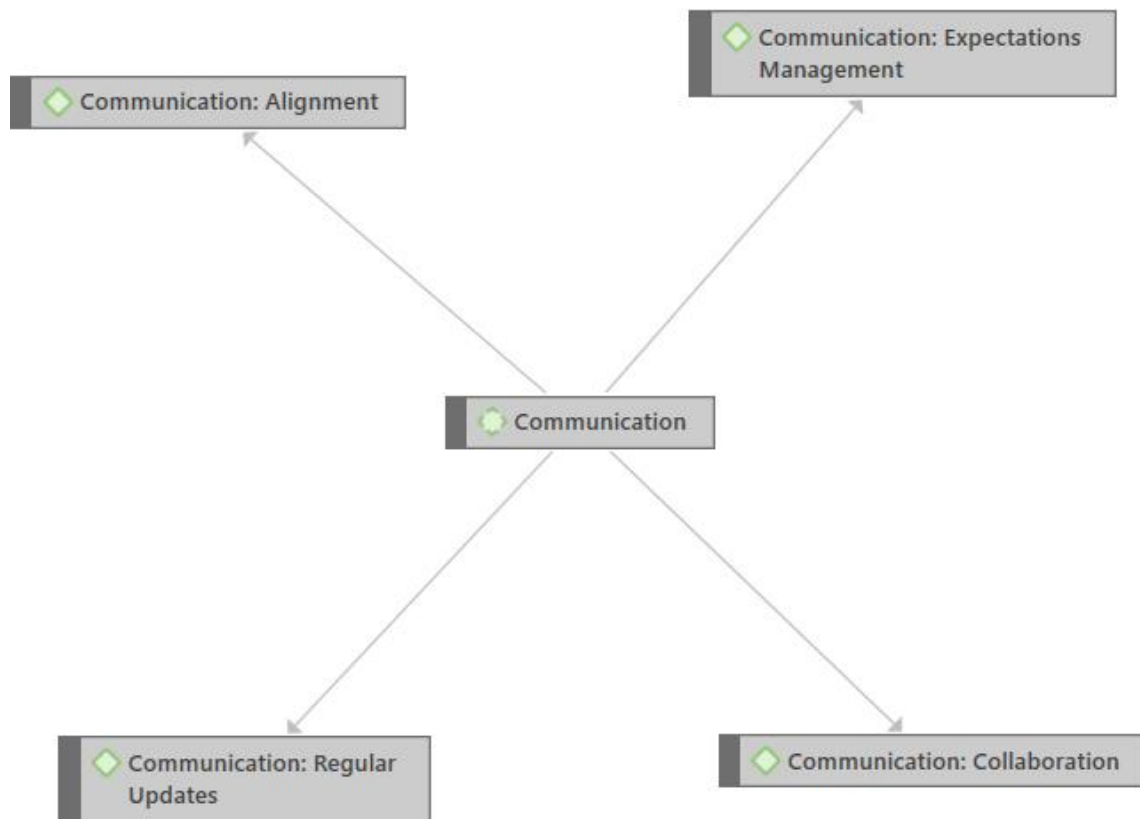


Figure 8 Communication Code Network

Regular updates were the most highlighted in the communication theme. IN02 noted; *"I think constant communication, ... with the team to understand ... what the key outcomes are"*, it was further noted that positive reinforcement plays an important role; *"... communicate, where you're satisfied with things ... give them credit, acknowledge their contribution"*. Several participants noted the importance of communication frequency. IN04 noted; *"... frequency of touchpoints absolutely critical, ... how often you ... stay in touch"*. IN02 emphasised the vital communication line between the SMSG and the PM; *"there was constant communication, ... with the project manager ... to make sure that those changes were being implemented"*. IN02 noted the regular updates being part of the routine and different formats: *"... there was the formal meetings ... on a weekly basis... email, WhatsApp ... Microsoft Teams ... constant communication with the team"*. IN05 noted these regular updates include agreement of milestones; *"... follow agile, ... frequent show and tell. ... get them to accept and pay for milestones ..."*. IN04 shared a lesson learned in which they noted the type of regular updates could have been simplified; *"... communication around performance ... much more simplistic ... 2-3 lines in an email or one graphic ..."*.

Collaboration was another vital part of this theme, IN04 noted the importance of early collaboration with key stakeholders, ensuring collaboration on outcomes and alignment on trade-offs; *"... getting all the players into the room ... everyone's voices ... heard, ... executive level ... alignment ... clarity on ... the trade-offs ..."*

Communication plays an essential role in ensuring alignment on various fronts. IN05 rated this aspect as the most important in project success, highlighting that communication ensures understanding of roles, what is delivered, and education to the right stakeholder groups; *"... biggest factor ... is making sure everyone's aligned on ... roles, ... responsibilities ... educate the top people ... on what they're buying, and what they're getting."*

IN03 noted the alignment of goals by means of reporting and meeting with senior management; *"... through KPI reporting, ... engage at least quarterly ... ensure that the strategic*

objectives ... remain aligned with operational execution". IN03 noted this is not as straightforward as it seems and remains a project challenge; "... making sure we understand our client's ... perception of digital transformation. ... I can guarantee if we asked ... most of the definitions would be traditional IT project and not a digital transformation project".

IN02 noted that communication plays an important role in managing expectations; *"... manage expectations ... over-delivering and under-promising ... that's important and ... requires over communication".* How this is done is important *"... ensure that you're always ethical and transparent and honest in your communication communication and marketing".*

The last aspect of the communication theme was vision casting, which is communicating the purpose. IN02 noted, *"... constantly communicate that vision ... to say that the work ... is there for a bigger purpose ...".* The importance and challenge of the SMSG to ensure adequate communication to align the team to the bigger picture; *"... a challenge to ... get people to share in your vision, ... why this project is ... important, ... a bigger picture, ... how the work ... is going to benefit society or business ... an element of constant communication ...".*

Systems

The Systems success dimension assesses the quality and suitability of the processes, tools, and methodologies employed in executing the project. It examines how well these systems support the project's goals and enables efficient workflow and their role in achieving project objectives and facilitating project management tasks. As depicted in Figure 9 the theme could be categorised as Complexity, Scope, Process/Approach.

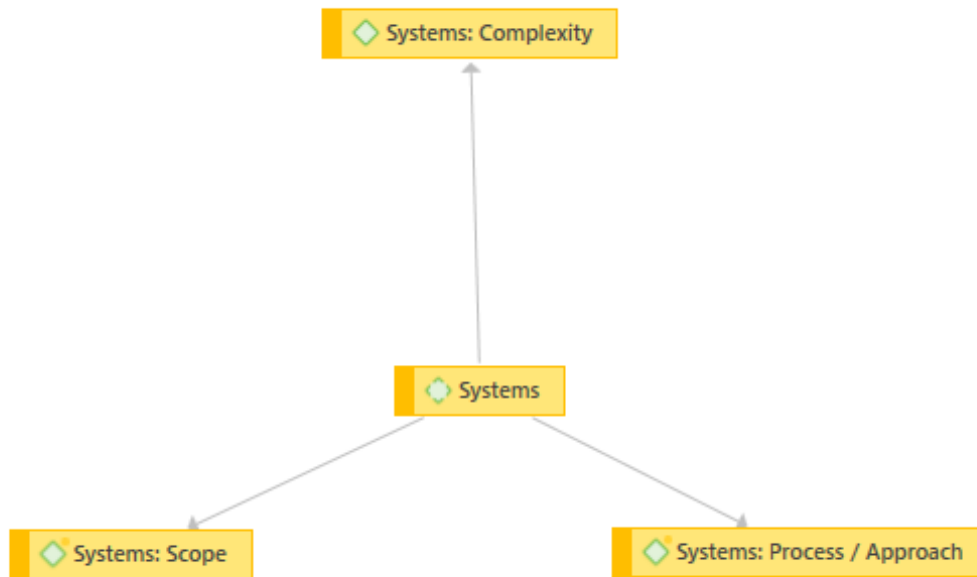


Figure 9 Systems Code Network

The process and approach to delivering the project are deemed critical to the SMSG. IN01 stated that the process was the key differentiator on project success; "... proper order of things and not underestimating their complexity", *reiterating*; "... *done in the right order*" and "... *point was not really around the scoping, but at the correct order ...*". When referring to a failed project "... *wasn't done, and the size of the challenges, properly understood ...*". The approach factor being highly rated in complex ERP implementation projects. IN03 noted the autonomous approach differentiated their project "... *given a lot of autonomy ... that traditionally would have been run in house ...*".

The importance of upfront investment in the process to ensure understanding; "*The more time ... upfront, the better ... not just our project manager that does the analysis. ... a lot of our consultants ...*", noting this aspect is often underestimated; "... *customers don't fully appreciate ... the analysis phase ... it's an investment ... directly related to the success ...*".

Scoping was often referenced, ensuring solid understanding; IN03 noting; *"... understand the "as-is" was critical. ... truly seek to understand the current relationship between the technology and the processes ..."*. IN03 emphasised lessons learned on unsuccessful projects were; *"... where ... a project ... hasn't gone as well ... has been ... requirements, or scope creep, not being defined properly upfront"*. Similarly, IN04; *"... scope we probably could have been stricter ..."*.

IN05 elaborated on the scope aspect and the importance of a holistic approach, ensuring scope ties back to contract, agreement, and business case; *"... scope, and that value case is well captured into your contracts and your agreements ..."*.

Lastly, the complexity in IN01's case was highlighted; *"... boatloads of detail to work thru, ... more the change management of as-is that is the key challenge...not underestimating their complexity"*. The challenge of outdated business systems proving to be a major challenge; *"The problem was old lady legacy. Bad habits ... in the policy admin systems. ... decades of undocumented bad habits ... needed to be sorted out ..."*.

Organisational Characteristics

The Organisational Characteristics success dimension refers to the attributes of the organization that influence project success, such as leadership style, organizational structure, company culture, and internal processes. It evaluates how these characteristics impact the project's execution and outcomes. As depicted in Figure 10 the theme of organisational characteristics is categorized under approach, culture, governance, and leadership.

