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Evaluating digital solutions in a retail and business bank: a South African case study

Meyer, Jacobus Nicolaas

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Evaluating digital solutions in a retail and business bank: a South African case study

Jacobus Nicolaas Meyer

2286988

meyer.cobus@gmail.com 083 6440047

A research report submitted to the Faculty of Commerce, Law and Management, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Master of Management in the field of Digital Business

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ABSTRACT

This study aimed to investigate evaluation and success factors to consider for the investment in digital solutions within a retail and business bank by way of a case study of a South African bank. Banking institutions are challenged by rapid technological changes and, hence, depend on digital solutions for competitiveness. Digital solutions are complex and multi-dimensional creating challenges for ascertaining success. The study provides insight into factors which banking institutions can consider to evaluate investments in digital solutions and corresponding success measures. The study used a qualitative method and the analysis was based on a thematic approach. Banking institutions look further than just traditional investment evaluation methods. Their approach take into account the strategic alignment of the initiative to the organisational strategy, financial considerations and non-financial considerations. These include arbitrary factors such as customer take-up rates, conversion rates and the ability to grow new markets and create new products. The findings highlighted a need for business to be able to research ideas for success measures. Success measures are significantly impacted by project success, and the findings presented factors that impact projects success and failures. There is a need for an alternative approach within the bank to evaluate investments in digital solutions and increase the probability of success for respective investments.

KEY WORDS

Digital Solutions, Project Evaluation, Project Success, Project Failure, Evaluation Factors.

DECLARATION

I, Jacobus Nicolaas Meyer, declare that this research report is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Management in the field of Digital Business at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

Name: Jacobus Nicolaas Meyer Signature:

Signed at Johannesburg

On the 26 day of February 2020

DEDICATION

I dedicate this research to my Saviour, who has given me the ability to study and learn. He has been my strength throughout this journey. I also dedicate this to my family who believes in me and whose encouragement has ensured that I finish this study.

Thank you.

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LIST OF ACRONYMS

Acronym	Description
CFO	Chief Financial Officer
CIO	Chief Information Officer
CTO	Chief Technology officer
KVD	Key Value Driver
ME	Managing Executive
MVP	Minimum Viable Product
NPV	Net Present Value
POC	Proof of Concept
RBB	Retail and Business Bank
ROI	Return on Investment

CHAPTER 1. INTRODUCTION

1.1 Purpose of the Study

Businesses are currently confronted with rapid changes, making them more dependent on digital solutions[1] with regard to investment and thus compromising the effectiveness of project evaluation methodologies; hence challenges on cost, benefit and risks (Deitz & Renkema, 1995).

The purpose of this study is to highlight the factors that one could consider for evaluating the investment in digital solutions.

1.2 Context of the Study

Most businesses still evaluate projects and investment on Net Present Value (NPV) and base “go, no-go” decisions on the NPV, which limit the benefit that digital investment may enable (Lee & Lee, 2015). Some projects are too small to use NPV, while others might not be relevant for NPV-related decisions (Cooper & Edgett, 2006); while some investments, specifically in digital solutions, are enablers and other benefits will arise in future as a result of digital solutions investment (Van Putten & MacMillan, 2004).

Funding allocation is a controlled and monitored process based on business case submissions approved according to set criteria that align with the overall business

[1] Digital solution include new technologies, and using technologies in processes or activities.

strategy, financial payback period or a regulatory or compliance requirement in order to maximise shareholder value accounting for several constraints (Benallou & Aboulaich, 2017).

Project evaluation, accounting and control processes create barriers for innovation and digitalisation in a rapidly changing digital world (Caniëls & Rietzschel, 2015). Customers have a high demand for businesses to innovate and make their lives more comfortable, creating competition for organisations in the market. Businesses are pushed for shareholder returns and simply have to grow. Businesses need to adapt the way they work in order to meet the demand and be innovative. Digitisation provides an opportunity for the bank to develop and transform, which will enable client acquisition, decrease attrition and increase returns (Japparova & Rupeika-Apoga, 2017). Measures of success, funding allocation and project evaluation methods also need to adapt to meet customer demand.

There are various methods for evaluating project investment and determining project success. The leading prevailing theory of the research is based on the concept of Innovation Accounting and metered funding (Ries, 2017), Innovation Accounting is an alternative way to present the benefits from an investment or project, and the project is evaluated and measured on key performance and leading indicators rather than pure financial measures. Metered funding is different from traditional funding where funding is allocated through an annual budgeting and planning process; metered funding is allocated over a series of stages or rounds, based on reaching agreed goals and milestones.

1.3 Research Problem

The impact of a fast-changing world into digital solutions requires businesses to adapt and change the way they think, organise themselves, and invest in digital solutions. The focus of this research was to identify factors to consider when evaluating several digital solutions.

The prevailing theory supports this research as it focuses on alternative evaluation methods as well as a different, more agile funding approach through metered funding.

1.4 Research Objectives

Objective 1: Factors to consider in the evaluation of an investment in digital solutions.
Objective 2: Success factors to consider for the evaluation of an investment in digital solutions.

1.5 Significance of the Study

Historical project evaluations methodologies like ROI, NPV and Payback Period are not appropriate to evaluate an investment in digital solutions; digital solutions are different and are enabling and supporting the organisation in achieving its business objectives (Misra, 2006).

The theme of the research is to provide factors for consideration that will both enable efficient decision-making and evaluate an investment in digital solutions. The study also investigated project success factors, reasons why projects fail and ways to improve the probability of success of projects.

1.6 Delimitations of the Study

The study primarily focused on investment in digital projects and not general investments in products, campaigns or other capital projects; however, some of the findings may be appropriate. The focus of the research is on the Retail and Business Bank cluster and excludes projects outside this cluster.

1.7 Definition of Terms

Table 1: Definition of terms

Term	Definition
Business Case	A standardised structured document that describes the reason for a specific project undertaking, the investment requirement and the benefit it will generate.
Digital Solution	New technology or building technology from scratch, amend and change, includes automation and digitisation of processes, digital projects, digital products, activities and client solutions and systems.
Key Value Driver	Day to day activities and underlying performance indicators like; the number of sales, number of leads generated, client interest rates and average sales price.
Leading Indicator	Leading indicators are those activities or drivers that predict success. Leading indicators can also be a key value driver or business driver.
Strategic Value Drivers	Business drivers that are aligned to the strategy of the business. Drivers identified as the drivers within the business which, when positively impacted, will allow the business to achieve the overall strategy.

1.8 Assumptions

It was assumed that the individuals questioned in the interviews had access to the correct information and was in a position to provide meaningful and relevant feedback. The individuals interviewed did so voluntary and were able to withdraw participation at any stage.

CHAPTER 2. LITERATURE REVIEW

2.1 Introduction

Businesses have become more reliant on Information Technology (IT) than ever before; and strategic and non-rational aspects are more essential than a pure financial cost-benefit view (Deitz & Renkema, 1995). Most businesses have a set budget allocation for investment in initiatives and projects within each financial year, which immediately highlight that there is a constraint in terms of limited resources during the year for initiatives, and that organisations are using various techniques to estimate, evaluate and choose projects (Archer & Ghasemzadeh, 1999). However, over time various methodologies and methods are used; the most common traditional ones are NPV, Payback Period and Return on Investment (ROI) and these all have limited flexibility, e.g. NPV, in some instances, undervalues investment in digital solutions (Lee & Lee, 2015).

Other studies focus on non-financial methods, like portfolio selection, multi-criteria and the ratio approach (Archer & Ghasemzadeh, 1999; Renkema & Berghout, 1995). Portfolio selection, as described by Archer and Ghasemzadeh (1999), is where a project is ranked and selected based on a specific framework within a portfolio. The multi-criteria approach, as discussed by Renkema and Berghout (1995), takes into account additional returns by including cash flow that will accrue from other business units within the business, additional cash flow as a result of reduced time scale of operations, additional cash flow as a result of improved productivity and lastly the cash flow as a result of a potential competitive advantage

whereas the ratio approaches pay attention to specific ratios, e.g. investment expenditure against total income, and all of the benefit is the attributed to the investment against the total income. These ratios do not need to be financial-related and can, for instance, be related to investment, related to employees or another output measure.

Kauffman, Liu, and Ma (2015) highlight various uncertainties with regard to investment in digital solutions. There are various uncertainties with regard to investment cost requirements, future benefits, future markets and the level of technology required. Evaluation of investments in digital solutions are complex and, as discussed, uncertain; and real-options thinking takes into account the uncertainties surrounding the investment as well as future opportunities (Davis, 2015). Uncertainties relate to many sources such as immaturity, complexity and the probability of success of digital investment as well as challenging market predictions; and with technology being flexible, it can be scaled and used in different business units and processes within the organisation (Fichman, Keil, & Tiwana, 2005).

An alternative used by some is Innovation Accounting, focusing on leading indicators and not the financial numbers; using dashboards with pre-agreed, per-customer metric; a business plan; as well as an NPV calculation based on long-term assumptions such as market size, market share and future product performance, as assumptions and leading indicators becomes more accurate and precise over time (Ries, 2017). Innovation Accounting brings structure to measuring project success within a specific solution where traditional methods are not possible.

Project success has a direct impact on the organisation's profitability; and increasing shareholder value as well as planning and measuring project success is of strategic importance (Shenhar, Dvir, Levy, & Maltz, 2001). Project success improves operational effectiveness through optimising assets, reducing cost and increasing revenue (Cooke-Davies, 2002). Traditional project success is defined as the productive completion of the project within scope, time and cost (Jitpaiboon, Smith, & Qiannong, 2019). The contemporary challenge is that organisations must be able to adapt quickly and in a personalised way, seeing as customer behaviour is volatile as they are impacted by constant technology enhancements (Henriette, Feki, & Boughzala, 2016).

Benefits measurement and tracking is an essential function of project management and enables the business to remain focused, stay motivated and support the successful execution of organisation strategies (Serra & Kunc, 2015). Despite the value of benefits tracking and measurement, only a small portion of businesses are applying it (Fernandes, 2014).

This study investigates how these methodologies and disciplines can systemically support alternative factors for evaluating and measuring investment in digital solutions and influence project success.

2.2 Definition of Topic or Background Discussion

Evaluating investments in digital solutions is not a new concept and has a place in each organisation since resources are limited, with funding allocations to digital

solutions prioritised based on specific criteria and evaluation methods. Investment in any solution forms part of the organisation's strategy and this focus has become more important than ever before, as customer behaviour is influenced by changing technology and organisations have to adapt or become obsolete and unable to be competitive (Shenhar et al., 2001). Organisations use projects as a way to execute and deliver on their strategy and stay competitive, hence the importance of robust evaluation and aligned governance process. In order to maximise overall portfolio benefits, the business has to prioritise initiatives that align with the corporate strategy (Avison, Jones, Powell, & Wilson, 2004).

Standard evaluation methodologies like NPV, ROI and Payback Period are not flexible and do not take into account further opportunities of a solution when investing in a specific digital solution, thus leaving an opportunity on the table for an organisation to invest in a worthwhile investment (Pivorienė, 2017). The option-based pricing approach is a flexible methodology that enables one to estimate a value for future opportunities and uncertainties when evaluating a digital solution (Fichman et al., 2005). The option-based approach is based on a decision model, allowing for opportunities as management see them through probabilities within a decision tree (Lee & Lee, 2015). Evaluating digital solutions remains a challenge as it is difficult to clearly articulate the benefits due to constant technology changes (Yeow, Soh, & Hansen, 2018).

Renkema and Berghout (1995) highlight alternative views and approaches, namely multi-criteria, ratio and portfolio approaches. The multi-criteria approach focuses on non-financial measures which take into account various metrics and allocating

scores based on the pre-agreed metrics, and then prioritising actions based on score outcomes. The ratio-approach is another non-financial measure that compares effectiveness using ratios and the impact of the investment on these, e.g. IT spend against revenue. The portfolio approach takes into account the impact of the projects within the full portfolio plotted against several evaluation criteria.

Ries (2017) proposes an alternative view when looking at Innovation Accounting; it is a way of evaluating projects when all traditional and established methodologies indicate that there is no value in a specific project. Innovation Accounting focuses on the key value drivers and leading indicators of the business, and evaluates the projects according to the impact on underlying drivers rather than the pure financial measures and outcomes; metered funding is allocated over a series of stages or rounds, based on goals and milestones.

2.3 Evaluation of Investments in Digital Solutions

2.3.1 Evaluation of investments in projects traditionally

According to Adler (2000), valuation of investments takes into account identifying, evaluating and choosing initiatives that will have the most beneficial impact on the business, taking into account cost and benefits and translating these into various metrics for evaluation, Payback Period, NPV of initiative and ROI. Adler (2000), highlights five challenges with the use of traditional evaluation methods, which include:

1. These methods give a narrow view and only from one area's perspective, and do not take into account benefits that will arise in other areas or functions within the business as a result of the specific investment.
2. Non-financial benefits are not evaluated, which is a case of strategic investment – it is essential to consider these as they provide insight regarding the strategic alignment of the solution to the business strategy.
3. The methods focus on the short-term views; and in some cases, these projects take long to develop which in turn creates challenges for the standard evaluation methods, and decision makers prefer projects of a shorter nature to see the benefits of their decision-making.
4. These methods assume that the competitive environment will not change and that the investment would give the business the additional benefits. However, it does not take into account competitor reactions.
5. Business cases are stretched in terms of the returns to make the set hurdle rates, to get approval for funding and often need to be revised at a later stage when the project has already started in order to adjust benefits, cost and scope.

Angelou and Economides (2008) highlight that traditional methods like NPV, Payback Period and ROI for evaluating an investment in digital solutions can generate an adverse outcome, as it potentially does not take into account the benefits of the future opportunities the investment enables. In a digital world,

identifying all the financial benefits is challenging and should not be the only consideration.

Traditionally the allocation of funds to projects takes place once a year, whereby projects are evaluated and the winners receive funding targets for the year with no amendments to budgets if the business has a lousy reporting period and culture, and managers spend a significant amount of time defending their funding allocations (Ries, 2017). These projects sometimes continue in the subsequent years and get delayed easily; during these delays, changes to the project are made in an attempt to make it more perfect and thus reducing the success of the project (Ries, 2017).

Traditional methods have limitations and are not agile enough to evaluate digital solutions. Further to this, the funding approaches create barriers for new innovative projects.