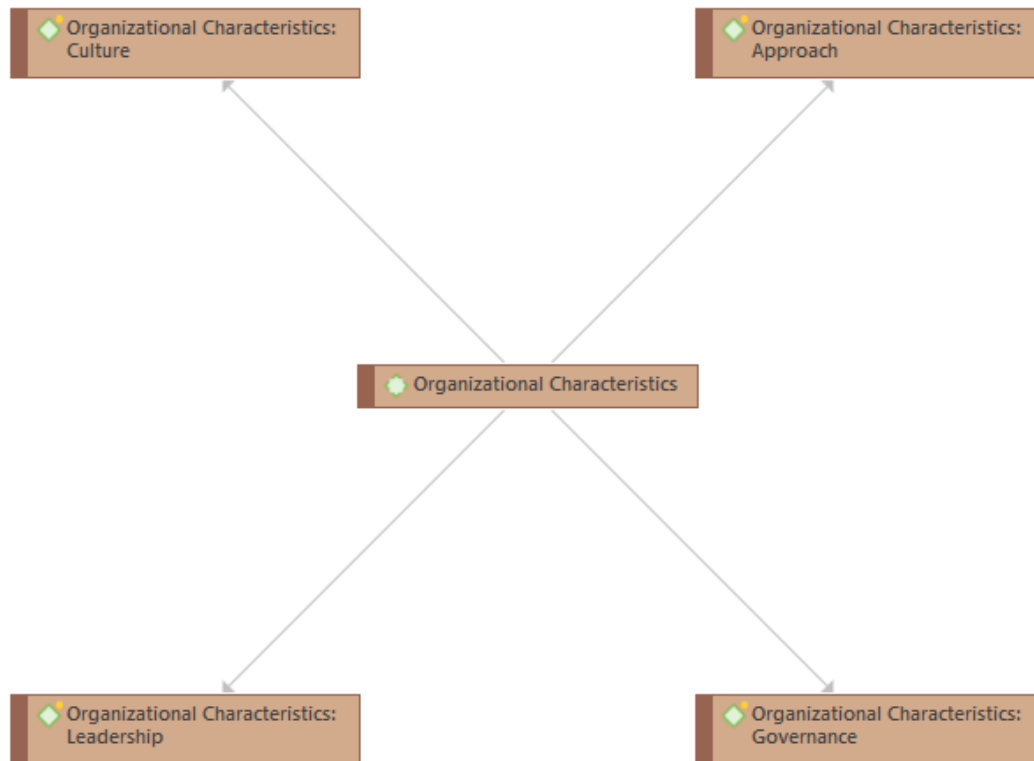


Figure 10 Organisational Characteristics Code Network

The approach theme highlights factors in the organization's approach and how these affect DTP's. IN01 noted other projects within the portfolio influence the DTP's and suggested the portfolio approach be considered and planned, suggesting; *"... make sure that I do my bigger technology projects sooner, ... I have more runway ... have a smaller team ... over a longer period ..."*. Highlighting the change impact DTP's can have; *"... changes on the organisation and the team will be enormous, ..."*. Emphasizing a bigger picture viewpoint, minimizing risk of failure and cost impacts: *"... when you overrun with a large team, the impact is tremendous, ... better, ... to have a longer view... ... do my bigger technology projects sooner, ..."*. This approach empowers key stakeholders to become champions to ensure adoption; *"... your key stakeholders then become your champions, ..."*.

IN02's approach experience stems from an entrepreneurial background and how the product is delivered to market; *"... important that you have a well-planned, ... go-to-market strategy, ..."* and how the DTP fits into the organizational goals and strategies; *"... time to market, ... very important. ... how you take it to market and when ... critically important."*

How an organization works and how things are done there dramatically affects how well projects that change things using technology will go. IN03 said that when people in the company really want to change and do things in a new way, it makes it easier for them to see what needs to change so the company can use new opportunities. IN03 said, *"I generally find, more of an entrepreneurial type of culture brings about more of an awareness, for trends, the change needed in the organization to capitalize on opportunity. And those are always the easiest spaces for us to work in, where there's change that needs to happen purely because, if one person issued a directive, you've got a lot of work to do to change mind-sets, in the early phases of the project"*. IN04 also said that this is different from one company to another; *"It depends on the organization and the culture that you're facing and what their technology and their transformations supports or underpins"*.

IN02 said it is vital for the top people in charge of the company to pay attention and be involved in projects that are changing essential things; *"as the leader, as the CEO, the founder that you keep your finger on the pulse, on every aspect of the project know that they have to be technically proficient at those individual components"*.

The culture of the organisation plays a crucial role in the success of DTP's. IN03 highlights the impact on adoption: *"...more of an entrepreneurial type of culture brings about more of an awareness, for trends, the change that's needed..."* IN04 notes the variability between organisations: *"It depends on the organization and the culture that you're facing..."*

IN02 emphasizes the importance of leadership involvement in critical DTP's: *"...as the leader, as the CEO, the founder that you keep your finger on the pulse..."*

Organisational culture and leadership's problem-solving characteristics are highlighted as important factors. IN02 notes leaders should intervene when needed: *"...if assistance is required from any of the team members... you should be willing to intervene."* IN03 stresses the importance of accountability across the team: *"There needs to be accountability across the teams... and a shared responsibility..."*

From a governance perspective, the organisation must support DTP's through its structure and resource allocation. IN01 notes for complex ERP initiatives: *"...you have both one of our team as well as one of the client's representatives."*

Organisational roles supporting the DTP need to be clear and empowered. IN05 notes: *"...who's the project champion. And trust him... empower him to manage the suppliers..."*

IN04 discusses the involvement of key operational staff: *"...The one sponsor was the CEO and... the CFO", "...the national operations manager... a fully dedicated resource in the call centre."*

The organisation ensures adequate resources are allocated: *"...seconded 50% of their workforce to the project..."*

Personnel Skills and Issues

The Personnel Skills and Issues success dimension focuses on the project team's competencies, expertise, and interpersonal dynamics. It involves evaluating the adequacy of skills and knowledge of team members to complete the project successfully, as well as how personnel-related challenges are managed and resolved. As depicted in Figure 11, the theme of personnel skills and issues is made up of four main categories: leadership skills, capabilities and experience, clear responsibilities, and sponsorship.

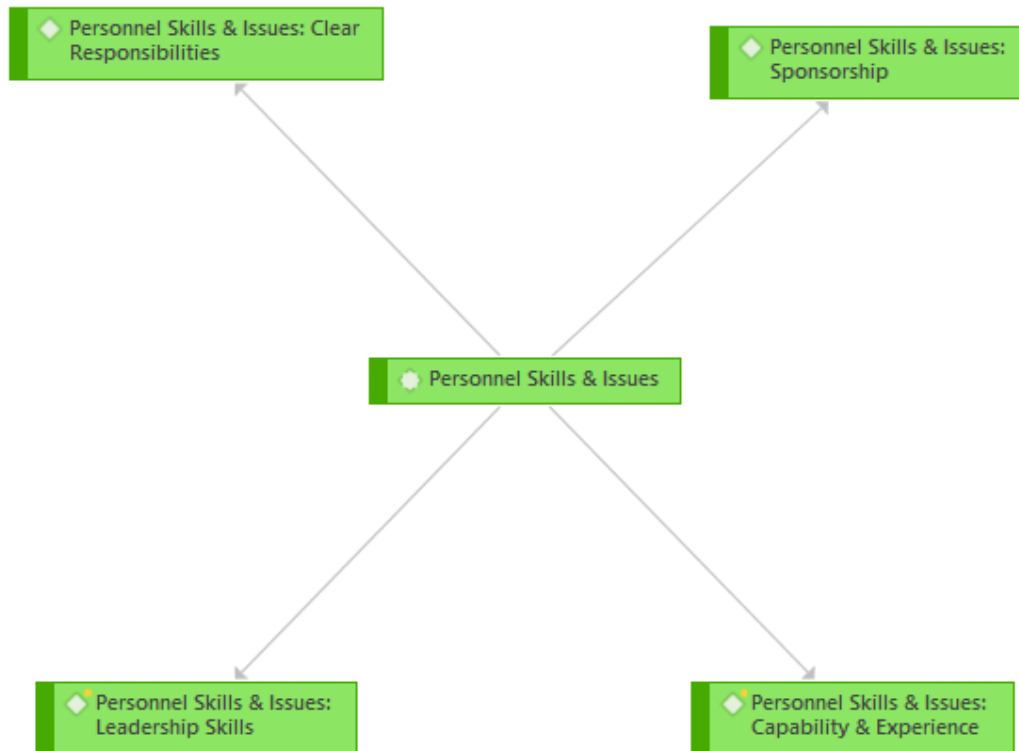


Figure 11 Personnel Skills and Issues Code Network

The Sponsor's critical responsibility is to cast the vision for the project, overlapping with communication as a continuous success dimension. IN05 notes: *"a well communicated value case...and that are put in the sort of visionary side..."* Understanding the 'why' is crucial, as IN03 states: *"...people need to understand the why. Why? Why is the change happening?"*

IN02 echoes this sentiment: *"...making sure they understand the bigger goal..."* while acknowledging the challenge: *"...always going to be a challenge to try and get people to share in your vision..."* It's not a one-time event but *"...an element of constant communication..."*

The sponsor should use delegation, with IN02 promoting digital technologies to stay informed: *"...leverage digital technologies... keep your finger on the pulse..."* COVID has prompted sponsors to adapt their leadership style, with IN02 finding empathetic leadership successful:

"...being empathetic with the situation..." However, IN02 stresses the importance of balancing empathy with addressing performance issues: *"...don't accommodate any tardiness, laziness, or incompetence..."*

Sponsorship is one of the highest regarded dimensions of project success. IN01 notes the criticality of strong sponsorship for complex DTP's: *"...strong sponsorship. This particular client... is highly federated, and to implement an ERP... is challenging..."* However, maintaining strong sponsorship at lower levels proved challenging: *"...layer one was good sponsor... but level two and three below that was not great."*