2.3.2 Evaluation of investments in projects in an alternative way

Contemporary competition between organisations are fiercely competitive and the challenge to select and make strategic investment decisions increase daily, with uncertainty due to timing and benefits; investment evaluation decisions need to be flexible in order to account for opportunities and uncertainties (Pivorienė, 2017). There is a need to look at more than just one factor like NPV to decide whether to invest in a digital solution, due to the competitiveness in the market and the impact of competition on forecasts (Apostol, 2015). The following approaches are alternatives:

1. Real Option is an approach that takes into account uncertainty and flexibility. The method heeds the added value of several opportunities, which are potential modifications or additions to the current investment or project. The method is based on option-pricing theories and captures the option-like features of investment in digital solutions (Smit & Trigeorgis, 2003). It is used to value various decisions like expanding or abandonment of a project (Chan, Cheng, Gunasekaran, & Wong, 2012). Traditional methods do not support this, focusing more on tactical investments and not on long-term strategic investments and future opportunities (Pivorienė, 2017).
2. On the contemporary side, businesses turn toward customers and innovation which are very challenging to quantify with traditional methodologies, although the impact is likely to be significant (Misra, 2006). The balanced scorecard framework caters for this; it is aligned to the business strategy (Azadeh & Songhori, 2006) and takes into account the impact on financial performance, customer, innovation, and learning, all the while looking at a holistic view. All the stakeholders are catered for in the scorecard. The framework they developed looked at five perspectives, including underlying detail and scoring, technology and systems, user orientation, organisational benefits, internal and operational, and lastly future-readiness.
3. Ries (2017) takes an entrepreneurial approach and looks for a portfolio of experiments that focus on what is best for the customer. His approach is to create an entrepreneurial function that supports other functions within the organisation. Decision-making is based on

experimentation, evidence and vision, and not on traditional evaluation methods. Further consideration includes the team responsible for rolling out the project and evaluating this team's ability to come up with good projects and innovation. The measures for evaluation of the project focus on indicators that predict future success, like but not limited to, conversion ratios (percentage of customers taking up a product based on a marketing activity), revenue per client (average income generated per customer), retention rate (percentage of customers the business can keep) and lifetime value per client (NPV of the returns the business are making on a customer during his lifetime as a client of the business). These measures provide insight into customer engagement, bring the business closer together and allows for scalability. It also supports the build-measure-learn cycle approach by focusing on the measure and learn components.

Managing and providing funding for these initiatives also require an alternative method. Ries (2017) proposes the release of funds in stages (metered funding) according to pre-agreed milestones – without progress, there cannot and will not be another funding allocation. The actual financial benefits evaluation only starts once a Minimum Viable Product (MVP) is established. Milestones are not limited to being just financial but can be non-financial, especially at the beginning of the project, as it becomes challenging to forecast financial outcomes for new developments and start-ups.

The metered funding approach creates responsibility and accountability for the business owners and digital solution developers to reach milestones and getting to the next stage of funding; it creates a constraint for the project, making it a scarce resource, reducing the risk of overfunding and spending on a specific initiative without achieving pre-agreed milestones. This approach has a limited loss for the business once the project is completed. At the beginning of the project these milestones can be project and learning-related, focusing on non-financial milestones; subsequently, as the project progresses to leading indicators and finally once an MVP is built, measures can change again. The benefits evaluation starts by looking at an MVP to determine the actual data and indicators to evaluate, converting these findings in a baseline using the information from the MVP. Once defined, the plan is updated and inputs into the financial plan become more and more accurate as learning and data-gathering improve through the process.

Technology evolution impacts customer behaviour and needs. Organisations have to be competitive; being a first mover has a significant advantage in gaining market share as the first mover will remain the leader if it consistently keeps investing in a specific solution, whereas if and when the competition responds they will have to invest a significant amount continuously to catch up and remain competitive. The organisation should consider the competitive environment and sometimes, at the right time, invest to remain on par with its peers and stay competitive (Dutta, Lee, & Yasai-Ardekani, 2014).

In order to survive and be attractive to customers, organisations need to create seamless experiences for customers; it has to make their lives easier and create

convenience for them. Digital solutions enable the streamlining of processes and the impact of measures such as these on the overall customer should be a critical consideration in any investment decision (Foroudi, Gupta, Sivarajah, & Broderick, 2018).

A clear understanding of the impact of initiatives on the non-financial drivers impacted by a specific digital solution is crucial in order to align the solution to the organisation's overall strategy, as it is not always easy to measure through pure financial metrics (Bini, Dainelli, Giunta, & Simoni, 2019).

The factors and methodologies discussed above provide alternative considerations for evaluating investments in digital solutions. These methods are agile, in line with business strategy and enable the business to consider various alternatives. The metered funding approach ensures improved project fund management and accountability, and increases innovation and project success rates.

2.4 Success Measurements for Digital Solutions

2.4.1 Project success

According to Shenhar et al. (2001), businesses use projects to achieve business goals and stay relevant and competitive through creating and improving products and processes; this means that financial success measures alone do not determine success. They no longer support success in a dynamic market, multi-product businesses and high fixed-cost environments. A Balanced Scorecard as a tool to measure can be used to link strategic decisions to business outcomes. Shenhar et

al. (2001) propose that projects are part of the overall business strategic management plan and highlight four success factors, which are summarised in Table 1.

Table 2: Project success factors

Factor	Measurement	Strategic /Operational
Project efficiency	• Meeting project milestones • Finishing within budget	• Operational • Operational
Customer impact	• Achieving financial performance • Achieving technical specifications • Achieving customer need • Solving the problem for the customer • Satisfaction from user	• Strategic • Operational • Strategic • Operational • Operational
Business and organisation success	• Commercial viability • Improved market share	• Strategic • Strategic
Supporting for the future	• Building new markets • Building new product lines	• Strategic • Strategic

Adapted from Shenhar et al. (2001) Project Success: A Multidimensional Strategic Concept. Long Range Planning Journal, 34, 699-725.

Shenhar et al. (2001) highlight that in order to determine the project's success, one needs to understand the impact of the different factors in the short and long term.

According to Todorovic, Petrovic, Mihić, Obradovic, and Bushuyev (2015), resources working on projects gather knowledge and learn as they develop solutions. Continuous learning in a business is one of the highest levels a business can reach in terms of project success, with only a limited number of businesses summarising lessons learned and transferring project learnings. They indicate the importance of

project learning management within the project management process, highlighting four factors, the definition of the critical performance success factors, the definition of project performance indicators, measuring successes in line with the performance indicators and creating a final project report.

Improving the success rate of projects is a critical discipline for any business, as it improves the overall performance of the organisation. Much research has been done on why projects fail (Frese & Sauter, 2003). Some of these reasons which can cause projects to fail include that the scope was not fully articulated and understood, a lack of management continuity, no reward system for success in place, changing user expectations, non-alignment between different departments within the value chain of delivery, a lack of understanding of the project, as well as the literacy and capabilities of individuals delivering the project.

Due to the evolution of technology and changing customer behaviour, project management of digital solutions remain complicated as they are multidimensional and dynamic. It is crucial for the project's success that solutions are properly understood, articulated throughout the value chain and driven through proper project governance (Al-Ahmad et al., 2009). Project planning and articulation of all requirements remain critical success factors, as lack of planning impact cost and returns (Toader, Brad, Adamov, Marin, & Moisa, 2010).

Frese and Sauter (2003) highlighted the main factors that drive project success, namely executive support, user involvement, capable project resources, clear articulation of the business objectives, and minimised scope. This is also supported

by Jugdev and Müller (2005), who highlight the importance of accountability with regard to the delivery of the project and benefits. Accountability and governance are vital in a project's success as it allows for performance measurement of required results (Leong, 1991). Yeong and Lim (2010) highlight the impact of sharing learning within the project environment as a contributor to future project success, benefitting the organisation as a whole. Learning from projects results in improved productivity and efficiency, which will impact cost and resources (Yang, Chen, & Wang, 2012). Gomes and Romão (2016) highlight that realising the benefits is one of the significant indicators of project success. Doherty, Ashurst, and Peppard (2012) mention that using a benefits-management approach motivates people and maintain focus on the project and project delivery.

2.4.2 Benefits measurement and tracking

Sapountzis, Harris, and Kagioglou (2007) describe benefits management as a process of optimising benefits from project investment change programmes, and involves identifying, agreeing, measuring and reporting on proposed benefits. The relationship between benefits management and the project is sometimes challenging, and benefits management has to ensure that the capabilities created by the project are used to deliver the benefits.

Successful benefits realisation comes through integration with the business strategy, where the majority of projects are benefits-driven and where benefits through the project benefits lifecycle are likely to change, making it critical to have a robust process in place that can accommodate change (Sapountzis et al., 2007).

According to Zwikael, Chih, and Meredith (2018), there is a drive towards digital solutions in most businesses. Project management in itself is not enough to ensure success; there is a need to quantify benefits for investments made and these benefits need to be managed as a subset of project goals like the rest of the other project goals. They identify four elements for setting targets benefits: identify the benefit, identify the measurements that will support and prove the benefit, define and collect the baseline information, and make a decision in terms of the responsible person for tracking, how and by when it will be measured and tracked.

Stakeholders need to support benefits for projects funded by the business which is aligned to the business strategy and therefore require a robust benefits-measurement process with alignment between project benefits, business strategy and project outcomes. This process has to happen within a set framework to accentuate the measurement of digital solutions success; hence, project success (ul Musawir, Serra, Zwikael, & Ali, 2017).

According to Mossalam and Arafa (2016), benefits realisation embedment in the business should be defined by, taking into account the full benefits lifecycle, and be derived from the corporate and business strategy. Benefits should be tangible financial benefits as well as intangible non-financial measures.

Some of the general challenges identified by Mossalam and Arafa (2016) associated with benefits management implementation are:

1. Poor governance
2. No description of benefits within the organisation

3. Unclear benefits ownership and accountability
4. Lack of baseline benefits metric

Sapountzis et al. (2007) suggest that benefits measurement and tracking should be:

1. Integrated into the organisations planning
2. Robust enough to withstand change
3. Be cost-effective, by providing project performance information that realises returns about the investment
4. Should form part of the overall project governance process
5. Straightforward to implement in the organisation

Benefits realisation management has to be integrated within the project, programme and portfolio management as it creates value and aligns various stakeholders (Serra & Kunc, 2015).

2.5 Conclusion of the Literature Review

The chapter reviewed various factors to consider for the project evaluation in a dynamic and multi-product and systems world.

Decision-makers of capital investment within the business should look further than the traditional ways of evaluating and funding digital solutions. It is vital that the whole solution, as well as further opportunities, are evaluated and taken into consideration when aligning the investment and business strategy.

Funding allocation and project management should be appropriately governed, optimised and funded in a way to promote agility, minimise risk and maximise output. Proper stakeholder management and accurate target-setting are essential for the success of the solution.

The traditional methodologies of investment evaluation like NPV, Payback Period and ROI provide a narrow view, does not take into account non-financial benefits, focus on short-term views and assume the competitive environment will not change. These evaluation methods can generate a negative outcome, as they do not account for future opportunities.

There are various alternative evaluation methods for consideration that takes into account uncertainty, are more flexible and can account for future opportunities. One such evaluation method is the Real Options Approach. The Balanced Scorecard approach takes into account the business strategy when evaluating the initiative, and considers the impact on financial performance, customer and innovation, learning and other non-financial metrics for evaluation. Lastly, Innovation Accounting and metered funding first look at leading indicators and later in the project consider financial measures for evaluation, and allocate funding in stages based on pre-agreed milestones per stage.

In order to remain competitive and adaptable, businesses have to undertake and successfully complete projects to execute on the corporate strategy; project success is a vital enabler of operational effectiveness – it increases returns and, most

importantly, shareholder value. Chapter 3 discusses the research methodology, approach and process followed.

CHAPTER 3. RESEARCH METHODOLOGY

The purpose of this chapter is to discuss the research methodology followed to evaluate the research objectives and hypothesis regarding a framework for evaluating an investment in digital solutions. This chapter discusses the approach, process and design of the research and these are presented in more detail; a general qualitative approach was used to conduct the research, and the data collection was conducted through one-on-one interviews with selected individuals. Lastly, the transferability, credibility and dependability of the research are discussed.

3.1 Research Approach

The study used the qualitative methodology for the collection of data. A qualitative research approach is used in cases where a complex challenge needs a narrow understanding and is explored via the approach (Creswell, 2007). It is carried out to enrich respondents' beliefs, experiences and values, and allow the researcher to develop theories that express these experiences. Qualitative research uses respondents' words to describe the phenomenon of the study, unlike quantitative research which uses numerical information (Kalu & Bwalya, 2017).

3.2 Research Design

As previously mentioned, the research was based on a qualitative research method and data was collected through semi-structured interviews. A semi-structured interview is an interview with one individual at a time; the questions asked are both

open-ended and closed-ended and can include follow-up questions. The discussion can meander around the items on the interview guide, unlike a standardised survey (Newcomer, Hatry, & Wholey, 2015).

Qualitative research allows the researcher to obtain various views and enhance the research, as the respondents provide answers based on their inner experience; it allows the researcher to interact directly with the respondent as the data collection takes place (Rahman, 2017). Rahman (2017) highlights some challenges with qualitative research: generalisation is difficult due to the sample size, and the difficulty to interpret the complex data itself.

3.3 Data Collection Methods

Data collection was conducted via individual interviews with pre-selected senior representatives from different business units and functions within a bank. All of the respondents had experience in evaluating projects, being involved in strategic projects and being responsible or accountable for the delivery of projects and realising benefits.

A purposive sampling strategy approach was used. Purposive sampling is deliberately selecting respondents based on their qualities, experience and knowledge, and allows for a deep understanding of the phenomenon (Etikan, Musa, & Alkassim, 2016).

3.4 Population and Sample

3.4.1 Population

The sample was selected from a population within a South African bank for the interviews and consisted of two managing executives of business units, eight chief financial officers (CFOs) of business units, one head of change within a business unit and one head of strategy within the change office. The individuals are all experienced individuals in project evaluation and measurement.

3.4.2 Sample and sampling method

The purposive method of sampling was used. The purposive method is a widely used tool whereby the researcher selects the informants in a non-random way, based on the knowledge and experience they have (Tongco, 2007). The researcher selected individuals based on their skills, experience and knowledge within the South African bank to be interviewed. These individuals represent various business units and functions within the bank and at an executive level, exposed to projects, project evaluation, execution and realisation of benefits. Again, these individuals are in various roles and fulfil a strategic, tactical or operational level of abstraction.

Table 3: Profile of respondents

Description of Respondent Type	Abstraction Level	Number Sampled
CFOs	Strategic and operational	8
Managing executives	Strategic	2
Change head	Operational	1
Strategy head	Strategic	1
TOTAL number of respondents		**12**

3.5 The Research Instrument

Semi-structured one-on-one interviews were conducted with the selected individuals, using a predefined set of questions relevant to the research topic. Refer to Appendix C for the interview questions and Appendix D for the consistency matrix.

3.6 Procedure for Data Collection

Interviews were scheduled by the researcher with the various participants. Initially, the researcher had an informal conversation with the participants explaining the context and the purpose of the study. All the participants were located in Johannesburg, and formal interviews were set up with the various participants in selected boardrooms to gather data for the study through a standard interview guide. The interviews took place from 7 November 2019 to 6 December 2019. The researcher took notes during the interviews and made a recording using a mobile application called Otter Voice Meeting Notes, which records and transcribes the interview as the interview happens. The application allows the researcher at any stage to review and listen to the recording online or via the mobile device. The transcripts were edited and aligned to the recording after the interview by the researcher. All the recordings are available for audit purposes.