IN03 highlights the importance of a sponsor who embraces change and leads the initiative into adoption: *"...really switched-on person as far as understanding, change management and ultimately digital transformation"* and *"...embraced the change and became ultimately the champion..."*

IN02 and IN04 emphasize the accountability aspect of sponsorship. IN02 states: *"...as the leader, as the CEO, you have to take accountability from end to end"*, while IN04 supports this: *"...as sponsor to the project, making sure that... we have the right cadence and the right delivery."*

IN03 notes that the level of project involvement and influence matters for effective sponsorship: *"...if it's a EXCO level, how involved are they, or if it's ops level? How much influence do they have?"* Sponsorship buy-in and alignment is required, as IN04 notes: *"...at the executive level there's full alignment of what is signed off... everyone views that count, executive sponsor, sign off and absolute clarity on what the trade-offs are..."*

IN05 highlights the sponsor as the most significant role and champion: *"...possibly the most significant role is you need a champion... that owns it"*, further supporting IN03's views on sponsor influence: *"...he's got to have credibility amongst his team... the knowledge... the necessary skills and then you've got to empower them..."*

IN01 shared challenges in not having the right client subject matter expertise on board: *"...a lot of the subject matter experts... we're not the right people..."* A lesson learned was to insist on getting these experts allocated: *"...to be much harder on insisting on the subject matter specialists or experts... Definitely make sure that the right people from business are there"*, emphasizing the importance of the right people in the right roles: *"...you put your best people on the project..."*

IN01 also noted the importance of the right team makeup for the delivery team: *"...too many people that haven't worked together... which make it more challenging..."* IN05 highlighted alignment and clear responsibilities as key success dimensions: *"...the biggest factor in project success is making sure everyone's aligned on who's got which roles..."* This often requires educating stakeholders: *"...educate the top people in the business on what they're buying..."* IN02 urged early definition and assembly of the team: *"...define your team players... as early as possible"* and *"...assemble your team as early as possible..."*

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4.3.3. OTHER SUCCESS DIMENSIONS

Business and Value Cases

Other than the Davis defined themes in the previous section, other prominent themes had been identified. Business and value cases were often discussed when success dimensions were prompted and often interlinked with the definition theme in substantiating the requirement for DTP's within organisations aligning with Shenhar *et al.* (2001) Business success and preparing for the future dimensions.

IN01 links project success to the business case and organizational goals: *"Let's start with the business case. Then you can break that down into leading and lagging indicators"*, which can be measured. IN05 echoes this: *"...at the beginning of the project, someone articulated a value case..."* IN03 emphasizes the importance of "the Why" for change to happen: *"...people need to understand the why. Why? Why is the change happening?"*

DTP's deliver value in various ways. For IN01, it was about replacing aged technology to mitigate risk, enable better governance, efficiency, and standardization. For IN04, it was about using technology to unlock efficiencies and replace manual processes: *"revolutionize it, simplify it, reduce workload..."* leading to time savings, increased control, and better insights. Having a business case tied to business goals is highly important. The DTP should enable the business to achieve its goals better, and the business case should clarify this link.

In IN05's case, the technology realized cost savings, efficiencies, and eliminated inaccurate data: *"...the overtime... to get people to process POD's all night, it was a massive number..."* The strong value case protected against unforeseen negative project impacts: *"...the value that was achieved way outstripped any shortcomings..."* IN05 noted the importance of aligning the business case with the customer journey to deliver value to the correct stakeholders: *"...it was all about customer journeys... in the retail framework."*

IN05 further elaborated that the business case was well articulated and that the expected benefits were understood. An important aspect of the business/value case is that it should often be revisited during and after the project lifecycle; *"this particular retailer does go back to that very case and assesses whether they're actually getting that value."*

IN05 closing off the business case conversation and emphasising the SMSG's focus on the product success feeding into project management success criteria with the challenge it brings; *"So it does start with the value. And there should always be checkpoints against value. And it's difficult. And I see that everywhere. So yeah, my thinking is, have the value conversation. So that's a critical success topic".*

Methodology

In the modern era, methodology, especially Agile is a popular term in Project Management and the SMSG shared their experiences of methodology during the interviews.

IN01 believes Agile cannot handle the complexity of ERP projects: *"I still think waterfall works best. Agile can't handle the complexity..."* The release of these projects is systematic and often in parallel with the replacement system: *"...the ideal way is the simplest way is the Big Bang. You put it all live from, but there's just too risky."* IN03 adopted a hybrid approach: *"we strive for agile, but... still need to adopt some traditional components..."* noting client readiness and project complexity as factors: *"...not all of our clients are ready for true agile"* and *"...the very nature of the projects doesn't allow for it to be fully agile."*

IN02 emphasised achieving a minimum viable product quickly: *"getting to a minimal viable product and showing that it does work, testing, retesting, refining it..."* while appreciating a tailored methodology: *"...what can be done very quickly in the very agile sort of lean methodology... and trying to marry that with perhaps a traditional project management approach."*

IN04 noted Agile's use for fuzzy outcomes in DTP's: *"Agile is now used... where you don't know the real solution... but you build it as you go along and you find the solutions as you move along."* IN05 highlighted the importance of team experience when using Agile: *"...we're saying, we'll define each sprint as we go. We've got an end stage... we confident we'll get it done for the price by the end of projects, just through experience..."*

In agreement with Iriarte and Bayona (2020), the SMSG supports a stance that one size does not fit all, and tailoring methodologies to the project requirements is necessary to deliver projects successfully.

Business Processes

In IN01's opinion, business processes took a more significant role than often considered in DTP's, especially in large, complex ERP projects. They noted: *"...the project won't solve your standardisation problem, that is a technology agnostic problem...It's never the technology's problem..."* highlighting that DTP's must deal with more than just implementing new technology. IN01 further stated: *"...the value is disproportionately assigned to the technology when it's actually the process."*

DTP's approach is emphasised. IN01 suggests resolving business process tensions before technology implementation could lead to better outcomes: *"...sort out all the tensions or all the problems on the business process and people side of things... the better you do that before, the faster you can be with the technology portion..."* IN04 shares this sentiment: *"Know what your processes should be and whether there needs to be an organizational transformation."*

When business processes are streamlined and optimized, IN04 believes technology can be hardwired to them: *"Technology is merely an instrument... technology shouldn't dictate it. There should be an overall business process or performance enhancement... and then technology needs to come support that..."* IN03 supports this view: *"We changed those processes completely... it became a lot more proactive... it's ultimately all those components that yielded*

the savings. If it was just a case of putting the tools in without, changing the underlying processes your ability to extract the value... is dramatically diminished."

Supporting the literature findings of Markus (2004) where Technochange management solutions includes both new IT applications and complementary organizational changes.

Change Management

From a SMSG perspective the criticality of, and the challenges that change management poses were often highlighted. IN03 noted; *"Change management is critical, and it's your most significant risk factor, in fact, if not done correctly, detrimental to achieving your transformation objectives"*. They go on to note that the receiving organisations are often ill prepared for the change DT brings about and poses a risk; *"There is generally not a high awareness of the need for change management. And that component of the project is underestimated and as a result underestimate how much effort and focus is needed to actually bring about their true change"*.

IN04 highlights factors of resistance being the perception of; *"it's gonna challenge my role, my job, my livelihood"*

Change management in DTP's often deals with legacy issues, as IN01 notes in their ERP project: *"...decades of undocumented bad habits that needed to be sorted out..."* Adoption challenges arise with complex ERP systems: *"...it takes time to get the adoption right... not everything is driven by a strict process, a lot of this is behavioural based."* Finding the balance between adapting people to technology or vice versa appeared to be a challenge: *"...adapt the people do the system as far as possible... If you're too strict... everybody will run everything in Excel and spreadsheets around the system..."* Understanding the business and its processes was mentioned as crucial factor: *"...important to understand when it is right to do the customisation or to do the exception."* IN03 substantiates the natural human resistance to change: *"...the people are the most complex, the process is secondary."*

Change considerations influence the approach taken: *"...not try to drink the "cool-aid" all at once. Don't approach it in that all of this can be done in six months..."* Poor change management can have negative consequences: *"...dare not start up with a large team and drop-down costs... the large team is too expensive..."* IN01 suggests a longer view: *"...do my bigger technology projects sooner... have a smaller team that were over a longer period of time."*

IN03 noted increased success when the delivery team has the right level of control within change management: *"The ability to really change processes ourselves and be in control of training the teams... definitely added to the success..."* Accountability was needed on both sides: *"There needs to be accountability across the teams that deliver and a shared responsibility."*

IN05 emphasised understanding the scope of change and the misperception of the SMSG: *"...from the start be very clear about scope, and requirements... senior people in the business don't have a clear understanding of what they've bought."* They stress implementing change when needed: *"...if people need to be changed, change. If the suppliers need to be changed, change. People are scared to change when they can see it's going wrong..."*

4.3.4. PROJECT SUCCESS DIMENSIONS AND CHALLENGED DIMENSIONS

As part of the coding exercise, the themes were co-coded with 'project success dimensions', where there was a positive connotation to the success dimension and coded as 'project challenges' where the success dimension had a negative connotation, or as being perceived to have posed challenges in being achieved. Table 13 below shows the number of coding occurrences in each category and the ranking in each category as indicator or importance as success dimension, and success dimension with challenges from a SMSG perspective.

Table 13 Project Success Dimensions and Challenges - Coding Frequency

Themes	● Project Challenges	● Project Success Dimensions	● Project Challenges Ranking	● Project Success Dimensions Ranking
● Personnel Skills and Issues	2	28	7	1
● Client/Customer Specific	0	16	11	2
● Communication	3	14	5	3
● Systems	4	10	8	5
● Organizational Characteristics	1	10	4	4
○ Change Management	6	6	12	8
● Benefits to Stakeholder Group	0	6	13	6
● Business Case	0	6	2	7
● Meeting Expectations	1	5	9	9
● Time/Cost/Quality	5	3	3	10
○ Methodology	1	2	10	11
● Technical Aspects	7	1	1	12
○ Business Processes	2	1	6	13

The Personnel Skills and Issues theme emerged as the most significant dimension influencing project success, ranked as no. 1 project success dimension with twenty-eight (28) instances linked to success dimensions and two (2) instances related to project challenges. This underscores the critical role of team competencies and interpersonal dynamics in project outcomes.

The Client/Customer Specific theme with Customer-related factors was mentioned in sixteen (16) instances, ranked as 2nd from a success factor code occurrence perspective and had no connotations to posing a challenge in the context of project success discussion.

The communication theme posed challenges in three (3) instances and was predominantly without challenges in fourteen (14) instances. It was ranked 3rd from a success dimension code occurrence perspective and highlighted its dual role in project management.

The Organizational Characteristics theme was noted as a challenge in one (1) instance and a success dimension in ten (10) instances, indicating their importance in supporting project achievements.

The Systems theme was cited in four (4) instances as a challenge and ten (10) instances as a success dimension, ranking as 4th out of thirteen (13) identified themes on the challenges ranking, indicating that challenges are often incurred when aiming to achieve successful outcomes in this dimension.

The Benefits to Stakeholder Group and Business Case themes both did not have instances as challenges. However, they were acknowledged in six (6) instances each concerning project success, emphasizing the importance of aligning projects with stakeholder interests and a solid business justification.

Interestingly, Change Management was equally cited in six (6) instances as both a challenge and a success dimension and ranked 2nd from a challenge perspective, indicating its complex nature in projects.

Meeting expectations was a minor theme, with one (1) instance as a challenge and five (5) instances as a success dimension, suggesting it is a less frequent but relevant consideration.

Notably, the traditional project metrics like time, cost, and quality theme appeared in more instances as a challenge than without challenges, in five (5) instances as being challenged in

achievability and three (3) instances as success dimension without challenges, ranking 3rd as a challenge and lowly in the success dimension ranking, indicating the complexity to maintain the balance of the three factors and a shift in how success is measured.

Methodology and Business Processes: These operational aspects were infrequently cited as success dimensions, with methodology appearing in one (1) instance as a challenge and in two (2) instances as a success factor, and business processes noted in two (2) instances in each category. From the earlier discussions, although these are, in most cases, not directly classified as a project success dimension, they can increase the success rate if considered from a holistic business and portfolio management perspective.

Technical Aspects were the most cited challenges with seven (7) instances and ranked as 1st from the perspective of a challenge. The least cited success dimensions without challenges with one (1) instance only highlight a significant area of concern for project delivery and DTP's' complexity.

These findings suggest a broader understanding of success dimensions from an SMSG perspective, encompassing personnel skills, client-specific dimensions, and communication as key indicators of project success. Communication and change management are recognized as complex themes that serve as both challenges and success factors, while technical aspects remain a predominant challenge.

4.4. DISCUSSION

The research explored how the SMSG interprets the concept of DT and Project success. The findings discuss the definition of DT and how it is interpreted. The top three (3) success dimensions and challenged success dimensions were further discussed, and finally, the research findings were compared to the Davis (2014) defined Success dimension themes other prominent emerging themes to identify areas of alignment and misalignment with the findings.

4.4.1. DEFINITION

The phenomenon known as DT, central to today's business discourse, has yet to attain a universally accepted definition. However, interconnected themes emerged from the analysis of definitions provided by the respondents. Predominantly, these views underscore the vital part that digital technologies play in transforming customer experiences, internal processes, overall business value, and operational efficiency. All definitions converged on the principle of DT beyond simple technological implementation - being a complex, strategic, and ongoing process impacting multiple business facets. Furthermore, a shared idea is necessary for organizations to adapt to an evolving digital landscape perpetually.

Despite these points of convergence, distinctive interpretations also emerged. IN01 and IN02 emphasised augmenting customer experiences and operational efficiencies through digital means, with IN01 distinctly advocating for mobile and emerging technologies. In contrast, IN03, IN04, and IN05 advocate for a more comprehensive transformation encompassing all facets, including organizational culture and structure, operational processes, and individual responsibilities. The transformation, as identified by IN03 and IN05, should also include operational sustainability. Meanwhile, IN04 advocated for a complete organizational overhaul to increase efficiency.

Further adding to the discourse, IN04 distinctly emphasised the dynamic nature of DT, positing it as an ongoing journey with no definitive endpoint. This attests to the continuous need for adaptation and re-evaluation in an ever-evolving technological landscape.

In conclusion, the definition of DT according to the SMSG can be categorised into four key themes.

1. Business Benefits and Efficiencies
2. Organisational Change and Transformation

3. Client Centricity

4. Ongoing Initiatives

While the definitions provided by the respondents collectively convey a profound operational shift powered by digital technologies, there is no singular unified perspective. Each contributes uniquely to understanding how this shift can be strategically implemented. Therefore, the multifaceted nature of DT, extending beyond mere technological adoption and touching every aspect of an organization while promoting continuous evolution, makes it challenging to constrict within one universally embraced definition.

4.4.2. PROJECT SUCCESS DIMENSIONS

As highlighted by the SMSG in their interpretation of DT, the all-encompassing and transformative nature of DT brings about additional complexity and dynamics when managing DTP's. This research themed the codes to Davis (2014) success dimensions and other prominent emerging themes.

The research findings indicated that the top recurring themes attributed to project success were i) Personnel Skills and Issues, ii) Client/Customer Specific factors and iii) Communication. The Personnel Skills and Issues theme encompasses leadership skills, competencies, experience, clear responsibilities, and sponsorship. DTP's inherently involve change, with a focus on the leadership capabilities of the sponsorship team to effectively communicate the vision and ensure that the team comprehends "the why". The challenges brought about by COVID-19, and the virtual workforce have necessitated adjustments in leadership styles for project sponsors and managers. This includes finding a balance between empathy and addressing performance concerns.

Strikingly, the SMSG had also placed a very high emphasis on the importance of strong sponsorship and had rarely discussed the importance of the project manager role, but had

much emphasis on the sponsorship role, the importance of the sponsor to have the understanding required to lead the team, to be in a decision-making position, to act as the change agent in the receiving organisation to set the basis for a successful project.

Team composition was also highlighted to include the correct subject matter experts and have the correct make-up of experience and experience working together as a team. The Client/Customer Specific theme included Market share, ROI, Customer journey, system uptime, insights and automation, and feedback. The SMSG placed high emphasis on understanding the customer journey, especially the respondents involved with product development and again ensuring that the ownership of the customer's journey sits within the sponsor organisation. The SMSG also noted the importance of ROI and growth in market share, which runs beyond the project lifecycle and into the product lifecycle and benefits realisation stages.

The Communication theme emphasised the importance of effective information-sharing strategies for the success of projects. They were identified as regular updates, expectation management, and collaborative efforts as critical components of successful communication. Keeping all stakeholders aligned with project goals through continuous dialogue being a critical aspect. Maintaining two-way communication channels and adapting messages to different stakeholders requires various communication methods. Challenges in this area included difficulties in coordination among diverse team members and managing the expectations of the SMSG with often limited time and the requirement for varying levels of engagement. The section suggests that clear, consistent, and purposeful communication can significantly influence project outcomes and stakeholder satisfaction.

The research findings indicated that the top recurring challenged project success dimensions are i) Technical Aspects, ii) Change Management, and iii) Time/Cost/Quality. The technical aspects were most associated with challenges in DTP's. This included the early oversimplification of the project requirements to get it off the ground and deal with the organisation's poorly implemented and outdated systems, processes, and procedures.

One respondent described change management as the most significant risk to DTP's and the transformation objectives. DTP's encounter change in various aspects, such as dealing with legacy issues that need modification, steering the organization into a new direction through ongoing projects, and managing individuals who may resist changes due to uncertainties about how project technology might affect their jobs. The SMSG also noted organisations' frequent lack of preparedness to deal with the changes brought by DTP's. It emphasised that this substantial change would impact the project approach and stressed making necessary adjustments to enable successful outcomes.

In DTP's, the already challenging iron triangle measure of time, cost, and quality seem more difficult due to the increased uncertainty, complexity, and change. Some respondents indicated that this particular KPI was not used on their projects, whereas those implementing it had difficulty attaining the balance. As one respondent noted, *"As you probably know yourself - it's not a proportionate scale between time and cost, and quality is non-negotiable."*

4.4.3. COMPARISON OF FINDINGS WITH PM-DEFINED SUCCESS FACTOR THEMES

The table below compares the findings from this research to the PM-defined success factor themes from Davis (2014) and identifies areas of alignment, partial alignment and no alignment. The table indicates a "Yes" where the majority of the SMSG identified with the PM-defined success factor theme. "Partial" where the minority of the SMSG identified with the PM-defined success factor theme. "Partial, challenged" was where the minority of the SMSG identified with the PM-defined success factor theme, and the identification was primarily associated with challenges.

Table 14 Davis (2014) PM Defined Success Factors Compared with Research Findings

			Senior Management Stakeholder Group (Davis, 2014)			Senior Management Stakeholder Group Alignment (from this research)
#	Success Factor Theme	Project Manager	Sponsor	Owner	Executive	
1	Cooperation/ collaboration/ consultation/ communication	Yes		Yes		Yes
2	Time	Yes	Yes			Partial, challenged
3	Identifying/agreeing objective / mission	Yes			Yes	Yes
4	Stakeholder satisfaction (quality)	Yes				Yes
5	Make use of the finished product/acceptance	Yes				Partial
6	Cost / budget	Yes				Partial, challenged
7	Project manager competencies/focus	Yes	Yes			Partial
8	Project delivering the strategic benefits	Yes	Yes			Yes
9	Top management support / executive commitment	Yes			Yes	Yes

Davis (2014) original comparison results found no alignment between the PM and the SMSG for the categories;

- Stakeholder satisfaction (quality)
- Make use of the finished product/acceptance
- Cost/budget

This research had different alignment variances in that there were no categories with no alignment to the PM-defined success factor themes. However, there were four with partial alignment categories and none without alignment in Davis (2014) study.