3.7 Data Analysis and Interpretation

According to Ngulube (2015), the primary purpose of qualitative data analysis is to create the meaning of the data. As such, the value of the analysis rests on the ability

by which it is performed. The researcher has been exposed regularly to initiatives, the evaluation, validation, tracking and reporting of various forms of initiatives within the bank individually and as part of strategic programmes.

The study focused on a thematic data analysis approach. Thematic data analysis procedures are used widely for analysis on qualitative methodologies; thematic analysis is a way of identifying topics, themes and patterns for meaning across a dataset about a research objective or question (Ngulube, 2015). The thematic analysis methodology focuses on the data in different ways; one can study a specific aspect within the data set or one can draw meaning from the entire data set, making it a very flexible method (Braun, Clarke, Hayfield, & Terry, 2018).

The researcher based the thematic analysis and interpretation on the six-step approach proposed by Braun et al. (2018), namely getting an understanding of the data, identifying preliminary codes, identifying similarities within the various data sets, analysing comment themes, describing and naming themes and similarities, and building or writing the report. The purpose of coding the data is to get a better understanding of a specific text, categorising them and putting them into an order; the process involves labelling, segmenting and identifying pieces of data to create themes at the end (Ngulube, 2015).

The researcher listened to the various recorded interviews while reviewing and aligned the transcripts using Otter Voice Meeting Notes online. Once the transcripts were aligned to the recordings, the researcher exported them into Microsoft Word (Word). The various transcripts were labelled and coded in Word by highlighting the

relevant sections or words from the transcribe using the comment function within Word as a tool to code. Once the whole transcript was coded, the DocTools add-in within Word was used to extract the comments (now codes) into a table. The columns of the table consisted of the comment, the highlighted text relating to the comment, the date and the person capturing the comment. All the tables were copied into Microsoft Excel (Excel) underneath each other. The researcher included additional columns to identify the respondent, the question to which the answer or code related as well as columns for adding themes and short notes. Once the data was in Excel in a table format, the researcher read through the table to do a second round of coding. Using the sort and filter functionalities within Excel, the researcher was able to identify similarities between the various answers from the respondents to specific questions. Based on the similarities, themes were identified and captured within the data set. Using the sort and filter functions, the researcher filtered and sorted the data set to allow for the writing of the report and quoting of the various respondents' answers in a comfortable and structured way.

3.8 Data Saturation

Data saturation is used in qualitative research as an indicator for discontinuing data gathering and collection; failure to reach saturation has an impact on the quality of the research (Saunders et al., 2018). Saunders et al. (2018) discuss various definitions of saturation and explain saturation as the point which you reach during your coding process whereby you are unable to find, create or identify new codes or information.

Doing interviews is a method by which one can reach data saturation, and interview questions were structured to ask multiple participants the same question in order to achieve data saturation (Fusch & Ness, 2015). The researcher found that after 10 interviews that respondents generally responded the same to standard questions, this is consistent with the findings from Schreier (2018), who argues that saturation is achieved after 12 interviews, with themes emerging after just six interviews. The interviews done by the researcher was, therefore, sufficient to reach saturation.

3.9 Limitations of the Study

The study is limited to one South African bank and the findings may not be relevant for other banks. Time was a constraint due to the nature of the research. Due to the nature of the study, the generalisation will be limited.

3.10 Transferability, Credibility and Dependability

3.10.1 Transferability

According to Anney (2015), transferability is obtained through a purposive sampling (selected for a specific purpose to answer the interview questions) and by providing thick descriptions (provide extensive details of how the research was conducted).

Transferability is obtained through a proper standard and a consistent interview guide. The sample selected was experienced executives within the organisation in various areas who are exposed to projects and investment decisions. The answers and output from them carry weight as they are all key decision-makers and

influencers within the business. The questions within the interview guide were general questions relating to the research topic and are not just bank-specific. Answers provided by the various respondents were compared with each other and tested for similar themes, challenges and outcomes.

There could be some aspects that are transferable to other banks and industries. However, the scope of the study is limited to one bank. The bank selected does not represent the industry as a whole.

3.10.2 Credibility

In order to test the credibility of the findings, the researcher compared the answers from the various participants and identified various themes and outlooks for consistency. In this study, credibility is obtained by comparing the interviews with each other for consistency. Further to this, credibility was obtained through the selection of the participants, based on their role, their responsibilities, experience and skills within the organisation. Comparing their responses based on the same interview guide (Baxter & Jack, 2008) and alignment to previous research through the discussion further supported credibility.

3.10.3 Dependability

Dependability refers to the consistency of discoveries and results over time; this was obtained through a proper audit trail, being able to illustrate accurately how the data were gathered, recorded and analysed, further to this, the audit trail substantiates the overall study (Anney, 2015).

3.11 Demographic Profile of Respondents

The respondents selected were identified as individuals with experience and the ability to influence decisions. The gender of the selected participants does not have any bearing on the outcome of the survey. The study is not gender-dependent.

3.12 Ethical Considerations

A researcher has the responsibility to act ethical and responsibly, with objectivity and integrity. Ethics promote the focus of the study, to avoid mistakes; it promotes values critical for a collaborative effort and ensures accountability of the researcher (Resnik, 2011). Smith (2003) highlight five principles for ethics in research:

1. Review intellectual property
2. Take into account multiple roles
3. Follow informed-consent guidelines and inform respondents about
    a. The objective of the study and timelines
    b. The right to withdraw and not conduct an interview
    c. Factors that can influence them to participate, highlight risks
    d. Any potential research benefits and value
    e. Confidentiality
    f. Incentives for taking part in the interview
    g. Contact details should interviewees have questions

4. Ensure a proper understanding of confidentiality and privacy
    a. Highlight the limits of confidentiality
5. Research ethics resources on the internet and publications

The following was done by the researcher to ensure ethical soundness:

The researcher obtained written approval from a mandated bank representative to conduct the relevant research. The approval letter highlighted that both the bank and the participants will be anonymous and that any sensitive information will remain confidential.

The researcher informed the participant informally before the interview of the context of the study. The researcher booked the interview at a convenient time and location with the participant. Before the interview started, the researcher shared a participant information sheet (Appendix A) which described the purpose of the research as well as contained the contact details of the researcher and the researcher's supervisor. The researcher provided a participant agreement form (Appendix B) to the participant and requested the participant to sign the participant agreement. The participant agreement detailed the participant's rights, which includes an agreement that the participant will remain anonymous, that the researcher may use quotes from the participants in the research, that the interview may be recorded and that other researchers may use the information from this study permitting they receive ethics clearance.

Within the research, all the participants are referred to as Respondent 1, 2, 3, etc. to uphold anonymity.

Chapter 4 presents the findings of the research objectives from the interviews, which were based on a thematic analysis of the interview.

CHAPTER 4. PRESENTATION OF FINDINGS

4.1 Introduction

The previous chapter focused on the research methodology used for collecting and analysing the data. The research was based on a qualitative approach; this chapter complements Chapter 3 and describes the findings from the thematic analysis of the interviews, including the steps taken to analyse the research objectives. A total of 12 interviews were conducted between 1 November 2019 and 6 December 2019. The interviews took on average 35 minutes. The interviews were recorded and transcribed. The transcripts were labelled, coded and reviewed in order to identify critical messages; these messages were grouped in themes to enable the analysis of the data gathered in a meaningful way.

The interviews that were conducted were in support of the two research objectives:

1. Evaluation of investments in digital solutions
2. Success measures for digital investment

The participants all had at least 10 years' banking experience and knowledge within the research field, and is exposed to project evaluation, project approval, project delivery and tracking of benefits as well as the delivery and execution of the business unit's and organisation's strategy.

The findings of each objective were presented within the themes that emerged from the data analysis. Each objective's findings are presented and concluded with the last section in the chapter summarising the key findings presented.

4.2 Findings of the Evaluation Considerations for Investments in Digital Solutions

This section is focused on the factors under consideration when evaluating investments in digital solutions. Investment in digital solutions plays a crucial part in any organisation's strategy and it is vital to evaluate the potential of any proposed solution, taking into account an all-inclusive view of the impact of a specific solution. Respondent 6 indicated that an estimated 78% of the project investment requirement for the Retail and Business cluster is digital-related; and 81% is not bringing something new, but rather just sustaining innovation. The following primary factors were identified as themes from the analysis: the strategic alignment of the initiative, the need to invest in technology evolution and customer demands, and financial and non-financial considerations. Further to these considerations, the respondents highlighted challenges and indicated a need to evaluate investment solutions adopting alternative approaches.

Figure 1 illustrates the various considerations impacting the decision-making from Strategic Alignment to Non-Financial approaches as well as the challenges experienced and alternative experimental approaches.

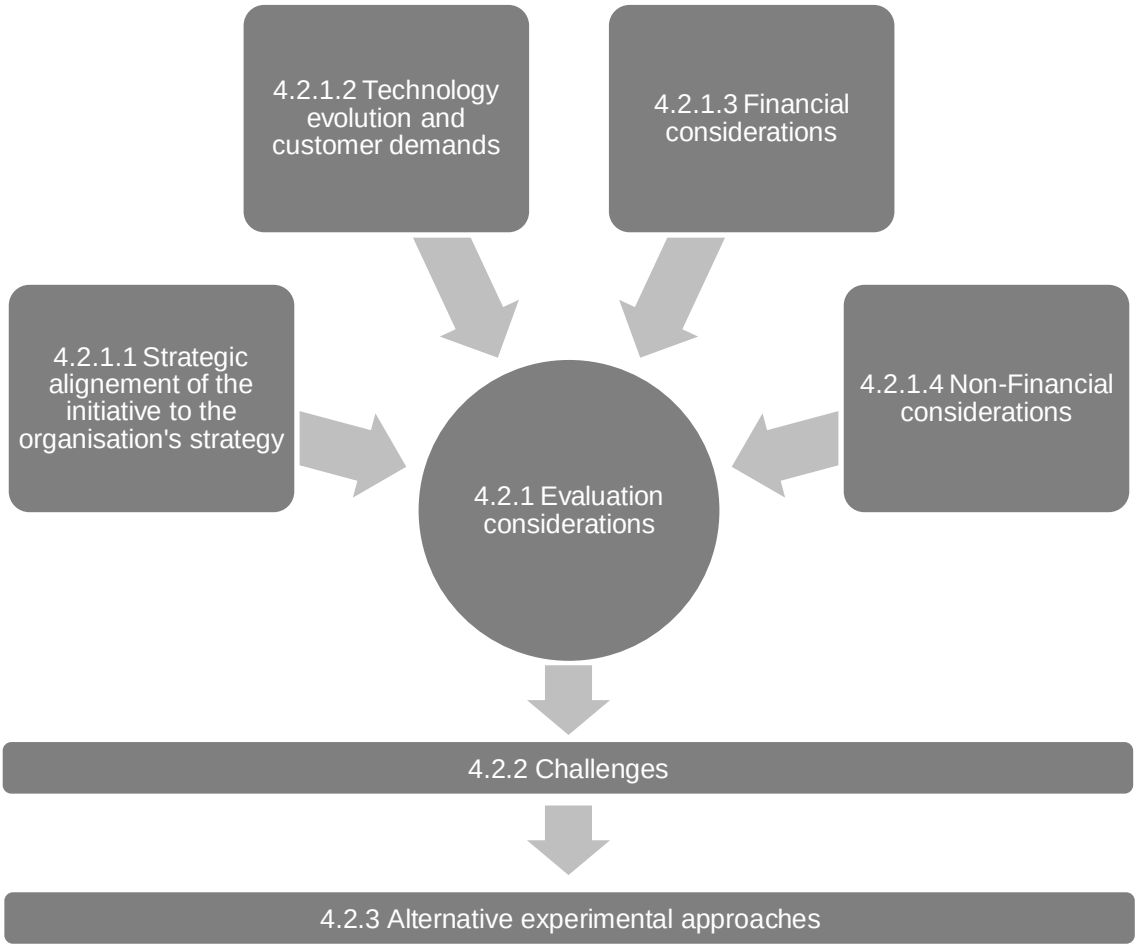


Figure 1: Evaluation considerations, challenges and alternative experimental approaches

4.2.1 Evaluation considerations

From the analysis, four primary consideration themes were identified, namely the strategic alignment of the initiative to the corporate strategy, the need to invest due to changes in technology and customer demands, financial considerations as well as non-financial considerations which take into account financial drivers as well as additional opportunities like new markets and products.

4.2.1.1 Strategic alignment of the initiative to the organisation's strategy

All of the respondents highlighted that one of the primary considerations for them is for the proposed solution to align with the organisation's strategy; prioritisation of projects should be aligned to the corporate and business strategy. Respondent 8 summarised the strategic alignment well.

> *"When it comes to digital solutions, it must fit into your digital strategy." (Respondent 8)*

Respondent 12 further enforced the importance of aligning the longer-term strategy and how it aligns to the bigger picture.

> *"Again, going back to the strategy. What is the strategy of the organisation and where does it want to go and how does the idea that you have fit into that"? (Respondent 12)*

In order for the business units to evaluate and determine if the initiative aligned with the strategy, the business identified key value drivers (KVDs) and leading indicators that impact the outcome of the strategy. The business considers initiatives based on the drivers and leading indicators it impacts, and how the solution influences the drivers which the organisation identified as the strategic drivers to achieve its strategy over the long term. The primary consideration would be how an initiative will influence a strategic driver or a leading indicator of the organisation and business. Respondent 1 summarised it well as getting a clear understanding of how the solution will impact the KVDs that is aligned with and are impacting the strategy.

"How does it fit into the strategy and which one does it fit in, and what KVD will it change. Do not bring anything if it does not tie. So we have agreed on this strategy, understand the strategy we continuously make sure that we are on the same page as to what it means, short term/long term." (Respondent 1)

Investments in projects is a direct result of executing the organisation's strategy and ambitions, and business should align and prioritise their projects to deliver on the strategy. In order to align efforts and increase the probability of success, digital solutions should be articulated in business cases and included in the overall planning and execution of the business strategy.

"And so for me is if you have a strategy, then you should build your business cases to land that strategy." (Respondent 2)

Respondent 12 supported the view by highlighting the metric for prioritisation and evaluation through comparing the various business cases and making decisions, first aligning to strategy.

"So it means again around prioritisation, and the metric for prioritisation, which links bank to everyone understanding the strategic objectives and already in setting the strategy." (Respondent 12)

Alignment of the initiative within the strategy of the organisation remains a primary consideration for the overall evaluation decision.

4.2.1.2 The need for investment due to technology evolution and customer demands

One of the primary considerations which influences decision-making is the impact of technology evolution, competitor solutions and changing customer requirements. Approximately 58% of the respondents consistently highlighted customer behaviour and technology changes. Technology is democratising and influencing the evaluation decisions required by the business. Respondent 6 simplified it by highlighting the challenge from new products and services that become available in the market.

> *"Customer needs change based on new things that enter the market."*
> *(Respondent 6)*

A critical consideration from an evaluation point of view is to have good insight in the current level of technology within the bank and how the current level of technology compares to the market as well as an understanding of the barriers current technology brings to the organisation. Respondent 4 felt strong about the challenge the organisation faces with legacy systems.