The research reflected that the SMSG is concerned with the use of the finished product or acceptance by the client as a project success dimension, with several discussions of the customer journey, alignment and final product issues troubleshooting highlighted by some of the SMSG participants. The Cost/budget dimension, as mentioned in the previous sections, had more challenges than not. Cost/budget was deemed essential and deemed a success dimension by some of the SMSG. However, others indicated that cost/budget would often be a secondary consideration to the other Iron Triangle measures of time and quality. The time theme had the same challenge as cost/budget, which some had deemed a success dimension, but not all.

Finally, the SMSG often focused on the sponsor role and the importance of the role of the sponsor under the Personnel skills and issues theme, with indirect inference to the Project manager competencies/focus as a success dimension and hence indicated as partial alignment. Quality was deemed the highest priority among the iron triangle aspects; therefore, 'Stakeholder satisfaction (quality)' was a success dimension across the SMSG participants.

Comparing the research findings with the PM-defined success dimensions from Davis (2014) highlighted some differences. Starting with the areas of alignment, the SMSG is in alignment with 'Top management support / executive commitment'; the research showed the high importance the SMSG places on personnel and skills and a strong emphasis on the role of the sponsor. The Business Case theme emphasised the alignment with the 'Project delivering the strategic benefits' theme, and the communication theme discussed earlier in this chapter aligns with the 'Cooperation/ collaboration/ consultation/ communication' theme. The research theme of Systems highlights the importance of early alignment and the proper order and approach to align with the 'Identifying/agreeing objective/mission' theme. Lastly, stakeholder satisfaction (quality) is aligned with the SMSG and focuses on a customer-focused approach.

Themes of partial alignment included the 'Time' and the 'cost/budget' themes. As discussed in the earlier section, these were noted by the SMSG to be challenged and would indicate room for improvement from a PM perspective. Other areas of partial alignment included that of 'Make use of the finished product/acceptance'; not all SMSG had placed emphasis on these, and the SMSG involved in product development had noted these as necessary, inferring that the PM should be aware that some success dimensions are dependent on the project type. The last theme of partial alignment was that of 'Project manager competencies or focus'; although not directly called out by the SMSG, it was indirectly inferred from the Personnel skills and issues theme.

4.5. SUMMARY

The chapter presented the research results, discussions, and findings of this research study. This chapter presents the data obtained from the semi-structured interviews in the results section. The results were discussed, and the findings were presented. The following chapter presents the conclusion and recommendations.

5. CONCLUSION AND RECOMMENDATIONS

5.1. INTRODUCTION

This research study explored the SMSG interpretation of DT and the dimensions of their perceived project success in DTP's. The study aimed to identify areas of alignment and misalignment between the various perspectives and the project manager-defined success dimensions documented in the existing literature. A comparison of findings from the literature and the responses from participant interviews was made using a two-pronged approach, which led to the findings.

5.2. SUMMARY OF FINDINGS

The first research objective was to Explore the definition of DT from an SMSG perspective in the Digital Projects environment.

The findings revealed that the SMSG's understanding of DT encompasses four key themes. The first was business benefits and efficiencies, aligning with Gong and Ribiere (2021), who emphasised that DT should create value across several levels of the organisation.

Organisational change and transformation was the second theme, aligning with the literature on the multifaceted aspects leading to substantial alterations within an organisation's structure, operations, processes, and models (Hess *et al.*, 2016; Clohessy *et al.*, 2017) and being a transformative process that seeks to augment an entity by initiating substantial modifications to its attributes (Vial, 2019)—the Client-centricity theme aligned with Nandico (2016), who highlighted the criticality of enhancing customer value. The literature noted that DT is more than a mere step-change in technology; it embodies a series of strategic renewals and transformations implemented to create value across several levels within various entities (Gong and Ribiere, 2021), supporting the theme of ongoing initiatives. This multifaceted interpretation supported by the literature highlights the transformative nature of DT, extending beyond mere technological adoption to impact every aspect of an organization while promoting continuous

evolution. Finally, the multi-faceted nature of DT and broad categorisation were evident in the participant's feedback, supporting the fact that DT lacks a unified interpretation (Morakanyane *et al.*, 2017).

The second research objective was to determine the project success dimensions from an SMSG perspective on DTP's.

The research categorised success dimensions according to success dimensions deemed attributable to success and those most challenged in achieving success. The dimensions were summarised into the top three recurring themes attributed to project success and the top three recurring challenged project success dimensions.

The top three success dimensions, according to the SMSG, were personnel skills and issues, client/customer-specific factors, and communication. The SMSG emphasised the importance of strong sponsorship to facilitate effective communication that clearly understands the customer journey in ensuring project success. The SMSG aligns with Mahmood *et al.* (2019) in that top management's active involvement and commitment is a critical starting point to DTP success. The literature noting successful DTP's requires consideration of the interdependence and importance of both the process and the solution (Markus, 2004), emphasising the project's impact on customers, including product functionality and customer satisfaction levels (Shenhar *et al.*, 2001). Recognising the personnel skills and issues encountered during DTP's and having a customer-focused outlook with effective communication as a tool helps take the customer and key stakeholders along on the journey.

On the other hand, the top three dimensions associated with challenges to achieving project success were identified as technical aspects, change management, and the traditional iron triangle measures of time, cost, and quality. The SMSG deemed Change management to be an essential part of DTP's. This highlighted the importance of the sponsor and PM recognising the impact on people, processes, and organisational performance and working together effectively

to navigate human behavioural change aspects integral to DTP's (Barthel and Hess, 2019) and closely linked and dependant on the culture of the receptive organisation and its readiness for change (Markus, 2004). The other challenging categories were the technical aspects and the iron triangle measures of cost, time and quality. The complexity and uncertainty associated with DTP's make it more challenging to balance the iron triangle measures, often leading to prioritising a single aspect at the expense of the others. Technical aspects are attributed to the risk and uncertainty these projects face as they are navigating novel and uncertain areas as supported by the literature where DTP's are characterised as complex due to the involvement of multiple stakeholders, navigating novel technologies, bureaucratic processes, and political constraints (Rodríguez *et al.*, 2016).

Considering these findings, the SMSG has a more holistic and strategic perspective and focused on product success rather than project management success, which relates to the control factors, focused on the effectiveness aspects and “doing the right things” rather than an isolated view of only “doing things right” (Drucker, 1966). Supporting the literature that project success with a multi-dimensional perspective, considering both project management and product or outcome success, offers a more comprehensive evaluation of the project impact.

The final research objective was to identify the similarities and differences in project success dimensions between the PM-defined lists and SMSG-perceived dimensions.

Comparing the research findings with the project manager-defined success factors from Davis (2014) revealed areas of alignment with the literature findings of Cooperation/ collaboration/ consultation/ communication, Identifying/agreeing objective/mission, Project delivering the strategic benefits and Top management support / executive commitment. However, areas of partial alignment and challenged themes highlight potential PM and SMSG misalignment. These areas include Stakeholder satisfaction, making use of the finished product, and PM competencies. Challenged themes included time and cost, which is a significant aspect of traditional project management methodologies and identifies a challenged aspect of DTP's.

5.3. IMPLICATIONS

The research study has contributed to the understanding of project success in DTP's by providing valuable insights from the perspective of the senior management stakeholder group. The study's findings offer practical implications for organizations undertaking DT initiatives. One of the research's key outputs is identifying the success dimensions for DTP's, as perceived by the SMSG. These success dimensions are critical for ensuring alignment between the key stakeholder group of the SMSG and the PM.

Another meaningful contribution is the study's comparative analysis of the SMSG's insights with the existing literature on project success dimensions. This analysis revealed that many of the success factors identified by the SMSG align with previous research findings, validating the importance of these factors in the context of DTP's. However, the research also highlights the challenged dimensions.

5.4. RECOMMENDATIONS FOR FUTURE RESEARCH

Given these findings, it is recommended that organizations embarking on DTP's consider the following factors to enhance the opportunities to achieve success:

- **People-related factors:** Organizations should focus on having the right team makeup with good leadership to ensure the project's success. With the added complexity and change management, Jim Collins' popular business principle of "First Who, Then What" principle is relevant. Articulated in their book *Good to Great*, the importance of prioritizing the selection of the right team members before determining the strategic direction of an organization, or in this case project is emphasised. Collins argues that having the right people in the right roles is crucial for adaptability and long-term success, as these individuals are inherently motivated and capable of navigating uncertainties and changes in direction (Collins, 2009). This principle is particularly relevant in project management, where the dynamic nature of projects often requires

an adaptable and competent team to achieve success. By focusing on “who” first, project leaders can ensure that their teams are well-equipped to handle the “what” that follows, thereby enhancing the opportunities of achieving project success.

- Effective project management: Organizations should ensure practical project management structure and governance are in place, to ensure adequate support from top management.
- Requirements and specifications: Organizations should have precise requirements and specifications, as well as a clear objectives, goals, and scope for the project.
- Effective communication and feedback: Organizations should ensure that effective communication and feedback channels are in place to keep all stakeholders informed and engaged throughout the project, especially between the PM and the Sponsorship team.
- Timing: Organizations should understand the existing processes before making changes and ensure that the order of initiatives is well planned through programmes and portfolios of work rather than approaching DTP’s as standalone or ad-hoc initiatives.
- Process analysis: Organizations should focus on process changes and ensure adequate management of change.
- Strategic alignment: Organizations should clearly understand the scope and requirements from the start and get visibility from all stakeholders to ensure that the project is aligned with business objectives.
- Project sponsorship: Organizations should have strong sponsorship and leadership with clear direction at a senior stakeholder level to ensure the project is successful.
- Project methodology: Organizations should tailor the appropriate development processes and methods best suited to the project and organization.