> *"I think it is about understanding legacy technologies and legacy systems, asking the right questions and developing on the back of that."*
> *(Respondent 4)*

Staying up to date with technology and digital solutions for customers and colleagues plays an essential role in the organisation's competitive advantage, and this was highlighted throughout the analysis as a critical consideration for project

evaluation and project success. Respondent 2 discussed the implication of changes in the business in terms of maintenance, and responding to market pressure and requirements to remain competitive.

> *"I think as technology has evolved, which is starting to find is that your competitive advantage that you had with technology is changing significantly, its maintenance and updating your technology. So, it is staying ahead, or staying up to date." (Respondent 2)*

Understanding the current state of the technology within the organisation and the requirement to stay up to date due to changing technology and customer behaviour remains a challenge and will always be an evaluation consideration.

4.2.1.3 Financial considerations

Traditional financial evaluation methodologies, i.e. NPV, Internal Rate of Return and Payback Period, remain an essential factor; and about 67% of the respondents acknowledge that traditional financial evaluation methodologies should be a critical consideration for investment evaluation; however, they also strongly feel that it cannot be the only consideration, with Respondent 8 taking it as his starting point.

> *"I think the traditional ones, always useful as a starting point, especially if you are, you know, been around a bit in that is familiar stuff." (Respondent 8)*

Respondent 5 enforced the argument to evaluate the impact against traditional revenue and cost financial metrics, but acknowledged that one has to go further than the typical traditional measures.

> *"I expect, and that return is based on either revenue uplift or cost uplift, but it cannot be the only the only things that you have to consider." (Respondent 5)*

All the respondents did not put traditional financial measures as the only criteria; they highlighted other financial metrics to consider: the impact of the investment on the cost to income ratio of the business, the cost of ownership, cost reductions and additional revenue sources. Cost of ownership came out as a strong theme within prioritisation, and was especially important to Respondent 4, who mentioned it three times in the discussion.

> *"What is this investment required in terms of cost of ownership and cost to achieve versus the options that are available"? (Respondent 4)*

Due to the multidimensional nature of technology investments, calculating a pure financial return is difficult and 83% of the respondents indicated that due to the complexity of some of the digital solutions, it is very challenging to put a financial metric around it and indicated the need to look at other indicators that are linked to future success or will impact financial returns in some way. Respondent 12 highlighted the difficulty of determining the full financial impact of the solution, as it is difficult to understand the underlying drives impacted by the solution.

"It is challenging to put a financial metric around it." (Respondent 12)

Respondent 2 confirmed the challenge brought about by the multidimensional impact digital solutions have, as they are so interconnected that it becomes very challenging to determine a direct financial relationship between a solution and a financial metric.

"Complexity of digital environments is very difficult to always break it up into boxes." (Respondent 2)

An interesting response came from Respondent 5, who highlighted that the Business Case template required for submission to approval decision makers is very much a finance template and is used for affordability, and it is designed to supporting the accounting process of capitalisation of development cost within the organisation to align with International Financial Reporting Standards for financial reporting.

4.2.1.4 Non-financial considerations

All of the respondents take non-financial factors into account when they evaluate investments, as it has become challenging to look at financial measures. This is driven through the complexity of some of the digital solutions impacting various areas within the organisation, sometimes without knowing. It is also essential to understand the underlying business drivers that have an impact on the financial performance of the business; this makes the understanding of the impact of the digital solution easier for evaluation purpose. Understanding the impact of the solution on the business drivers will allow for some evaluation of the financial impact,

as the business driver will influence specific financial outcomes. Respondent 9 summarised it well.

> *"Let us talk about that one first to say that if your business is very well attuned to it indicate leading indicators and understands how that flows through to financial impact. The financial impact you do not even need to look at it, because as long as you see the indicators trending the way that you want them to trend. You know that the financials will arrive in your business."*
> *(Respondent 9)*

As expected, one of the significant considerations from a non-financial point of view is the impact on the customer and customer-related metrics such as take-up rate, customer experience, turnaround time, digital adoption, number of customer touchpoints and user-friendliness; and most of the respondents mentioned the importance of the customer – Respondent 3 used customer impact as one of his key considerations regarding digital evaluation solutions.

> *"Number one – how is it going to change the client experience."*
> *(Respondent 3)*

This was further supported by Respondent 12, who confirmed that the ultimate success measure would be the link and impact on the customer.

“But again, you need to understand what is the impact going to be on the bigger business because essentially the customer in this link to all the different things.” (Respondent 12)

Other considerations that were mentioned include the efficiency of resources, the usability of the solution across the business, as well as productivity and efficiency measures that will improve as a result of the investment. Further to this, it becomes easier to benefit from solutions build by one area to another and enable additional opportunities, and Respondent 10 highlighted that some of these opportunities might not even be visible yet.

“You know, once a person is digitally active you can also add additional new value-added services, you can also find these opportunities for cost optimisation, which might not be evident.” (Respondent 10)

Other opportunities that were identified that should be considered is the ability to cross-sell other products into your overall customer base as access to information on a digital platform is now possible, and increasing the product holding of a customer makes it more difficult for them to leave, resulting in maintaining more customers for longer, which in turn results in higher returns.

An appealing response came from Respondent 4 in the analysis, considering the evolution of technology and the opportunity it creates to introduce new products and new markets that were not previously available and can be perused now that a new platform is created.

“Then there are ones that sort of transform your business, introducing new opening up new markets or introducing new products on in a digital world.” (Respondent 4)

Creating new markets and products allows for additional opportunities and can be a vital consideration for evaluation of solutions and the ability to create future unexplored opportunities.

Taking into account that more non-financial measures and opportunities allow for a more careful evaluation of the initiative and allow for better understanding and future benefits, which is not considered in financial evaluation alone.

4.2.2 Challenges

The analysis highlighted various challenges with which the business and the decision maker deal, especially in a world where technology is changing and impacting customer needs. Some of the significant problems identified were: the complexity and understanding of digital solutions, a clear articulation of the solution and what it wants to achieve, identifying the right technology upfront, double counting of financial benefits especially in a digital world as everyone has the same customer, how the investment into a digital solution within one business unit impacts other business units and functions within the bank, as well as the timely approval process.

The approval process takes longer and projects keep coming back for approval – one of the interesting reasons mentioned by about 50% of the respondents is the unclear articulation of the benefits, and Respondent 1 confirmed this view.

> *"Clear articulation of a benefit is often difficult." (Respondent 10)*

Respondent 11 unpacked the reasons further and highlighted that not enough effort is placed in getting a clear understanding of the solution, the impact on business and the requirements – resulting in project failures.

> *"I think for me, it is the biggest flaw in the process is. We do not spend enough time on really articulating what we want to build, how we want to build it, how user-friendly the functionality is, and what is the desired defining the desired outcomes we want." (Respondent 11)*

There was more feedback from the respondents regarding the impact of the timeous funding-approval process. Some of the outcomes mentioned were: loss of momentum, low energy levels of people, changes in leadership with different ideas and the internal capability to manage and execute the project; all impacting the success rate of projects and what applicable multi-year projects as well.

Other challenges highlighted were: strategic alignment of the initiative, the lack of executive sponsorship, the risk associated with technology, the capabilities within the organisation to drive large change projects and lengthy governance processes and

also impact project success, with Respondent 3 highlighting further consequences of a cumbersome timeous process.

> *"But because of the lengthy governance processes that need to be followed over time. By the time that you get into a head position. Even the product managers that created the business case have left the business because of a long centralise lead time on solving the problems by the time that you get into solution." (Respondent 3)*

4.2.3 Alternative experimental approaches

Experimental approaches allow for testing and investigating. Some 50% of the respondents indicated that there is a need for an experimental alternative approach of investment funding for projects in smaller parts, rather than one significant release linked to a project that takes a long time to implement. They have mentioned the need first to test an idea before an investment is made and be able to experiment in order to articulate and understand the impact on the customer and the business of the solution and minimise wastage of resources and cost, with Respondent 4 expressing the need for experimentation.

> *"And the essence of it should be tested by an experiment of some sort." (Respondent 4)*

Respondent 11 confirmed the importance of testing and investing in smaller increments upfront until more certainty regarding the benefits and organisational impact.

"You have to have some seed money and build a simple demo of some sort and see does it give me what I want and how I wanted a job before the full scale. Have a staggered release and where the solutions have ten functionalities; you build it with two functionalities release it, start seeing if it does work and the take-up rate change and then do piecemeal releases of the functionalities." (Respondent 11)

Managing the deliverables in intervals also enable the business to focus on smaller changes which are easier to articulate and understand, allowing for better accuracy and control over the funds.

Interestingly, Respondent 6 went through a process to secure a pool of funding within the bank to fund proof of concepts projects relating to digital investments within the bank without going through the full governance process. She engaged with various support functions like legal and sourcing, where her environment have dependencies for delivery and created a streamlined process between the functions. This enables the area to work in an agile way, and reduced delivery time of solutions significantly.

"And so we have worked with sourcing and legal to streamline all those processes." (Respondent 6)

4.2.4 Summary of the findings of the evaluation of an investment in digital solutions

The factors highlighted has been mentioned by the respondents – in summary, the business is taking other factors into account for the evaluation of digital investment and not just traditional financial evaluation methodologies, although the standard submission documentation and submission process is not yet aligned. Businesses use alternative evaluation criteria as discussed, and the primary considerations for evaluation is the strategic alignment of the initiative, the impact on the value drivers that support the strategy, financial outcomes and then the need to invest to stay in the market, alignment of solutions to the market as a result of changing technology impacting customer behaviour. A consistent challenge within each theme regarding digital solutions is the articulation of the benefits; this has a direct impact on the benefits evaluation and approval process. Measuring the success of a project is directly aligned to the evaluation of the project in the beginning, and the success measures should be articulated upfront.

4.3 Findings of the Success Measures for Digital Solutions

The respondents highlighted various themes relating to the success measures of digital solutions and are summarised as project success; this included: delivering on scope, within budget and achieving the financial benefits as planned. The analysis also focused on which actions and processes have an impact on the success of the project and the following key themes were identified: strategic alignment of the project, focus, changing technology, internal capabilities, alternative approaches to approval and project delivery.

Further to the discussion, there was much discussion regarding reasons why projects are not successful and how to improve the process from idea generation through to delivery. The major themes which impact project success or failure were identified as such: clear articulation of the digital solution; strategic alignment to the organisation's strategy, from business case through all functions and stakeholders, changing technology, internal capability, focus on the project, learnings and benefits tracking.

Figure 2 illustrates the project success factors identified as well as the need for an alternative experimental approach of impacting overall project success.

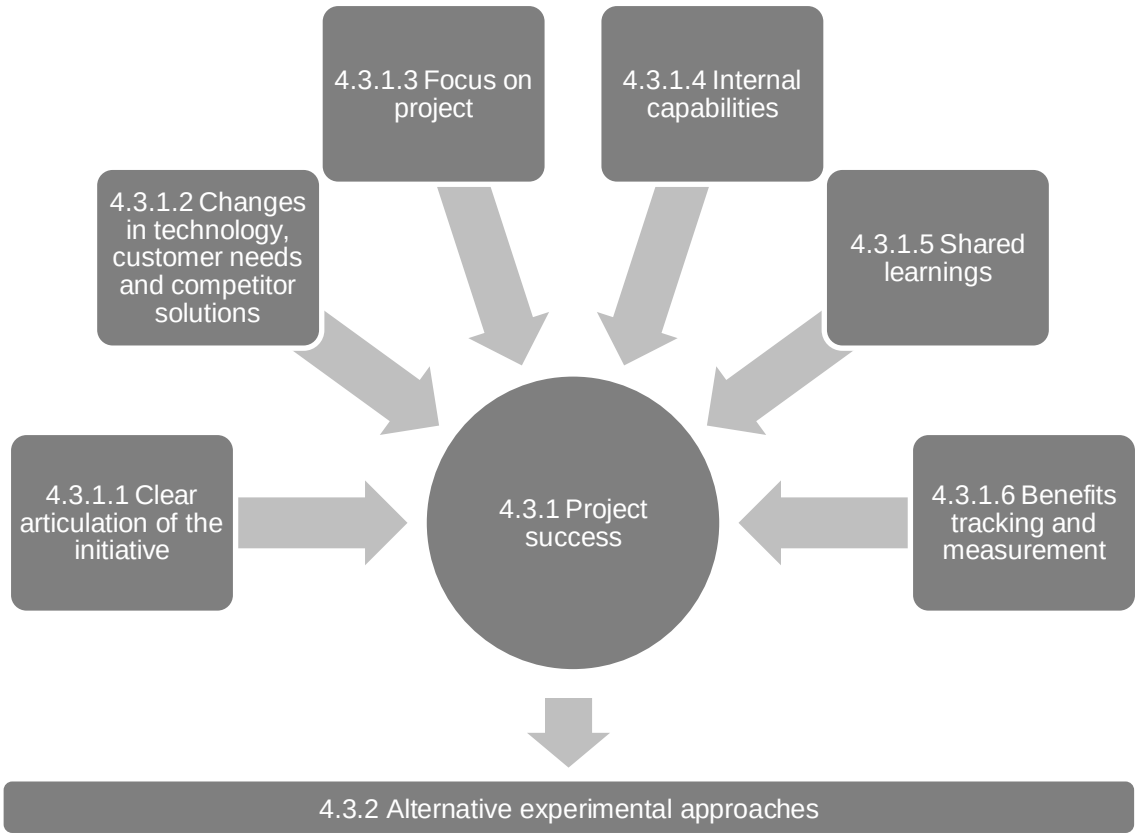


Figure 2: Project success and alternative experimental approaches

4.3.1 Project success

Interestingly, 83% of the respondents defined project success as delivering on scope, within budget and agreed on timelines. Respondent 7 provided a summarised definition for project success, from idea generation to realising the benefits.

> *"A project is appropriately scoped, and it delivers on a scope, it is appropriately costed for, and it delivers on the budget, it delivers on time, and I would say the last one is that there was a shift in the indicators when it was starting to be expected, as delivery, benefits get to realise." (Respondent 7)*

A compelling response came from Respondent 4 and Respondent 6, who highlighted that project scope will change and the actual benefits realisation is more important than scope, as the scope in a digital world can change; however, the relevance of the solution should remain throughout and should be one of the critical success factors.

> *"So the relevance of it at the beginning has got to remain the same level of relevance, at the end, when it is delivered." (Respondent 6)*

Other measures mentioned related to the delivery of the projects are: did the project meet its objective, i.e. improve customer experience, realise a financial benefit.
An interesting comment was made by Respondent 5, who highlighted the impact of collective learning and how teams start to factor in learnings in the success of the project and future products.

Various factors influence project success; however, from the analysis six themes were identified: clear articulation of the initiative, impact of technology changes and customer behaviour, focus from a business on the initiative, internal capabilities, the impact of shared learnings as well as measuring through benefits tracking and management.

4.3.1.1 Clear articulation of the initiative

One of the most mentioned themes in the research identified was the clear articulation of the initiative; this impacts the time it takes to deliver a project from idea generation through to approval and delivery. It also has an impact on resources and cost. Some of the factors that contribute to the challenge in articulating the solution well are: identifying business requirements upfront, people's ability to think commercially, clearly defining how success looks at the end for the solution and identifying the relevant stakeholders for the project. Respondent 12 articulated it well by highlighting the responsibilities of key stakeholders.