During this research, several intriguing aspects emerged that were not fully explored within the scope of the study. These unexplored areas present opportunities for future researchers to delve deeper and uncover new insights that could further enhance understanding of success

dimensions in DTP's. One such aspect that stood out was the potential impact of organizational culture on the success of DTP's. While the study touched on the importance of having a committed and motivated team and strong leadership, it did not extensively investigate how an organization's overall culture and values might influence the outcome of these initiatives. Opportunities to examine how factors such as openness to change, risk tolerance, and innovation mindset could shape an organization's ability to navigate the complexities of DT successfully.

Another area that stimulated interest but was not fully explored in this study was the role of technology itself in driving DT success. While the research emphasised the importance of aligning projects with business objectives and ensuring effective project management, it did not delve deeply into how the choice of specific technologies or platforms might impact the initiative's overall success. Future researchers could investigate how factors such as technology maturity, scalability, and interoperability could influence the outcomes of DTP's.

Additionally, the study hinted at the potential significance of external factors, such as market conditions and competitive landscape, in shaping DT success. However, these external influences were not comprehensively examined within the scope of this research. It would be valuable for future studies to explore how factors such as industry trends, customer expectations, and regulatory environments could impact the success of DT initiatives and how organizations can effectively navigate these external pressures.

Furthermore, while the study highlighted the importance of effective communication and feedback channels, it did not fully unpack the nuances of stakeholder engagement and collaboration in DT. Future researchers could investigate how different stakeholder groups, such as customers, employees, and partners, can be effectively involved and engaged throughout the DT journey and how their input and participation can contribute to project success.

Finally, the study touched on the significance of choosing the proper project methodology but did not analyse how different methodological approaches might be best suited for other DT initiatives. Future research could explore the relative merits and drawbacks of various project management frameworks, such as Agile, Waterfall, or hybrid approaches, in the specific context of DT and guide how organizations can select the most appropriate methodology based on their unique needs and circumstances.

In conclusion, while this study made strides in illuminating the success dimensions for DTP's, it also revealed several promising avenues for future exploration. By diving deeper into areas such as organizational culture or technology choices and others, researchers can continue to build upon the foundation laid by this study and provide even more comprehensive and nuanced insights into what it takes to navigate the complex landscape of DT successfully.

5.5. RESEARCH LIMITATIONS

While providing valuable insights, this research study also had essential limitations to acknowledge and consider. One notable limitation of the study was the relatively small sample size of SMSG participants. While the research aimed to gather rich, qualitative data through in-depth interviews, the limited number of participants may not fully represent the diverse range of perspectives and experiences within the SMSG community. A larger sample size could have provided a more comprehensive and generalizable understanding of the success dimensions identified in the study.

Another limitation was the potential for bias in the participant selection process. The study relied on purposive sampling, which involves selecting participants based on specific criteria relevant to the research objectives. While this approach ensures that the participants have the necessary experience and expertise to provide meaningful insights, it also introduces the risk of selection bias. It is possible that the participants who were willing and available to participate in

the study may not fully represent the broader SMSG population, potentially skewing the results.

The study also focused specifically on the perspectives of the SMSG, which, while valuable, does not provide a complete picture of all the stakeholders involved in DTP's. The research did not extensively explore the viewpoints of other key stakeholders, such as project managers, team members, customers, or external partners. Incorporating the insights and experiences of these additional stakeholder groups could have provided a more holistic understanding of the success factors and challenges associated with DT initiatives.

Furthermore, the research relied heavily on self-reported data from the SMSG participants. While the participants' first-hand experiences and perceptions are invaluable, there is a risk of subjectivity and potential biases in their responses. Participants may have consciously or unconsciously emphasised certain factors or experiences while downplaying others based on their perspectives and recollections. Incorporating additional data sources, such as project documentation or objective performance metrics, could have helped to triangulate the findings and mitigate the limitations of self-reported data.

Another limitation of the study was its cross-sectional nature, meaning that data was collected at a single point in time. DTP's are often complex and lengthy endeavours, and the success factors and challenges may evolve throughout the project lifecycle. A longitudinal study, which follows DTP's over an extended period, could provide a more dynamic and comprehensive understanding of how success factors and challenges unfold and interact over time.

Lastly, while the study aimed to explore the success factors of DTP's in general, it is crucial to recognize that each organisation and project's specific context and characteristics can vary widely. Factors such as industry, organizational size, culture, and technological maturity may influence the relevance and applicability of the identified success factors. The study's findings

should be interpreted and applied while considering the unique context of each organization and project.

5.6. CONCLUDING REMARKS

The essence of this research study was to investigate project success dimensions and shed light on the vital factors that contribute to the success of DTP's, specifically from the viewpoint of the senior management stakeholder group. By delving into the rich, qualitative data from SMSG participants, the study has uncovered insights that can serve as a guide for organisations embarking on DT initiatives. The research has accentuated the critical role of people-related factors, such as having a committed team and proper skills. It has underscored the importance of clear requirements, specifications, and objectives and the power of effective communication and feedback channels in keeping all stakeholders engaged and aligned. The study has also highlighted the significance of timing and selecting the appropriate project methodology, among others, in navigating issues.

Furthermore, the research has confirmed the relevance of existing project success theories and shed light on additional factors that may have been overlooked in previous studies. By bringing the unique perspective of the SMSG to the forefront, this study has enriched the understanding of what it takes to navigate the DT landscape successfully. However, as with any research endeavour, this study has limitations such as a small sample size and single focus. Therefore, opportunities for future researchers to build upon and expand the findings of this study present themselves.

Despite these limitations, the insights gleaned from this research have far-reaching implications for organizations striving to thrive in the digital age. By considering and applying the success factors identified in this study, organizations can increase their chances of successfully navigating the complexities of DT. The study also catalyses further exploration and discovery in

DT. As researchers and businesses alike navigate the uncharted waters of the digital age, studies like this one serve as a beacon for pushing further discoveries.

REFERENCES

- Abrahamsson, P., Warsta, J., Siponen, M.T. and Ronkainen, J. (2003) New directions on agile methods: a comparative analysis. In, *25th International Conference on Software Engineering, 2003. Proceedings.* Ieee, 244-254.
- Ahmed, R., Azmi, N., Masood, M., Tahir, M. and Ahmad, M.S. (2013) What does project leadership really do. *International Journal of Scientific & Engineering Research*, **4**(1), 1-8.
- Alami, A. (2016) Why do information technology projects fail? *Procedia Computer Science*, **100**, 62-71.
- Alderman, N. and Ivory, C. (2011) Translation and convergence in projects: An organizational perspective on project success. *Project Management Journal*, **42**(5), 17-30.
- Atkinson, R. (1999) Project management: cost, time and quality, two best guesses and a phenomenon, its time to accept other success criteria. *International journal of project management*, **17**(6), 337-342.
- Baccarini, D. (1999) The logical framework method for defining project success. *Project management journal*, **30**(4), 25-32.
- Barber, E. (2005) Leadership in project management: from firefighter to firelighter. *Management Decision*, **43**(7/8), 1032-1039.
- Barthel, P. and Hess, T. (2019) Are Digital Transformation Projects Special? In, *PACIS*, 30.
- Beck, K., Beedle, M., Van Bennekum, A., Cockburn, A., Cunningham, W., Fowler, M., Grenning, J., Highsmith, J., Hunt, A. and Jeffries, R. (2001) The agile manifesto. In: The Agile Alliance, www.agilemanifesto.org.
- Belassi, W. and Tukel, O.I. (1996) A new framework for determining critical success/failure factors in projects. *International journal of project management*, **14**(3), 141-151.
- Benzerga, S., Hauf, D., Pretz, M. and Bounfour, A. (2017) When energy revolution meets digital transformation. In, *International Conference on Intelligent Decision Technologies*. Springer, 65-81.
- Berghaus, S. and Back, A. (2017) Disentangling the fuzzy front end of digital transformation: Activities and approaches. In. Association for Information Systems.
- Besson, P. and Rowe, F. (2012) Strategizing information systems-enabled organizational transformation: A transdisciplinary review and new directions. *The journal of strategic information systems*, **21**(2), 103-124.

- Bharadwaj, A., El Sawy, O.A., Pavlou, P.A. and Venkatraman, N. (2013) Digital business strategy: toward a next generation of insights. *MIS quarterly*, 471-482.
- Boehm, B.W. (1988) A spiral model of software development and enhancement. *Computer*, **21**(5), 61-72.
- Brooks, F. and Kugler, H. (1987) *No silver bullet*. April.
- Brown, N. and Brown, I. (2019) From digital business strategy to digital transformation-How: A systematic literature review. *Proceedings of the South African Institute of Computer Scientists and Information Technologists 2019*, 1-8.
- Bryman, A. and Cramer, D. (2012) *Quantitative data analysis with IBM SPSS 17, 18 & 19: A guide for social scientists*. Routledge.
- Chanias, S. and Hess, T. (2016) Understanding Digital Transformation Strategy formation: Insights from Europe's Automotive Industry. *PACIS*, **296**.
- Chanias, S., Myers, M.D. and Hess, T. (2019) Digital transformation strategy making in pre-digital organizations: The case of a financial services provider. *The Journal of Strategic Information Systems*, **28**(1), 17-33.
- Clohessy, T., Acton, T. and Morgan, L. (2017) The impact of cloud-based digital transformation on IT service providers: evidence from focus groups. *International Journal of Cloud Applications and Computing (IJCAC)*, **7**(4), 1-19.
- Cockburn, A. and Highsmith, J. (2001) Agile software development, the people factor. *Computer*, **34**(11), 131-133.
- Collins, J. (2009) Good to Great-(Why some companies make the leap and others don't). In: SAGE Publications Sage India: New Delhi, India.
- Cooke-Davies, T. (2002) The "real" success factors on projects. *International journal of project management*, **20**(3), 185-190.
- Correani, A., De Massis, A., Frattini, F., Petruzzelli, A.M. and Natalicchio, A. (2020) Implementing a digital strategy: Learning from the experience of three digital transformation projects. *California Management Review*, **62**(4), 37-56.
- Creswell, J.W. (2009) *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. SAGE Publications.
- Crossan, F. (2003) Research philosophy: towards an understanding. *Nurse Researcher (through 2013)*, **11**(1), 46.
- Davis, K. (2014) Different stakeholder groups and their perceptions of project success. *International Journal of Project Management*, **32**(2), 189-201.