> *"I think that is where the way of work needs to be clearly defined and the segregation and understanding roles and responsibilities of the different key stakeholders in the process." (Respondent 12)*

Respondent 11 supported the view and mentioned additional factors that should be articulated and considered upfront, like spending enough time to understand the impact and outcomes.

“I think for me, it is really the biggest flaw in the process is that we do not spend enough time on really articulating what we want to build, how we want to build it, how user-friendly the functionality is, and what is the desired, defining the desired outcomes we want.” (Respondent 11)

From the analysis, it was evident that the projects where the initiatives were planned thoroughly and understood at the beginning of the journey were much more successful than the projects not adequately planned and had a high success rate. Respondent 5 described the journey of success well from plan to successful execution.

“We have great successes is those business cases we invested more time in our planning phase, to really take it from a concept to a business case and we know this is what we want to land this is how we want to land so we understand the journey we want to get to, and you do not develop your journey as you as you go.” (Respondent 5)

Articulation from idea generation, business requirements, stakeholder requirements and business impact through the value chain remain a vital success factor for projects.

4.3.1.2 Changes in technology, customer needs and competitor solutions

Another dominant theme that came out of the analysis impacting the time from idea generation to delivery is the impact of changing technologies and the extent to which customer behaviour is impacted by those technologies and the competitor solutions

within the market. The change comes both from aligning the business to the technology and understanding the current level of technology within the business, as mentioned by Respondent 4.

> *“Kind of technology-led change vs business-led change.” (Respondent 4)*

Respondent 10 highlighted that in change, digital solutions are continuously driven by changing technologies.

> *“I think the biggest drivers of the changes are because of the virtue of its nature; for example, in digital, you looking at new technologies.” (Respondent 10)*

Again, a significant consideration is the risk of not investing in technologies and lagging behind competitors who are investing, creating additional pressure on the organisation to grow and maintain market share. Respondent 4 mentioned some of the reasons like staying relevant, as consideration for success.

> *“I think there are elements of digital projects that you have to do to remain relevant in the market.” (Respondent 4)*

Delivering a solution that is still relevant remains a crucial consideration to remain competitive. Respondent 2 highlighted some of the risks of not staying up to date as new entrants taking market share and customers.

"Maintaining is staying up to date, this is predicting yourself right because you have so many new entrants that can come in and eat your cheese." (Respondent 2)

Aligning the current technology stack and being able to quickly change and adapt to the different requirements is a crucial enabler for project success.

4.3.1.3 Focus

Focus stood out as a theme throughout the analysis and is one of the critical activities that drive project success; and the following ongoing disciplines support the theme: leadership involvement, accountability of all stakeholders related to the project, governance, tracking of projects and benefits. Respondent 4 highlighted the importance of staying involved throughout the journey and project delivery life cycle, focusing on the importance of staying informed throughout the journey.

"I think, staying close to the progress of the project, I mean I think that the executive or the business owners got to be part, has to be clearly articulated whom it is and has got to stay actively involved throughout, I do not think it can be about just attending a steer once a month." (Respondent 4)

Further to the continuous involvement, Respondent 3 highlighted the importance of leadership and management involvement on the success of the project.

"We need senior people in projects; you need accountable executive sitting in the project because you know any big change is leader lead right in for each

of the people that sit around the table, to a large extent related to mining the success infill of projects." (Respondent 3)

Some 58% of the respondents confirmed that projects, where the governance is well embedded and matured, have a high rate of success. Respondent 7 highlighted stability as an outcome of proper governance in the project world.

"If you run the strong project and programme governance, it creates more stability, and rails for projects to succeed." (Respondent 7)

Robust governance and commitment remain critical in ensuring projects that ran across multiple years increase their probability to be successful over time, with Respondent 4 highlighting full-time involvement in project delivery.

"If we have large programmes that are multi-year or multidimensional. I am starting to believe that you need almost full-time secondment of business." (Respondent 4)

Respondent 3 confirmed the importance and place of governance within the project delivery cycle.

"This is where proper governance needs to kick in, you know, proper governance, with quality people with mandates." (Respondent 3)

Another factor that influences the success of projects is how people manage accountability within the project, take responsibility as well as ensure that the business unit itself owns and accounts for the initiative. Respondent 3 highlighted a requirement for a business to align to governance and, in a way, manage accountability through governance.

> *"What needs to happen we need to ensure that in terms of our governance and principles, or how we manage the project; we adopt some of these, you know, new ways of managing projects in such a way that we hold people to account, or to be accountable." (Respondent 3)*

Some of the challenges that were identified are where there are structured operational changes within the organisation, and critical individuals move to other areas, the accountability fails and the focus on the project drop as the priority for the only change. Linking reward to longer-term success measures was mentioned as a tool to increase responsibility and commitment of resources over time.

4.3.1.4 Internal capabilities

Projects are managed and done by people; people play a critical role in the success of a project. The capabilities and skill of people have a direct impact on the time to deliver a project, the actual delivery and the cost associated with that delivery, which came out as a strong theme in the data analysis. Respondent 3 highlighted the importance of capable resources throughout the project value chain.

"So the quality of the people that sit, the quality of the people that sit in the steering committee. The quality of the projects team. The quality of resources that are allocated into the project, including finance to track and placed committed investment to actual spend so that you can manage, you know, potential risk of overspending." (Respondent 3)

A concern that was highlighted by Respondent 1 was the insight and commerciality of the individuals delivering the projects – do they fully understand the requirement, especially in a fast-changing world where technology keeps on evolving? There seems to be a challenge in the understanding from the technical teams developing the solution against the business that requires the solution.

"Businesspeople tend to prescribe how they want the solution, how they wanted to be solved. And sometimes the developers do not go out of the way to actually understand the business need." (Respondent 1)

Improving the overall maturity and capability within the organisation to manage change projects remains a vital contributor to project success and was identified as a challenge by approximately 80% of respondents. Respondent 8 highlighted the importance of change execution as a factor of success.

"If we want to be good at doing the digital change, then we must be really good at change execution." (Respondent 8)

Further to the execution, a key influencer thereof is the ability and capabilities of the team. With the constant changes in technology, people have to stay abreast of changes and developments, and the business has to position the project management capabilities in line with the overall strategy. Respondent 7 confirmed the requirement to create and develop capabilities.

> *"We need to create project and programme management capabilities."*
> *(Respondent 7)*

In terms of the impact of the delivery method of projects, Agile versus Waterfall and the impact on the project success was interesting; only 25% agree that an agile type of approach is beneficial especially in an era where technology evolves and customer behaviour changes regularly; where the rest feel that both have a place in the organisation. Respondent 1 highlighted that some of the benefits of using agile are the ability to continually align with the business strategy and being able to change quickly with changing technology and customer behaviour.

> *"You are continuously aligning business expectations, and also with agile have a little bit of opportunity to when things change like a real thing that's changed like a customer need or requirement, you could build it in."*
> *(Respondent 1)*

Respondent 4 highlighted the importance of focusing on the best approach for a specific solution rather than a set approach and depending on the requirement, a delivery method should be applied.

"They can I think they can work; they can almost kind of work in together if the project requires it. Yeah. I think if it is a large project you might have components that are done in an agile basis and other components done on a waterfall work because that is the best approach for that programme." (Respondent 4)

A constant response from Respondent 2 and Respondent 5 stood out regarding the delivery method. The method is not as crucial as the people's capabilities that run with the projects and Respondent 5 highlighted the proper project management capabilities, buy-in and alignment from the organisation rather than the method.

"I would say that your project management and how you manage the project is more important than the delivery method because. You still need to stick true to your project management and your change management elements because they will also be, there will always be milestones even in a big build. So I do not think that the delivery method, per se, is the failure of it. I do think it is more how you manage the project around, and the governance around it, the buy-in, that makes for a successful project." (Respondent 5)

The developing and constant improvement of the organisation's internal capabilities in terms of resources and skills remains a vital factor in impacting project success.

4.3.1.5 Shared learning

Learning from other remains a crucial enabler for the future success of project delivery. Learnings improve productivity and efficiencies of resources in project

delivery, resulting in reduced cost to achieve and delivery time for projects, enabling the business to meet the needs of the customer sooner as evident from the data collection. It was highlighted by Respondent 7 that the business does not actively share learnings from projects.

> *"I think we did it in some areas where it added a lot of value, where we are today. I do not think it is there is enough of an effort to do learnings."*
> *(Respondent 7)*

Some of the benefits identified through the analysis included faster turnaround time for projects, project efficiencies and establishing mature project management capabilities. Respondent 5 confirmed some of these benefits.

> *"As your teams learn right now is that collective learning, and they start to do things faster and quicker turnaround so you should, but maybe as your project management capability mature, you start to factor those, those learnings in."*
> *(Respondent 5)*

A different argument came from Respondent 2, who felt that by sharing learnings people would fall back to old habits and be less innovative, as people will build an old system in another way and not truly innovate.

During the analysis, some barriers for knowledge sharing were identified: the way teams are structured, located and the building designs, as well a lack of enforced

governance around proper project closeout and sharing of the things that did not go well rather than just what went well.

4.3.1.6 Benefits tracking and benefits realisation

One of the critical activities required to evaluate the successful realisation of the benefits of a project is the actual tracking of those benefits and ensuring they realise within the business as planned – tracking, reporting and managing of benefits, increase accountability and focus on projects. Benefits realisation within the retail and business bank cluster is not correctly embedded as a function. Respondent 7 highlighted one of the requirements for a benefits realisation is to have a sustainable solution, thus a dedicated area focusing on measuring and tracking benefits even after full project delivery to enable more accountability and understanding.

> *"I do not think we managed to get it right over the last few years. The challenge that you also face that it is not a sustainable solution a place that takes a project, and really ensures that it gets tracked and measured on its benefit over some time in which the business case says it will give us a benefit." (Respondent 7)*

Some of the business units include the estimated benefits in their financial plans and if the benefits do not realise as planned, they pose a risk to the business unit's financial plan. The business unit is still responsible for achieving its target and, in some instances, will implement other actions to achieve the business unit target. There are many reasons identified for not having a proper benefit-tracking capability in place: the quality of the team that is tracking the benefit, clear articulation of

benefits upfront with the approval of the business case makes it challenging to define benefits, poor governance and changes in accountability as people move within the organisation all of which aligns with some of the discussions earlier. Respondent 8 confirmed the current level of benefits measurement and further highlighted that one of the barriers for proper benefits measurement is the ability to understand the impact of the initiative within the organisation and financial drivers.

> *"Poor and reason why I say that is that I do not think we understand the drivers of success well enough generally, you know, in a business. So, when we pull a lever, we do not know really what the knock-on effect will be all we know if we do these five things, we will achieve something." (Respondent 8)*

Some 58% of the respondents believe that making individuals accountable for the benefits will result in improved benefits measurement and tracking, both from individual responsibility and the business as a whole – they have to own the benefits. Respondent 12 linked accountability and benefits measurement through the responsibilities within the project value chain from delivery to implementation.

> *"So accountability for me needs to be in one place or as close. So, between those that deliver it and those that actually sit with the benefit."*
> *(Respondent 12)*

Benefits tracking and measurement is a crucial enabler to drive accountability and project success.

4.3.2 Alternative experimental approaches

The research touched on the metered funding and Innovation Accounting approach discussed in the literature review; however, throughout the data analysis, there seems to be a need for a different approach to project approval, funding release and delivery. Various alternative approaches like experimentation, proof of concept, testing and MVPs were mentioned. Respondent 7 confirmed some of the benefits, which include learning, experimentation and scaling.

> *"You probably want to make sure that these separate funding available to also enable new ideas to quickly get tested whether they have commercial value with customer value and see what it means. Because I think if you can do a quick cycle to mature a concept and go do something with it and test it, allows you to very quickly learn and decide what to do in scale, and then you can decide whether to go into full-blown development or have you seen enough to make a call to decide this is probably not for us." (Respondent 7)*

The respondents proposed some interval/milestone funding where the initiative can be tested first without spending a large amount of money, delivering the project in intervals or potentially in a sprint approach. Respondent 7 highlighted the benefits of interval delivery and evaluation.

> *"That gives a project opportunity to have more milestones towards success, on, off success, versus trying to reach a far down the line milestone, which takes longer to achieve." (Respondent 7)*

With metered/interval funding approaches, funding is allocated to each phase and creates a scarcity of funds for the project team, which increases accountability. Each phase has to meet its agreed objectives before funding for the next phase is approved and agreed for the next release. However, there is a risk that the team may settle for second best, which was a concern for Respondent 4.

> *"I guess the thing you want to mitigate in that sense is, is cutting corners that to get it done. Because it will come back, later on, to, to bite you."*
> *(Respondent 4)*

There seems to be a business need for testing and experimentation of initiatives and ideas before investing in full developments.

4.3.3 Summary of findings of factors impacting the success of investment in digital solutions

Project success is defined as achieving its objective in line with the scope, within the approved budget and on time. Numerous factors impact the ability to deliver projects successfully on time, within budget and scope. However, the following themes emerged from the analysis: clear articulation of the project, technology changes driving different customer behaviour, the level of focus on the project, the organisation's internal capability to deliver these projects, shared learning during the project and after the project has been implemented, and finally a benefits-tracking and measurement capability to report and validate the actual outcome of the project.

4.4 Summary of the Findings

The findings from the analysis highlighted the various consideration factors when decision-makers approve digital solutions. All of the respondents looked further than just the traditional financial evaluation methodologies when assessing digital solutions and consider the alignment to the organisation's strategy, customer behaviour as a result of changing technology and non-financial drivers that influence and drive the outcome required. Challenges were identified and the business showed interest in using alternative evaluation and delivery approaches. From the analysis, it seems that there is not one consistent way of evaluating an investment in digital solutions.

Project success is aligned to the evaluation of the investment in digital solution as the ability to deliver on time, within scope and budget, and meeting the organisation's strategic objectives. The analysis highlighted various factors that can support the successful delivery of projects. These included strategic alignment to the organisation strategy, changing technology, internal capabilities, focus, sharing learnings and doing benefits tracking.

There seems to be a need to look at alternative ways to evaluate digital investments as well as a different approach to project funding and approval to improve overall project success.

Chapter 5 discusses the findings about the various respondent findings and previous literature.

CHAPTER 5. DISCUSSION OF THE FINDINGS

5.1 Introduction

This research started by providing an overview of investment evaluation methodologies, the advantages and challenges of each, as well the success factors one should consider for investment in digital solution – specifically the drivers of project success and benefits tracking. Chapter 3 discussed the research approach – a qualitative study; the research followed a qualitative approach and a thematic analysis was done on the data collected. Chapter 4 summarised the findings of the analysis, while the purpose of this chapter is to discuss the findings of the study concerning the research objectives:

Objective 1: Factors to consider in the evaluation of an investment in digital solutions.
Objective 2: Success factors to consider for the evaluation of an investment in digital solutions.

This chapter discusses the findings from Chapter 4 regarding the research objectives' previous theory and concludes the study.

5.2 Demographic Profile of Respondents

The respondents selected were identified as individuals with experience and the ability to influence decisions regarding the evaluation of investments in projects. The

gender of the selected participants does not have any bearing on the outcome of the survey. The study is not gender-dependent.

5.3 Discussion about the Evaluation Considerations of an Investment in Digital Solutions

In order to execute the business strategy, the business has to invest in various solutions to drive and deliver the strategy. In this section, the focus of the discussion is the factors which businesses can consider when evaluating investments in digital solutions. Various studies have been done on investment in technology, but not necessarily adopted by the bank.

In Chapter 4, four themes (factors) emerged as the primary considerations for evaluating investments in digital solutions: strategic alignment of the initiative to the organisation's strategy, technology evolution and customer demands, financial considerations, and non-financial considerations. Further to these four considerations, the business requires an alternative experimental approach in evaluation of digital solutions.

Figure 3 illustrates the structure of the discussion regarding factors impacting the evaluation considerations, challenges and alternative experimental approaches.

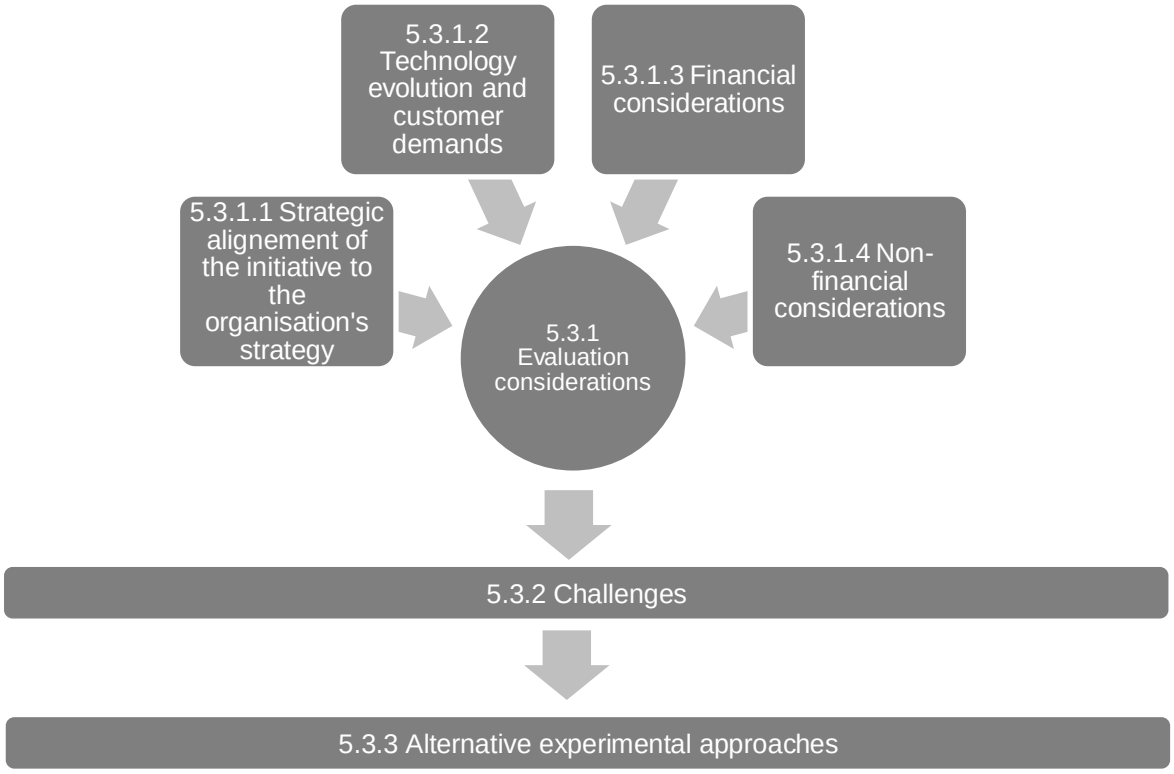


Figure 3: Discussion of evaluation considerations, challenges and alternative experimental approaches

5.3.1 Evaluation considerations

As discussed, investment in digital solutions cannot be evaluated by only considering a financial metric. Projects are used as enablers of the organisation's strategy, and strategic alignment of the initiative to the organisation's strategy plays a vital role in the evaluation decision. Where the organisation is in terms of its technology stack and current solutions compared to the market, financial consideration remains essential and cannot be looked at on its own but are complemented by non-financial considerations; and, in some instances, non-financial considerations play a more critical part in the decision-making.

5.3.1.1 Strategic alignment of the initiative to the organisation's strategy

From the analysis in Chapter 4 it is evident that strategic alignment is one of the primary considerations which is taken into account for an investment decision. The strategic alignment ensures that everyone is driving towards the same goal and outcome in the organisation. The consideration takes into account where the organisation wants to go; the initiative is evaluated against the strategy, which is defined by the strategic value drivers and how the initiative influences the strategic drivers.

The findings tie in well with previous studies and go further by articulating the benefits of aligning the business case with the strategy, increasing the return of the organisation through the investment – by nature being flexible to react to new opportunities and creating a competitive advantage. Also, the business has to go through a prioritisation process in order to ensure the maximum alignment of initiatives to the strategy (Avison et al., 2004). By aligning with the strategy, everyone in the organisation is focused on the same key value drivers which underpin the strategy of the organisation.

The results of a study by Yeow et al. (2018) is broadly in line with the findings discussed in Chapter 4 and mentions similar challenges as the findings in Chapter 4 outline. Strategic alignment of the digital strategy remains a challenge for any organisation, as it is challenging to articulate the impact of digital strategies upfront. It remains a continuous approach due to the various changes in technology and customer behaviour. A digital solution is multifunctional and dynamic; and in some cases, alignment requires more than one area to work together. Further challenges

noted include business inertia, internal capabilities and past investment experiences as evaluation considerations.

5.3.1.2 Technology evolution and customer demand

For organisations to remain competitive, they have to invest in technology and digital solutions. This was highlighted by various respondents in the analysis of the findings. It also aligns to previous research on competitor responsiveness in digital solutions done by Dutta et al. (2014), where it was found that the investment in digital solutions has a positive impact on organisations' market share, for both the organisation that moves first and the lagging organisation. The first mover will remain the leader as long as it continuously invests in the digital solution; however, where the competitor invests significantly in the long run, it can overtake the first mover and increase its market share. The threat, therefore, remains in not investing and thus losing market share. As per the introduction in the previous chapter, 78% of the retail and business bank project investment requirement is digital-related and 81% of the requirement is just to maintain or align the current capabilities and not bring something new.

Customer needs and experience play a vital role in decision-making and align with an investigation done by Foroudi et al. (2018), which found that the increased use of technology is leading to influenced customer behaviour for organisations. One of the key drivers is the need from customers for a seamless experience; and technology is enabling these experiences. Organisations can strengthen the relationship with customers through emotional engagement, making it easy for customers to do

activities entertainingly and allowing them a dynamic visualisation of information. Investment in digital solutions is a vital contribution to enable customer experiences. One of the alternative approaches discussed in Chapter 4 indicated an environment to test initiatives which aligns with a study by Oshodin, Molla, Karanasios, and Ong (2017), who suggest that banks have to scan technologies and their functionalities in the market and test them within the organisation, recruit the right knowledge and actively monitor the competition to remain competitive.

It remains critical for organisations to align with customer needs in order to keep and increase market share. Customers want seamless experiences and investment in technology enables these experiences. Furthermore, the first mover in a specific solution will have a decisive advantage and organisations should be on the lookout for new technologies to continually improve customer experience and differentiate themselves from their competitors.

5.3.1.3 Financial considerations

From the analysis, traditional financial considerations is not the first criteria decision makers take into consideration when they evaluate an investment in a digital solution. Instead, they take note of the traditional measures and outcomes, but focus on other financial measures such as cost reductions, revenue increases and the cost-to-income ratio, which indicates how effectively an organisation uses its resources to generate income. Cost-to-income has a negative relationship with bank profitability; thus, the lower the cost-to-income ratio, the higher the profitability (Pradhan & Parajuli, 2017). All of these will ultimately have an impact on the traditional financial returns; however, from an evaluation criteria point of view it may

be challenging to link and articulate the full impact in a multi-dimensional environment.

Misra (2006) highlights some of the challenges with traditional measures as discussed in Chapter 2: traditional measures are a short-term focus, and is very difficult to predict as they are mostly based on a static business environment which is not in line with reality in a fast-changing technology world. She concluded that the ROI would be complicated to measure, as it benefits the intangible business assets like increasing market share, brand, customer experience and process turnaround times.

The respondents indicated the difficulty to measure and calculate the financial benefits, which aligns with the literature review done in Chapter 2 stating that this is as a result of the complexity; the fact that the benefits are multidimensional, impact more than one business unit and have the potential for future value-adds. Real-options thinking takes into account the various uncertainties and can potentially be considered when evaluating digital investment (Pivorienė, 2017).

This is further supported by Kauffman et al. (2015), who highlight that there are various uncertainties, investment cost requirements, future benefits, the future markets and uncertainty in terms of the level of technology expected from customers. The investment costs incurred is also irreversible and if spend on a solution is not relevant, it will be wasted. Other considerations should be considered that will inform evaluation decision-making.

5.3.1.4 Non-financial considerations

Non-financial considerations have become more and more critical in a fast-changing technology-driven world, and Bini et al. (2019) argue that the inclusion of non-financial drivers or indicators in the evaluation allow for strategic alignment of the initiative, have an impact on organisational effectiveness, allow for an understanding of benefits as they provide insight on aspects of the business that financial measures cannot this aligns to some of the challenges and reason for using alternative evaluations criteria.

From the discussion on financial considerations and the findings above, it is evident that financial considerations on its own are not a sufficient evaluation methodology and that other evaluation criteria should be considered. As previously discussed, digital investment evaluation of financial benefits is complicated and business should consider alternative approaches. From the findings discussion, the primary considerations mentioned were mostly customer-related considerations as well as resource efficiency and the ability to introduce new products and new markets which were not previously possible. This aligns with research done by Gunasekaran, Love, Rahimi, and Miele (2001), who argue that most investments in digital solutions focus on improving operational efficiency, which takes into account cost reduction and improved profitability. They argue that most of the traditional evaluation methodologies evaluate tangible benefits, linked to direct project investment cost that does not consider qualitative benefits like customer support and product flexibility which cannot be measured in monitory terms. They suggest taking into account the impact of the digital solution on operational performance and identifying those critical

success factors or business drivers that would be impacted, and evaluate them in terms of alignment to the business strategy.

Non-financial measures is a crucial consideration for the decision-maker as it allows him or her to look beyond set criteria or framework, as each investment in the digital solution has its characteristics and understanding of the impact of the solution on various business drivers rather than a pure financial evaluation (Gunasekaran et al., 2001). The non-financial drivers for evaluation consideration should be those drivers which are directly linked to the organisation strategy and which impact overall performance.

5.3.2 Challenges

From challenges that were identified in the analysis of the findings, it was evident that investment in digital solutions remains a challenging task. Challenges identified were: the complexity; the articulation of benefits, which is in some instances a result of poor articulation of the actual solution; double-counting of benefits; the actual process of evaluating the initiatives; and strategic alignment of the solutions to the organisation's strategy. This aligns to the challenge identified by Ries (2017), where organisations were founded on steady growth, has various experts in functional silos and manages large programmes; these companies prioritise projects on traditional evaluation methods and approve projects through a hierarchy of management, resulting in slow responses to market and customer demands (Oshodin et al., 2017).

5.3.3 Experimental alternative approaches

Alternative approaches focus on experimental ways of evaluating projects and testing ideas before the full investment is made. This is to test the impact on customer, articulating the benefits and evaluating success which aligns to Ries (2017) proposed method of project evaluation – evaluating the idea against the strategy by considering the value of the idea and the ability to grow, and focusing on leading indicators that will predict future success such as customer engagement, repeat usage and customer adoption rates. Delivery of the solution is via the MVP approach, which is a real product that allows the business to test and measure customer impact and experience, having the ability to quickly turn an idea into reality and build on it, with controlled investment and limited overspending on projects.

5.3.4 Summary of the discussion regarding the evaluation considerations for investment in digital solutions

Interestingly, most of the challenges faced by the business correlates with research done previously, some as far back as 1995 (Renkema & Berghout, 1995), who recommended alternative ways of evaluation of technology and digital solutions. Most of the decision-makers in the bank take into account other factors for evaluation of projects in digital solutions as per the discussion, taking into account the impact on the business drivers that are aligned to the strategy as well as the ability to respond to customer competitive digital solution investment. Current approval and funding allocation processes take long and is cumbersome, and the business has a definite need for an alternative evaluation and delivery evaluation governance framework that makes it easier to invest in digital solutions, improve the

integrity of the evaluation by aligning the drivers to the strategy, and deliver projects in an experimental MVP manner through intervals.

5.4 Discussion about Success Measures for Digital Solutions

Once an investment solution is delivered, it remains a challenge to measure the success of the project effectively. As per the discussion in the literature review, Shenhar et al. (2001) argue that projects' success cannot be judged on financial measures alone as they do not support a dynamic, multiproduct and high fixed-cost environment. Shenhar et al. (2001) highlighted four factors which take into account project success: project efficiency, customer impact, business and organisation success, and supporting for the future. The factors consider both short- and long-term success measures.

From the analysis done in Chapter 4, project success defined by the respondents mainly focused on project efficiency and only a small number of respondents looked at more than just considering project efficiency. Everyone agreed that project success is when the project is appropriately scoped and delivers on that scope within the agreed timeline and planned cost to achieve, delivering the benefits as planned. Thus, in line with two of the factors considered under the short and medium-term category by Shenhar et al. (2001) namely project efficiency and customer impact. Under the section for evaluation factors the decision makers look at, for example, the opening of new markets and products which relate to business and organisational success as well as supporting the future, interestingly, this was not a success factor as considered by the respondents after the solution is implemented. Future success,

according to Shenhar et al. (2001), is a long-term project success measure. The findings, instead, describe a large number of reasons for project failures and how to improve the probability of project success; and the following factors were identified which would have an impact on project success: clear articulation of the initiative, changes in technology that impact customer behaviour, focus, internal capabilities, shared learnings and knowledge transfer, as well as benefits tracking and measurement.

Figure 4 illustrates the structure of the discussion regarding the success measures of digital solution, focusing on factors impacting project success and a requirement from the business regarding an alternative experimental approach.