- Davis, K. (2016) A method to measure success dimensions relating to individual stakeholder groups. *International Journal of Project Management*, **34**(3), 480-493.
- De Wit, A. (1988) Measurement of project success. *International Journal of Project Management*, **6**(3), 164-170.
- Drucker, P. (1966) The effective manager. *Organization*, **1**, 2.
- Duhigg, C. (2012) *The power of habit: Why we do what we do in life and business*. Vol. 34, Random House.
- Easterby-Smith, M., Thorpe, R. and Jackson, P.R. (2012) *Management research*. Sage.
- Ebert, C. and Duarte, C.H.C. (2018) Digital transformation. *IEEE Softw.*, **35**(4), 16-21.
- Fernandes, G., Ward, S. and Araújo, M. (2013) Identifying useful project management practices: A mixed methodology approach. *International Journal of Information Systems and Project Management*, **1**(4), 5-21.
- Flyvbjerg, B. (2013) Over budget, over time, over and over again: Managing major projects.
- Flyvbjerg, B. and Budzier, A. (2013) Why your IT project might be riskier than you think. *arXiv preprint arXiv:1304.0265*.
- Fonstad, N.O. and Robertson, D. (2006) Transforming a company, project by project: The IT engagement model. *MIS Quarterly Executive*, **5**(1).
- Freeman, M. and Beale, P. (1992) Measuring project success. *In*. Project Management Institute.
- Gale, M. and Aarons, C. (2018) Digital transformation: delivering on the promise. *Leader to Leader*, **2018**(90), 30-36.
- Gong, C. and Ribiere, V. (2021) Developing a unified definition of digital transformation. *Technovation*, **102**, 102217.
- Group, S. (2015) *Chaos Report* [Online]. Available: https://www.standishgroup.com/sample_research_files/CHAOSReport2015-Final.pdf.
- Grundy, T. (1998) Strategy implementation and project management. *International Journal of Project Management*, **16**(1), 43-50.
- Guba, E.G. and Lincoln, Y.S. (1994) Competing paradigms in qualitative research. *Handbook of qualitative research*, **2**(163-194), 105.
- Guest, G., Namey, E.E. and Mitchell, M.L. (2013) *Collecting qualitative data: A field manual for applied research*. Sage.

- Haass, O. and Guzman, G. (2020) Understanding project evaluation—a review and reconceptualization. *International journal of managing projects in business*, **13**(3), 573-599.
- Haffke, I., Kalgovas, B.J. and Benlian, A. (2016) The Role of the CIO and the CDO in an Organization's Digital Transformation.
- Harison, E. and Boonstra, A. (2009) Essential competencies for technochange management: Towards an assessment model. *International Journal of Information Management*, **29**(4), 283-294.
- Henriette, E., Feki, M. and Boughzala, I. (2015) The shape of digital transformation: a systematic literature review. *MCIS 2015 proceedings*, **10**, 431-443.
- Hess, T., Matt, C., Benlian, A. and Wiesböck, F. (2016) Options for formulating a digital transformation strategy. *MIS Quarterly Executive*, **15**(2).
- Holotiuk, F. and Moormann, J. (2018) Organizational adoption of digital innovation: The case of blockchain technology.
- Hyvönen, J. (2018) Strategic leading of digital transformation in large established companies—a multiple case-study.
- Ika, L.A. (2009) Project success as a topic in project management journals. *Project management journal*, **40**(4), 6-19.
- Ika, L.A. and Pinto, J.K. (2022) The “re-meaning” of project success: Updating and recalibrating for a modern project management. *International Journal of Project Management*, **40**(7), 835-848.
- Iriarte, C. and Bayona, S. (2020) IT projects success factors: a literature review. *International Journal of Information Systems and Project Management*, **8**(2), 49-78.
- Jackson, E. (2013) Choosing a methodology: Philosophical underpinning. *Practitioner Research in Higher Education*, **7**(1), 49-62.
- Jugdev, K. and Müller, R. (2005) A retrospective look at our evolving understanding of project success. *Project Management Journal*, **36**(4), 19-31.
- Kazim, F.A. (2019) Digital Transformation and Leadership Style: A Multiple Case Study. *ISM Journal of International business*, **3**(1).
- Kerzner, H. (1987) In search of excellence in project management. *Journal of systems management*, **38**(2), 30.
- Kerzner, H. (2009) *Project Management 10th Ed+ Student Workbook+ Case Studies 3rd Ed: A Systems Approach to.* John Wiley.

- Killam, L. (2013) *Research terminology simplified: Paradigms, axiology, ontology, epistemology and methodology*. Laura Killam.
- Kraus, S., Jones, P., Kailer, N., Weinmann, A., Chaparro-Banegas, N. and Roig-Tierno, N. (2021) Digital transformation: An overview of the current state of the art of research. *Sage Open*, **11**(3), 21582440211047576.
- Kreutzer, R.T. and Land, K.-H. (2014) *Digital Darwinism: Branding and business models in jeopardy*. Springer.
- Leedy, P. and Ormrod, J. (2012) Practical research 10th ed. In: Boston, MA: Pearson.
- Lester, D.H. (1998) Critical success factors for new product development. *Research-Technology Management*, **41**(1), 36-43.
- Levitt, H.M., Bamberg, M., Creswell, J.W., Frost, D.M., Josselson, R. and Suárez-Orozco, C. (2018) Journal article reporting standards for qualitative primary, qualitative meta-analytic, and mixed methods research in psychology: The APA Publications and Communications Board task force report. *American Psychologist*, **73**(1), 26.
- Lipovetsky, S., Tishler, A., Dvir, D. and Shenhar, A. (1997) The relative importance of project success dimensions. *R&D Management*, **27**(2), 97-106.
- Mahmood, F., Khan, A.Z. and Khan, M.B. (2019) Digital organizational transformation issues, challenges and impact: A systematic literature review of a decade. *Abasyn University Journal of social sciences*, **12**(2).
- Majchrzak, A., Markus, M.L. and Wareham, J. (2016) Designing for digital transformation: Lessons for information systems research from the study of ICT and societal challenges. *MIS quarterly*, **40**(2), 267-277.
- Markus, M.L. (2004) Technochange management: using IT to drive organizational change. *Journal of Information technology*, **19**(1), 4-20.
- Matt, C., Hess, T. and Benlian, A. (2015) Digital transformation strategies. *Business & Information Systems Engineering*, **57**(5), 339-343.
- Mazzone, D.M. (2014) *Digital or death: digital transformation: the only choice for business to survive smash and conquer*. Smashbox Consulting Inc.
- McLeod, L., Doolin, B. and MacDonell, S.G. (2012) A perspective-based understanding of project success. *Project Management Journal*, **43**(5), 68-86.
- Merriam, S.B. and Tisdell, E.J. (2015) *Qualitative research: A guide to design and implementation*. John Wiley & Sons.

- Morakanyane, R., Grace, A.A. and O'Reilly, P. (2017) Conceptualizing Digital Transformation in Business Organizations: A Systematic Review of Literature. *Bled eConference*, **21**.
- Morris, P.W. and Hough, G.H. (1987) The anatomy of major projects: A study of the reality of project management.
- Müller, R. and Turner, R. (2007) The influence of project managers on project success criteria and project success by type of project. *European management journal*, **25**(4), 298-309.
- Müller, R. and Jugdev, K. (2012) Critical success factors in projects: Pinto, Slevin, and Prescott—the elucidation of project success. *International Journal of Managing Projects in Business*.
- Müller, R., Drouin, N. and Sankaran, S. (2019) Modeling organizational project management. *Project Management Journal*, **50**(4), 499-513.
- Munns, A.K. and Bjeirmi, B.F. (1996) The role of project management in achieving project success. *International journal of project management*, **14**(2), 81-87.
- Murphy, D.C., Baker, B.N. and Fisher, D. (1974) Determinants of project success.
- Nandico, O.F. (2016) A Framework to support digital transformation, *Emerging Trends in the Evolution of Service-Oriented and Enterprise Architectures*, pp. 113-138: Springer.
- Neuman, W.L. (2012) Designing the face-to-face survey. *Handbook of survey methodology for the social sciences*, 227-248.
- Noble, H. and Smith, J. (2015) Issues of validity and reliability in qualitative research. *Evidence Based Nursing*, **18**(2), 34-35.
- Ormston, R., Spencer, L., Barnard, M. and Snape, D. (2014) The foundations of qualitative research. *Qualitative research practice: A guide for social science students and researchers*, **2**(7), 52-55.
- Osmundsen, K., Iden, J. and Bygstad, B. (2018) Digital Transformation: Drivers, Success Factors, and Implications. In, *MCIS*, 37.
- Packendorff, J. (1995) Inquiring into the temporary organization: New directions for project management research. *Scandinavian journal of management*, **11**(4), 319-333.
- Palinkas, L., Horwitz, S., Green, C., Wisdom, J., Duan, N. and Hoagwood, K. (2015) Purposeful Sampling for Qualitative Data Collection and Analysis in Mixed Method Implementation Research. *Administration and Policy in Mental Health and Mental Health Services Research*, **42**(5), 533-544.
- Parviainen, P., Tihinen, M., Kääriäinen, J. and Teppola, S. (2017) Tackling the digitalization challenge: how to benefit from digitalization in practice. *International Journal of Information Systems and Project Management*, **5**(1), 63-77.