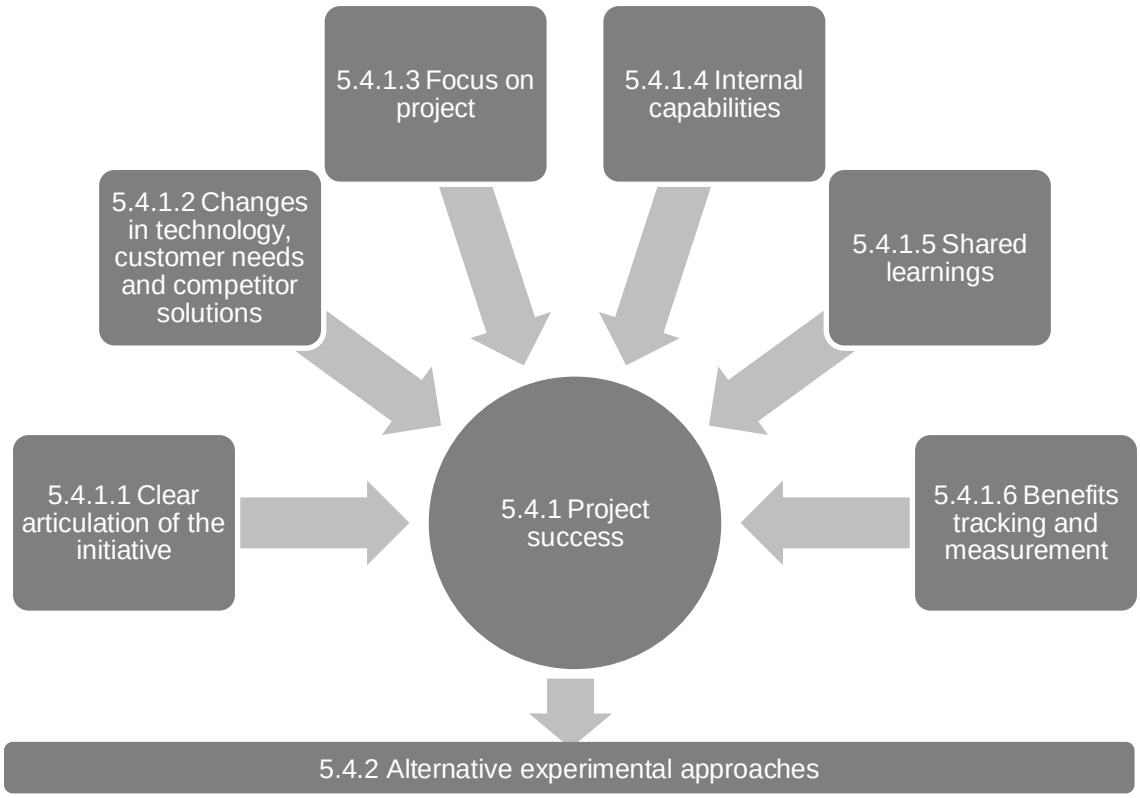


Figure 4: Discussion of project success factors and alternative experimental approaches

5.4.1 Project success

The analysis highlighted various factors that impact the probability of project success and is discussed below.

5.4.1.1 Clear articulation of the initiative

The findings indicated that one of the main reasons for project failure is the upfront articulation of the solution, understanding the real business problem which the business wants to solve, the impact of the proposed solution to the business and the organisation, which drivers will be impacted, and overall alignment to the corporate strategy. Thorough planning of the project from the idea generation through to the delivery has also been identified as a factor that impact project success.

Interestingly, the findings are aligned to Al-Ahmad et al. (2009), who argue that project management in digital projects are complex, even when they are understood; and describe that they are poorly defined, driven by rapid technology changes, low level of governance and the impact of market pressures. This understanding limits the ability to articulate the initiative well.

This is further supported by Toader et al. (2010), who argue that project failure is as a result of incomplete requirements, lack of planning and changes in requirements. The consequence of failure as a result of lack of planning and understanding is increased cost, thus impacting the overall profitability of the organisation as well as reducing project efficiency and short-term project success as defined by Shenhar et al. (2001).

5.4.1.2 Changes in technology, customer needs and competitor solutions

The findings strongly indicated that the success of projects is influenced by technology and changing customer behaviour, especially staying up to date and protecting the business from new entrants into the market. The findings were consistent with Dvir and Lechler (2004), who argue that one of the success factors for project success is proper project planning and that project planning is impacted by technology uncertainty, which today is a risk in any organisation due to the technologies that are continually changing and becoming more readily available to anyone and also at a lower cost. Customer behaviour is impacted by technology changes (Foroudi et al., 2018). Thus, project success is then influenced by customer behaviour changes. The impact of the changes in technology and related customer behaviour impact will have an impact on project cost and project efficiency, as solutions can be built which are no longer valid or required by customers as a result of changing behaviour and influencing project success.

The importance of aligning with the customer and understanding the customer is also described by Voss (2012); and the high impact of customer satisfaction on project success, as such, satisfying a customer where there is a risk of behavioural changes remains a challenge and a business has to be able to adapt and rethink how to find solutions to customer needs in a fast and agile way, not to miss out in terms of opportunities to satisfy and delight customers with services and products. Al-Ahmad et al. (2009) highlights 17 factors that impact project success, of which failed to manage end-user expectations are ranked ninth, and introduction of new technology ranked thirteenth.

5.4.1.3 Focus

The findings indicated that one of the primary reasons for project failure or project success is the level of focus on the project. Focus from the analysis was underpinned by leadership involvement, accountability, governance, discipline and tracking of benefits.

The findings relating to leadership involvement align with other studies done previously. One of those studies done by Toader et al. (2010) aligns and some of the significant factors highlighted as the involvement of the beneficiary of the project and the support of the manager. This also strongly aligns with Al-Ahmad et al. (2009), who rank factors that impact project success, and the first factor mentioned is lack of top management support.

Accountability remains a further challenge and this is also highlighted by Jugdev and Müller (2005) – for project success, there should be a commitment, a collaborative working relationship; the owner of the project should take an interest in the performance of the project. Accountability in projects is the foundation on which performance can be addressed with management; one of the primary objectives of project management is to allocate roles and responsibilities in order to get a specific result and as such relate to the success of a project (Leong, 1991).

A primary driver of project success is project governance, and this was highlighted through the findings in Chapter 4. Joslin and Müller (2016) argue that project governance impacts project success and recommend the stakeholder theory as a lens for developing governance structures; governance underpins accountability,

agreed ways of working and discipline. Project governance creates an environment for business and individuals to operate within and provide structure, thus not necessarily robust governance, but identifying a single point of accountability, ensuing a standard service delivery, creating a different governance structure compared to the organisation and distinguishing between project decision-making and stakeholder management (Zwikael & Smyrk, 2015).

5.4.1.4 Internal capabilities

People play a big part in project delivery; projects are managed by people, and the success of the project is dependent on the capabilities of the individuals who work on and manage projects. Technology projects have become more complex and competence, excellent management, proper decision-making and commerciality is vital (Gomes & Romão, 2016). The findings highlighted the quality of the resources, change management, insight and commerciality as challenges faced by the business, impacting project success.

The findings further align with some of the reasons for project success and failure as identified by Toader et al. (2010), who mention the lack of technical capability as a factor, as well as the availability of resources with the required skills set, resources with the ability to work together, staff turnover and project manager involvement. Al-Ahmad et al. (2009) support this view and include lack of requiring team knowledge and skills as well as insufficient and inappropriate staffing as contributing factors for project success; they argue that the current challenges facing the organisation in terms of competition and constant technology changes increase the impact of inappropriate skills on project success. They further conclude that another critical

factor for success is the project manager, and that an experience project manager increases the probability of success. Shared project learnings play a crucial role in creating a project management capability and skills set, and contribute to future project success (Gomes & Romão, 2016).

5.4.1.5 Shared learnings

The analysis highlighted some benefits of shared learnings, which include the ability for work to be done productively and efficiently and improve the project management capability. This is supported by Yeong and Lim (2010), who argue that regular feedback and alignment of learnings in the project teams is essential for building an improved project management capability and increasing the probability of success of future projects.

Other benefits associated with shared learnings include technology improvements, cost-savings and resource efficiencies. They are, thus, improving project schedules, reducing cost and improving quality (Yang et al., 2012).

Learnings as per the analysis are limited in the bank and should be a huge opportunity to improve the overall project maturity and commerciality of resources. Learnings and knowledge sharing from previous projects and other teams play a vital role in building a project management capability within any organisation and should be an opportunity most organisations can pursue.

5.4.1.6 Benefits tracking and measurement

The findings highlighted that the current benefits tracking and benefits measurement maturity is low and argued that is challenging to define the drivers for success for a project, and how the various business drivers and leading indicators impact the business. A potential action proposed by the respondents is to allocate accountability and responsibilities; those who deliver and those who sit with the benefit. Each must understand and accept his or her responsibility within the project delivery value chain.

The findings correlate with previous research mentioned in Chapter 2 regarding challenges with regard to benefits management (Mossalam & Arafa, 2016), which include poor governance, no description of benefits, unclear ownership and a lack of baseline metrics. This ties back well with the challenges disused in clear articulation of the project, requirements and impact. Mossalam and Arafa (2016) conclude that benefits measurement is vital to a project's success and achieving the project objectives, in some cases benefits measurement is used as the main factor to determine project success and not traditional metrics, cost, project delivery time and scope.

Sapountzis et al. (2007) describe benefits management as a way of optimising benefits from change projects and ensure that the capabilities created by the project are used to deliver the planned business benefits. They mention that it is challenging in a fast-changing world and that the evaluation of benefits usually lag behind the actual projects as digital solutions develop fast.

Embedding a proper benefits measurement capability within an organisation will support the project management delivery and increase overall project success. The respondents suggested this should be a separate sustainable capability within the organisation.

5.4.2 Alternative experimental approaches

From the findings, respondents required an experimentation approach, almost a MVP or proof of concept approach, whereby they come up with an ideas, get funding allocated quickly, build a testing prototype in order to get insight in the solution e.g. getting customer feedback, testing feasibility, as well as testing the commerciality learning through the process and getting a better understanding of the ultimate solution without spending a large amount of money. One of the comments was that the challenge with a metered or stage funding method could be that quality of the deliverables deteriorates as people work under more pressure. The analysis highlighted some of the benefits of delivering in a staggered /milestone and stage approach, which included less overspend and improving the success rate of projects by landing small successes throughout the journey and thus improving the overall success rate of projects.

This requirement is very much in line with the proposed way of funding and evaluating initiative by Ries (2017). In summary, developing a product or service in the current environment remains risky, and the organisation is faced with various uncertainties. One of the challenges that remain is how to test a product or service when it is not fully developed and bring it to market quickly. Ries (2017) argues that the business has to operate in a way that will provide it with opportunities to learn,

validate and increase certainty over the short term by creating an experimental environment and the leveraging of feedback to continually improve the product and service increase learning and solution quality. The learning and measurement are done against a specific metric based on leading indicators.

The criteria for starting with an initiative is made up of answering two questions. The first question one has to ask is whether the solution will provide value and the second question is whether the solution will allow the organisation to grow. One of the main dependencies with this approach is to validate these two assumptions early; thus, by delivering a MVP, the business can quickly test and validate the assumptions and feasibility of a solution. The metric for evaluation should take into account the retention of customers, focusing on achieving viral growth and a financial view which is customer-focused and, in short, takes into account the lifetime value of a customer less the cost of acquiring a new customer.

The purpose of an MVP is mainly to allow the product to be deployed, to test the product, gather customer feedback, identify the most viable features and test the product in the market (Lenarduzzi & Taibi, 2016).

Funding within the bank per the discussion is still very much allocated traditionally. Previous research highlights some challenges that large organisations may face in creating and running an experimental funding methodology; there are more communication links in a corporate firm than a small firm, team members are not all at the same location, and some team members work on multiple projects – all contributing to slow response and input. Another challenge will always be the culture

within the organisation. Moreover, finally, there are also the infrastructural barriers in terms of software and product release cycles that will limit the number of iterations and interval delivery. The organisation will have to empower business to experiment and explore more, be agile and solve customer needs.

5.4.3 Summary of the discussion about factors impacting project success

Projects are used to execute on an organisation's strategy. In order for an organisation to achieve the goals, it has to ensure that investments in projects and solutions are successful. The evolution of technology and the constant changing behaviour of customers remain a challenge and create various uncertainties. The organisation needs to be aware of the factors that can lead to success and failure in order to mitigate failure and increase the probability of success. The discussion focused very much on those factors which enable project success through the analysis in Chapter 4: clear articulation of the initiative or solution, challenges related to technology changes impacting customer behaviour, focus from the organisation on the solution and change function, capabilities of resources involved throughout the project life cycle, sharing learnings from projects with other teams, the impact of benefits tracking and measurement, as well as the option of an experimental approach to project delivery.

From the literature review, the findings and the discussion, it seems that various businesses and organisations face the same challenges, which in return create opportunities to increase the probability of project success by considering some of the factors discussed in this chapter.

5.5 Conclusion

This chapter focused on the discussion of the findings found through the qualitative thematic data analysis in Chapter 4. The focus was on considerations for evaluating investment in digital solutions by looking further than the traditional financial evaluation methods as well as focusing on success measures for investment in digital solutions. What came out strong through the presentation of the findings was the challenges business face with project success and how success can be improved, rather than looking at the actual success measures – specifically, the impact of project success.

The primary considerations identified through the discussion for evaluation of digital solutions identified and discussed were:

1. Strategic alignment of the initiative to the organisation's strategy
2. Technology evolution and the impact on customer demands and competition
3. Financial considerations not limited to traditional financial evaluation criteria but focusing on others such as the cost-to-income ratio, cost reduction and revenue growth
4. Non-financial considerations such as customer take-up rate, reduction in turnaround times and customer experience as well as the ability to be able to explore new products and markets
5. Lastly, a need was identified to test ideas through an experimental process and use the output and learnings as evaluation criteria.

The primary considerations of the success measures for digital solutions were mainly focused on project success and alternative views.

The following factors were discussed impacting project success:

1. Clear articulation of the initiative and understanding of requirements from everyone through the project life cycle and value chain
2. The challenges faced by changing technology, impacting customer behaviour and competition in the market
3. Focus on the project, especially leadership involvement, governance and accountability
4. Internal capabilities and skillset of resources working on the project
5. The ability for the project teams to share learnings and the impact of learnings on the project management maturity of the business, leading to future project success
6. Moreover, the importance of benefits tracking and measurement as a critical component of project success

Lastly, the discussion focused on the impact an alternative method of funding and project delivery will have on the project success.

Chapter 6 concludes the study provides recommendations and suggest areas for future research.

CHAPTER 6. CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

The purpose of this chapter is to conclude the findings and discussion presented in the previous chapters. This will be followed by recommendations and suggestions for future research.

6.2 Conclusions Regarding the Evaluation of an Investment in Digital Solutions

Evaluations of investment remain challenging and are driven by the nature of the investment. Technology is evolving fast and impacting customer behaviour. The competition for banks in the market is high, and organisations have to stay ahead and on top of delivering digital solutions quickly and in an agile way to remain competitive.

Traditional evaluation methodologies and processes take long and are not a true reflection of the benefits and potential of a digital solution, and other factors should be taken into account when evaluating an investment in a digital solution. The considerations take into account a broader view: strategic alignment to the organisation's strategy; financial considerations like cost-to-income, cost savings and revenue growth; new solutions and investments that is required as a result of technology evolution and customer demands; other non-financial factors including leading indicators and business performance drivers which is aligned with the

strategy of the organisation; and lastly a discussion around an alternative method of evaluation through experimentation and learning before scaling and development.

The literature review, findings and discussion aligned well as previous research discussed similar challenges. These challenges are an excellent opportunity for the business to consider alternative evaluation methods as the traditional methods and evaluation processes are short-term focused, take into account a static view of the market, and are not adaptable to changes.

6.3 Conclusions Regarding Success Measures for Digital Solutions

Owing to the nature of the investment in the digital solution itself, it remains a challenge to measure success due to complexity, technology evolution, constant customer behaviour changes, insight and skills of project teams. Project success plays a fundamental role in the overall success of a project and is the reason for success and failure rather than the success measures for digital solutions. There are various factors to consider for project success; this research focused on those which came out as critical from the findings as clear articulation of the initiative, impact as a result of customer behaviour and technology changes, focus from business on the project through leadership involvement, governance and discipline, the capabilities of resources on the project, the impact on future success through sharing learnings on projects and finally the benefits tracking and measuring, increasing accountability of the solutions and allowing the business to see what the outcome is.

The business identified a need for an experimental interval delivery and funding approach, whereby the business experiment up front with an idea and learn from it, testing the actual feasibility of it, getting customer input and furthermore validating assumptions. This will allow for less overspend on projects and increase overall project success rates and productivity within the teams.

6.4 Recommendations

The study highlighted various challenges within the bank about the evaluation of investments in digital solutions and highlighted various considerations which can impact project success. This allows for a great opportunity within the bank; the study highlighted a need for an experimental delivery and evaluation platform.

It is advised that the bank creates a framework and platform for the evaluation of digital solutions and empowers the various business units through set governance allowing for easy and fast decision-making within set parameters, and allocate funding to initiatives for experimentation before full development. Another suggestion to the bank is to create a benefits-tracking and measurement capability to increase accountability and project success overall of digital solutions, and enable the business to develop insight into business drivers and success factors. Finally, the bank could create a learning environment for project managers and business to learn from each other and share knowledge which will enable future successes.

6.5 Suggestions for Further Research

The study was focused on one bank only, and provided insight in specific bank challenges. Although some of the findings could apply to other organisations, there should be value in expanding the research to other banks and organisations. An in-depth study of the evaluation factors and success measures for digital investment would be a significant contribution to organisations and decision makers, especially in the current fast-changing world. Providing an agile framework, guidelines and structure within a fast-changing world would be beneficial to most organisations to enable them to improve the evaluation methods as well as the probability of project success.

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APPENDIX A – Participant information letter

2 St David's Place

Parktown

Johannesburg

2193

Date_____

Good day Sir / Madam

My name is Cobus Meyer, and I am a Masters student in The Field of Digital Business at the University of the Witwatersrand in Johannesburg. As part of my studies, I have to undertake a research project and I am investigating "Evaluating digital solutions in a retail and business bank: a South African case study". The aim of this research project is to propose a potential framework that can be used to evaluate digital solution investments.

As part of this project, I would like to invite you to take part in an interview. This activity will involve me asking specific questions relating to the topic, as well as a general discussion about what you may think can add value to my research; and will take between 60 and 90 minutes. With your permission, I would also like to record the interview using a digital device.

You will not receive any direct benefits from participating in this research, and there are no disadvantages or penalties for not participating. You may withdraw at any time or not answer any question if you do not want to. The interview will be completely confidential, and the information you give to me will be held securely and

not disclosed to anyone else. I will be using a pseudonym (false name) to represent your participation in my final research report. If you experience any distress or discomfort at any point in this process, we will stop the interview or resume another time.

If you have any questions during or afterwards about this research, feel free to contact me or my supervisor on the details listed below. If you wish to receive a summary of this report, I will be happy to send it to you once completed and accepted by the University. If you have any concerns or complaints regarding the ethical procedures of this study, you are welcome to contact the University Human Research Ethics Committee (Non-Medical), telephone +27(0) 11 717 1408, email Shaun.Schoeman@wits.ac.za

Yours sincerely,

Researcher: Cobus Meyer, meyer.cobus@gmail.com, 083 644 0047

Supervisor: Mthandeni Langa, mthandeni@gmail.com, 082 948 2920

APPENDIX B – Participant agreement form

Evaluating digital solutions in a retail and business bank: a South African case study.

Cobus Meyer

I, _____, agree to participate in this research project. The research has been explained to me, and I understand what my participation will involve. Please circle the relevant options below.

I agree that my participation will remain anonymous	Yes / No
I agree that the researcher may use anonymous quotes in his research	Yes / No
I agree that the interview may be recorded	Yes / No
I agree that the information may be used anonymously by other researchers following this study, proved that they receive ethics clearance	Yes / No

Signature _____

Participant name _____

Date _____

APPENDIX C – Research Instrument

Table 4: Research Instrument and rationale

Number	Question	Rationale
1	**There are various evaluation methodologies for project investments.**	
1 (a)	In the bank, traditional evaluation methodologies are used for the business case submissions, mainly IRR and NPV. This methodology has been used for the last few years. In your opinion, how should investment in digital solutions be evaluated compared to traditional investments? (Traditional investments should be, for example, deciding to occupy a specific building, opening a specific branch or launching a new product, where digital solutions and technologies would be where we build something digital, buy something digital or use digital to automate or change a process).	Understand what those considerations that should be considered, the ones that are not considered in standard project evaluation are.

Number	Question	Rationale
1 (b)	What “key performance indicators”, “leading indicators” or “objectives and key results” should be considered when evaluating an investment in digital solutions?	Understand the underlying drivers that are driven by digital change. Understand what those indicators that are not looked at traditionally are.
1 (c)	When evaluating your investment into a specific digital solution, does your business case gets strengthened with the benefits and costs of other business units or just your own, are these costs and benefits included in your evaluation decision?	Digital solutions provide additional opportunities and are often undervalued. This test if there are other considerations taken into account and unintended consequences.
1 (d)	Currently, it takes some time between when an idea is generated; a business case is built, reviewed and approved in the various business units, approved at Retail and Business Bank Exco level as well as Group Change, in your opinion, how can we improve this process? (Goes through various forums and done under pressure to get it in)?	Technology changes are impacting customer behaviour; it is essential to get to market fast in order to remain competitive. Traditional project approval processes and funding allocations impacts the time to market. How can the bank improve the process to increase benefits and project success rates?

Number	Question	Rationale
2	**The current business case template only looks at NPV and IRR (these measures are very short term focused). Digital solutions open up further possibilities and opportunities which are not always taken into account.**	
2 (a)	In your mind, do you think we are losing out in the market by having limited evaluation criteria for business cases like IRR and NPV? Why?	In terms of evaluation criteria, does the traditional ways limit us to approving initiatives by not considering other factors? Digital solutions open up other opportunities and are challenging to quantify.
2 (b)	Digital solutions provide various opportunities, and customers demand them, in your opinion, what are those factors that should be taken into account to evaluate digital solutions and future investments that we do not currently take into account?	Try and understand additional considerations not currently taken into account. What are those things that will still make you invest even though you cannot quantify the financial return? However, they have an impact on financial returns.
2 (c)	In your mind, why should we be looking at an alternative evaluation framework that NPV and IRR do not provide?	Understand what the need from the business is. Is there an opportunity to change the current way of

Number	Question	Rationale
		working and evaluating by providing an alternative framework?
3	**Funding is currently allocated based on a specific business case that is submitted and approved via the various levels. All the funding required for the initiative is allocated to the project once all the approvals are received. This business case is required to be at least 90% accurate for inclusion in financial plans during the various planning cycles, and in some instances, these projects take more than one year.**	
3 (a)	In most cases over the project life cycle, projects change in various ways, scope, delivery time and cost, which results in benefits that will change, which is not reconsidered for. In your mind, what are the biggest drivers of these changes?	Ascertain the impact of the way funding is allocated. What are some of the drivers that result in projects failing?
3 (b)	In your opinion, what alternatives are available to mitigate these changes?	Ascertain from the business alternatives that will enable projects to increase their probability of success.
3 (c)	In your opinion, like in start-ups, what would be the benefits of metered funding and Innovation Accounting with regard to the	Provide an alternative view to business, which is different than most corporate organisations do

Number	Question	Rationale
	project evaluation and funding? Currently, teams are entitled once funding is approved and can use this for long and sometimes even over more than one year, this is not always good as there are risks of delay, changes and failure, Metered funding, in short, is where a portion of funding is allocated by the investor, with strict criteria on what objective need to be achieved in order to unlock more, the next tranche of funding will only be allocated once the previous rounds funding achieved its objectives, this gives the teams accountability, a scarcity mindset and requires cross-functional ways of working. Innovation Accounting is a different way of looking at initiatives; it is useful when traditional evaluation metrics do not provide a potential definite answer. Innovation Accounting takes into account long term growth and works on a 3-level system. What would your opinion be?	project funding and evaluation. This methodology or framework is supportive of and fast-changing and adaptive world. Ascertain if there is scope to implement such an alternative or parts of the methodology within the business to improve project success and project delivery time.

Number	Question	Rationale
3 (c) (i)	Dashboard – Should answer did we do what we said, is everyone working effectively, is there a customer impact, do we create new sources of growth	
3 (c) (ii)	Business case – More detailed dashboard with the hypothesis – what are those things that indicate customers are satisfied and happy with the product, will we be able to grow, what are those behaviour of customers that will enable us to get more customers	
3 (c) (iii)	Net Present Value – Translate learnings into R-value with various scenarios based on information obtained	
4	**Once the project is implemented and done, benefits start to realise, benefits measurement and tracking has a direct impact on the success of the project.**	
4 (a)	How would you describe the current benefits measurement/benefits realisation process within the bank?	Benefits measurement is a critical element of determining project success as you need to know what you have delivered, did it ultimately impact the business, how, how did it impact the customer

Number	Question	Rationale
		and ultimately did the project adds value to the organisation?
4 (b)	In your opinion, how should we manage accountability for projects and benefits realisation?	Ascertain if benefits tracking is vital for the participant as well as allowing the participant to propose how benefits measurement can be improved.
4 (c)	How should accountability be managed for programmes and projects that have an extended delivery and or benefits timeline?	A project that has extended delivery times usually cost more and can be impacted by changes in staff and leadership, technology changes and customer behaviour. How can a business increase the probability of success on these projects?
4 (d)	In your opinion, are we able to share learnings from previous projects with other teams and the business? How could we benefit from learnings shared from previous projects?	Knowledge sharing is a vital driver of future project success. It improves the overall project management majority and results in a more productive project delivery capability, which

Number	Question	Rationale
		supports increasing the probability of future project success.
4 (e)	In your opinion, what would success look like for a project?	Ascertain from business how they see project success.
4 (f)	What are the consequences for the programme/project manager, sponsor, resources when a project misses its benefits?	Understand the impact of project failure on the individuals delivering the solution.
4 (g)	What should the consequences be to improve project benefits and future project delivery?	What are those actions or consequences that will impact project success in future?
5	**General**	
5 (a)	How would you rate the success rate of projects out of ten where you have been involved?	Allow the participant to reflect on himself and provide his own experience within a project.
5 (b)	What made the project successful?	Understand what those actions and factors that improve the probability of project success are.

Number	Question	Rationale
5 (c)	What was your motivation for making the project a success?	Understand what some drivers are from a personal point of view in terms of improving project success.
5 (d)	What are your accountabilities in project decision-making	For the researcher to get comfort regarding the responsibilities and accountabilities of the participants within the organisation.
5 (d) (i)	Business case	
5 (d) (ii)	Delivery	
5 (d) (iii)	Benefits	
5 (e)	In terms of end to end accountability,	Ascertain potential barriers and opportunities as a result of accountability within the organisation.
5 (e) (i)	How does this empower you?	
5 (e) (ii)	How does this not empower you?	
5 (f)	In your opinion, does the delivery methods (agile vs waterfall) change the outcome?	Ascertain whether the delivery method has an impact on project success.

APPENDIX D – Consistency Matrix

Table 5: Constancy matrix

Research Objective #	State Research Objective	State Proposition	Data collection detail	Data analysis method
1	Factors to consider in the evaluation of an investment in digital solutions.	Considerations to evaluate investments in digital solutions.	Interview guide questions 1(a), 1(b), 1(c), 2(a), 2(b), 2(c), 3(a), 3(b), 3(c).	Thematic analysis
1.1	Evaluation of investments in project traditionally	Appropriateness of traditional evaluation methods.	Interview guide questions 1(a), 1(b), 1(c), 2(a), 2(b), 2(c), 3(a), 3(b), 3(c).	Thematic analysis
1.2	Evaluation of investments in projects in an alternative way	Alternative considerations for evaluation of investments.	Interview guide questions 1(a), 1(b), 1(c), 2(a), 2(b), 2(c), 3 (a), 3(b), 3(c)	Thematic analysis

Research Objective #	State Research Objective	State Proposition	Data collection detail	Data analysis method
2	Success Measurements for Digital Solutions	Success measures of investment.	Interview guide questions 3(a), 3(b), 3(c), 4(a), 4(b), 4(c), 5(a), 5(b), 5(c), 5(d), 5(e), 5(f).	Thematic analysis
2.1	Project Success	Considerations to improve and reasons for failure.	Interview guide questions 3(a), 3(b), 3 (c), 4(d), 4(e), 4(f), 4(g), 5(a), 5(b), 5(c), 5(d), 5(e), 5(f).	Thematic analysis
2.2	Benefits Measurement and Tracking	Benefits tracking impact on project success.	Interview guide questions 4(a), 4(b), 4(c).	Thematic analysis

APPENDIX E – Ethics approval notification

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

SCHOOL OF GRADUATE SCHOOL OF BUSINESS ADMINISTRATION ETHICS COMMITTEE
CONSTITUTED UNDER THE UNIVERSITY HUMAN RESEARCH ETHICS COMMITTEE (NON-MEDICAL)

CLEARANCE CERTIFICATE **PROTOCOL NUMBER: WBS/BA2286988/879**

PROJECT TITLE	Evaluating digital solutions in a retail and business bank: a South African case study
INVESTIGATOR	Mr Jacobus Nicolaas Meyer
SCHOOL/DEPARTMENT OF INVESTIGATOR	MM (Digital Business)
DATE CONSIDERED	21 October 2019
DECISION OF THE COMMITTEE	Approved unconditionally
RISK LEVEL	LOW RISK
EXPIRY DATE	28 FEBRUARY 2021

ISSUE DATE OF CERTIFICATE 17 February 2020 **CHAIRPERSON** _____
(Dr MDJ Matshabaphala)

cc: Supervisor: Mr Langa

DECLARATION OF INVESTIGATOR

To be completed in duplicate and **ONE COPY** returned to the Chairperson of the School/Department ethics committee.

I fully understand the conditions under which I am are authorized to carry out the abovementioned research and I guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee.

Signature _____ **Date** 18/02/2020

PLEASE QUOTE THE PROTOCOL NUMBER ON ALL ENQUIRIES

APPENDIX F – Organisation permission letter

A letter was obtained; the bank requested not to include their name in the research report.