- Patton, M.Q. (1990) *Qualitative evaluation and research methods, 2nd ed. Qualitative evaluation and research methods, 2nd ed.*, Thousand Oaks, CA, US: Sage Publications, Inc.
- Peppard, J. and Ward, J. (2016) *The strategic management of information systems: Building a digital strategy*. John Wiley & Sons.
- Phillips, D.C. and Burbules, N.C. (2000) *Postpositivism and educational research*. Rowman & Littlefield.
- Pinto, J.K. and Slevin, D.P. (1988) Critical success factors across the project life cycle. In: Project Management Institute Drexel Hill, PA.
- PMBOK (2018) *A guide to the project management body of knowledge (PMBOK guide)*. 6th Edition ed. Newtown Square, Pennsylvania: Project Management Institute (PMI).
- Pollack, J., Helm, J. and Adler, D. (2018) What is the Iron Triangle, and how has it changed? *International journal of managing projects in business*.
- Pring, R. (2000) Educational research. In: Taylor & Francis, 1-9.
- Project Management Institute, P. (2014) *Navigating Complexity: A practice guide*. Project Management Institute.
- PWC, I. (2020) Artificial Intelligence impact in Project Management.
- Robinson, R.S. (2023) Purposive Sampling. In: Maggino, F. (Ed.), *Encyclopedia of Quality of Life and Well-Being Research*, pp. 5645-5647. Cham: Springer International Publishing.
- Rodríguez, A., Ortega, F. and Concepción, R. (2016) A method for the evaluation of risk in IT projects. *Expert Systems with Applications*, **45**, 273-285.
- Saunders, M., Lewis, P. and Thornhill, A. (2009) *Research methods for business students*. Pearson education.
- Sebastian, I.M., Ross, J.W., Beath, C., Mocker, M., Moloney, K.G. and Fonstad, N.O. (2020) How big old companies navigate digital transformation, *Strategic Information Management*, pp. 133-150: Routledge.
- Seymour, T. and Hussein, S. (2014) The history of project management. *International Journal of Management & Information Systems (IJMIS)*, **18**(4), 233-240.
- Shenhar, A., Dvir, D., Levy, O. and maltz, A.C. (2001) Project success: a multidimensional strategic concept. *Long range planning*, **34**(6), 699-725.
- Shift, D. (2015) Technology tipping points and societal impact. In, *World Economic Forum Survey Report*, available at: <http://www3.weforum>.

- org/docs/WEF_GAC15_Technological_Tipping_Points_report_2015.pdf* (last accessed 20.08.2018).
- Sia, S.K., Soh, C. and Weill, P. (2016) How DBS Bank Pursued a Digital Business Strategy. *MIS Quarterly Executive*, **15**(2).
- Singh, A. and Hess, T. (2017) How chief digital officers promote the digital transformation of their companies. *MIS Quarterly Executive*, **16**(1).
- Suter, W.N. (2006) *Introduction to Educational Research: A Critical Thinking Approach*. SAGE Publications.
- Taherdoost, H. (2016) Sampling methods in research methodology; how to choose a sampling technique for research. *How to choose a sampling technique for research* (April 10, 2016).
- Tomičić Furjan, M., Tomičić-Pupek, K. and Pihir, I. (2020) Understanding Digital Transformation Initiatives: Case Studies Analysis. *Business Systems Research: International journal of the Society for Advancing Innovation and Research in Economy*, **11**(1), 125-141.
- Tumbas, S., Berente, N. and Brocke, J.v. (2018) Digital innovation and institutional entrepreneurship: Chief Digital Officer perspectives of their emerging role. *Journal of Information Technology*, **33**(3), 188-202.
- Turner, J.R. and Keegan, A. (1999) The versatile project-based organization: governance and operational control. *European management journal*, **17**(3), 296-309.
- Turner, R. and Zolin, R. (2012) Forecasting Success on Large Projects: Developing Reliable Scales to Predict Multiple Perspectives by Multiple Stakeholders over Multiple Time Frames. *Project Management Journal*, **43**(5), 87-99.
- Vial, G. (2019) Understanding digital transformation: A review and a research agenda. *The journal of strategic information systems*, **28**(2), 118-144.
- Wateridge, J. (1998) How can IS/IT projects be measured for success? *International journal of project management* /, **16**(1), 59-63.
- Weill, P. and Woerner, S.L. (2013) Optimizing your digital business model. *MIT Sloan Management Review*, **54**(3), 71.
- Wertz, F.J. (2010) The method of eidetic analysis for psychology. *The redirection of psychology: Essays in honor of Amedeo P. Giorgi*, **1**, 281-300.
- Westerman, G., Bonnet, D. and McAfee, A. (2014) *Leading digital: Turning technology into business transformation*. Harvard Business Press.

- Wideman, R.M. (2002) Comparing PRINCE2® with PMBoK®. *AEW Services, Vancouver, BC, Canada*, 13-16.
- Williams, T. (2016) Identifying success factors in construction projects: A case study. *Project Management Journal*, **47**(1), 97-112.
- Willig, C. (2013) *EBOOK: introducing qualitative research in psychology*. McGraw-hill education (UK).
- Womack, J.P. and Jones, D.T. (1996) Beyond Toyota: How to root out waste and pursue perfection. *Harvard business review*, **74**(5), 140-151.
- Wrede, M., Velamuri, V.K. and Dauth, T. (2020) Top managers in the digital age: Exploring the role and practices of top managers in firms' digital transformation. *Managerial and Decision Economics*, **41**(8), 1549-1567.
- Wysocki, R.K. (2011) *Effective project management: traditional, agile, extreme*. John Wiley & Sons.
- Yin, R.K. (2003) Designing case studies. *Qualitative research methods*, **5**(14), 359-386.

APPENDIX 1 – INVITATION TO PARTICIPATE

Cover Letter



Construction Economics and Management Department

Exploring project success factors from a Senior Management Stakeholder group perspective for Digital Transformation Projects in South Africa.

Good day

By way of introduction, my name is JP Swart. I am conducting research towards a Master's degree (M.Sc) in Project Management at the University of Cape Town, Construction Economics and Management department.

The research explores the project success factors on Digital Transformation projects from a Senior Management Stakeholder group perspective for Digital Transformation projects in South Africa. Digital Projects by definition initiate, develop, implement, and exploit digital innovations aiming to advance organizational digital transformation.

I would sincerely appreciate your involvement in this research because your knowledge and experience as an expert in this area will positively contribute to the field. The research will take the form of an introduction questionnaire to understand your experience in these projects, followed by an interview conducted via Microsoft Teams and should take between 60 to 75 minutes of your valuable time.

If you accept to participate in this study, arrangements will be made at a time best suited to you for the online video interview.

APPENDIX 2 - INFORMED CONSENT

Title of Project

Exploring project success factors from a Senior Management Stakeholder group perspective for Digital Transformation Projects.

Researcher

JP Swart

The Purpose of this Research

The research explores the Senior Management stakeholder group's perception of project success for Digital Transformation Projects in South African organisations pursuing Digital Transformation.

Procedures

This interview will be conducted through prior arrangements at a time convenient to suit your schedule. It will take the form of a recorded one-on-one interview via online Microsoft Teams platform that should last no longer than 75 minutes. Signing this form constitutes informed consent for completing the instrument, an individual interview and permission to record the interview for transcription purposes digitally.

Risks

There are no anticipated risks to the participants.

Anonymity and Confidentiality

Confidentiality is assured to the participants. Your name will not be associated with the content of the interview. Publication about the findings from the study will mask the identity of the

individual. Interviews will be digitally recorded; transcripts will be prepared with names and any personal identifiers changed. Participants have the right to have the recorder turned off at any time during the interview. Digital recordings and transcripts will remain in the possession of the researcher in a password protected cloud folder.

Compensation

Participants will not receive compensation for completing the interview.

Withdrawal from Study

Participants are free to withdraw from this study at any time. You are free not to answer any questions that you choose or to request that the recording be stopped at any time during the interview.

Approval of Research

This research project has been approved, as required, by the Review Board for Research Involving Human Subjects at the University Cape Town.

Participant Responsibilities

Any questions can be posed to the researcher at the following:

Email: swrjoh@myuct.ac.za

Cell: 064 272 0422

You will receive a copy of this signed form to keep for your record purposes.

Your signature indicates that you have read and understand the information provided above, that you willingly agree to participate, that you may withdraw your consent at any time and discontinue participation without penalty, and that you will receive a copy of this form.

Supervisor signoff:

Signature: _____

Name and Surname: Karen Le Jeune

Date: _____

Research Participant:

Signature: _____

Name and Surname: _____

Date: _____

APPENDIX 3 – RESEARCH INTERVIEW GUIDE FRAMEWORK

Estimated Interview time: 60-80 mins

The research interview guide framework by Guest *et al.* (2013) has been utilised for this research.

Discuss here the definition/explanation of the definition of Digital Transformation projects

Further notes:

- **Prompt the specifics/examples /stories - “tell me about a time.... Tell me a story....”*
- *Focus on the data you get out, change up the wording/phrasing*
- *Focus on the listening.*

Table 15 Research Interview Guide - Adapted from Guest et al. (2013)

What are the main research questions the interview is designed to answer?	What are the primary domains of content that should be covered in the interview?	What types of data are needed to provide these answers (opinions, experiences, knowledge, attitudes, lists)?	Time Estimate
What is Digital Transformation?	• Ascertain where in the DT journey the business is. (Defined strategy)	• Knowledge • Experience • Lists	5 mins

	• How long have the business been executing projects in the DT portfolio (Maturity) • Significant Initiatives underway / major achievements • Establish key drivers for Digital transformation of the business.		
Give me an example of a successful DTP you have been involved in recently?	• Is personal experience good/bad? • Opinion of overall success achieved	• Knowledge • Experience	10 mins
What in this DTP stand out as a particularly successful project?	• Dimensions of success factors	• Knowledge • Experience • Opinion	15 mins
Tell me about the project management aspects of this particular DTP you were involved in?	• Pertinent processes and methodologies used?	• Knowledge • Experience • Opinion	10 mins

Tell me about the project success dimensions/factors/KPIs that was defined on the project by the PM?	• Identify the project success factors as defined by others (PM) • Qualitative or Quantitative?	• Experience • Opinion	15 mins
How do you think project success could be better achieved, what was the lessons learned?	• Identify the project success factors from a challenges / failure / lessons learned perspective	• Knowledge • Experience • Opinion	15 mins

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