The perceived impact of artificial intelligence on jobs at a financial services organization in Johannesburg

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KEYWORDS

Artificial intelligence; AI technologies; impact; jobs; financial services organization

DECLARATION

I, Nyasha Zhou, declare that this report is my own work and has been referenced accordingly to acknowledge the work of others. The report is submitted in partial fulfilment of the Master of Management in Digital Business programme – University of the Witwatersrand, Johannesburg, South Africa.

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ABSTRACT

This research study investigated the impact of Artificial Intelligence (AI) on jobs at a financial services (FS) organization in Johannesburg. AI has the ability beyond human comprehension for certain human tasks to be done and its advent introduces the potential for job reconfigurations. The research study's purpose was to explore the perceived impact of AI technologies on jobs at a FS organization in Johannesburg. It aimed to ascertain if AI is impacting jobs negatively at a FS organization in Johannesburg. The research study was conducted using the Task-Technology Fit conceptual framework. The research study was underpinned by a theoretical framework comprised of four pillars where literature was reviewed in the context of the research problem.

The qualitative study was conducted using Saunders research onion's (Mahesh, 2020) interpretivist research philosophy of an inductive nature. Through the use of a case study as a research strategy over a cross-sectional time horizon, sixteen (16) semi-structured interviews were conducted online at a FS organization. This data was coded through thematic analysis and was analysed with reference to literature reviewed. From the research analysis, the perceived notion of AI impacting jobs negatively in a FS organization in Johannesburg was disproved as AI was found to impact jobs positively.

The research study's outcome provides recommendations classified into three perspectives that emanated from the study. These recommendations are to aid the FS organization in Johannesburg in mitigating the impact of AI on jobs. The research also recommends job impact mitigating factors to other FS organizations based in Johannesburg and the world at large.

KEYWORDS

Artificial intelligence; AI technologies; impact; jobs; financial services organization

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS

Table 1: List of Acronyms

ACRONYM	DESCRIPTION
4IR	Fourth Industrial Revolution
AI	Artificial Intelligence
CMM	Capability Maturity Model
GAFA	Google, Apple, Facebook, Amazon
GDP	Gross Domestic Product
FS	Financial Services
FSP	Financial Services Provider
IS	Information System
IT	Information Technology
PESTLE	Political, Economic, Social, Technological, Legal and Environmental factors
POPIA	Protection of Personal Information Act
TTF	Task-Technology Fit
WEF	World Economic Forum

CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION

This chapter explores the reasons for this research. The chapter presents the background of the study and the reasons for the research to be undertaken. The research problem of the perceived impact of Artificial Intelligence (AI) on jobs is presented and explains the research questions that will provide insights informing the study. The chapter further clarifies the scope and delimitations guiding the research.

1.2 PURPOSE OF THE STUDY

This qualitative study explores the perceived impact of artificial intelligence (AI) technologies on jobs at a financial services (FS) organization in Johannesburg. Using the data gathered, an analysis was conducted to ascertain the perceived impact of AI on jobs on the FS organization.

1.3 BACKGROUND OF THE STUDY

The advent of the fourth industrial revolution (4IR) has resulted in the introduction of cyber-physical technologies (Jazdi, 2014). These technologies in turn have an impact on how organizations operate. Such technologies as AI have been identified by Gartner as emerging technologies of 2020 (Panetta, 2020). The World Economic Forum (WEF) (Schwab, 2020) identifies AI technologies as having high adoption into the future. AI formulates part of technologies that the FS industry is exploring to pivot their operations, and meet operational and strategic organizational expectations. An analysis of the digital disruption vortex, indicates that the FS sector features in the top five industries identified most likely to

experience digital disruption (Yokoi et al., 2019). This leads to the perception of jobs being impacted in the transition process.

As organizations embrace new waves of technologies for automation, this will affect organizational performance. Lee (2019) observes that digitalization can improve an organization's performance through enhanced customer experiences, exponential internal operations and discover new business models.

1.3.1 Global perspective

AI is being embraced globally in the United States, United Kingdom and Europe for competitive advantage and organizational performance. It is predicted that by 2030 disruptive technologies such as AI will enable organizations to deliver unprecedented productivity amounting to a global GDP of 14% (Thillaivasan & Wickramasinghe, 2020). This is seen by the exponential performance enabled by AI in organizations like Google, Apple, Facebook and Amazon (Thillaivasan & Wickramasinghe, 2020).

1.3.2 Africa perspective

Africa has embraced AI for competitive advantage and organizational performance. In a study of developing countries drawing data from the World Bank, digital transformation inclusive of AI has a positive correlation with productivity and economic growth (Muro, 2019). Kenya, Rwanda and South Africa are making inroads in the use of AI. A study conducted in Kenya on how automation affected banks indicated that service and operational efficiency were achieved resulting in competitive advances and significant profit gains (Kemboi, 2018). In Nigeria, automation has been identified as a tool that aids the "ease of doing business" as it has the ability to stimulate production growth and create new economic growth opportunities (Salisu, 2019).

1.3.3 South Africa perspective

Gauteng Province as the economic hub of South Africa produces 34% of South Africa's GDP (StatsSA, 2017), and has a concentration of FS organizations that explore and utilise AI for strategic positioning. In a survey of FS customers, the outcomes indicated that technological innovation delivered service delivery efficiencies and major transactional cost savings (Musara, 2012). The Discovery group embraced AI and introduced a new business model underpinned by AI on their behavioural rewards system (Discovery, 2021).

The focus of this study is to conduct research at a FSP based in Johannesburg.

1.4 RESEARCH PROBLEM

The impact of automation is inevitable and technologies such as machine learning, AI and robotics pose major challenges to 54% of jobs in Europe (Bowles, 2014a) and 47% in the United States (Bowles, 2014b). According to Gartner, an era has commenced where AI is being democratized and industrialized for use by non-experts for common causes (Goasduff, 2020). The Gartner AI hype cycle 2020 highlights the key technologies that are making inroads in the AI industry (Goasduff, 2020).

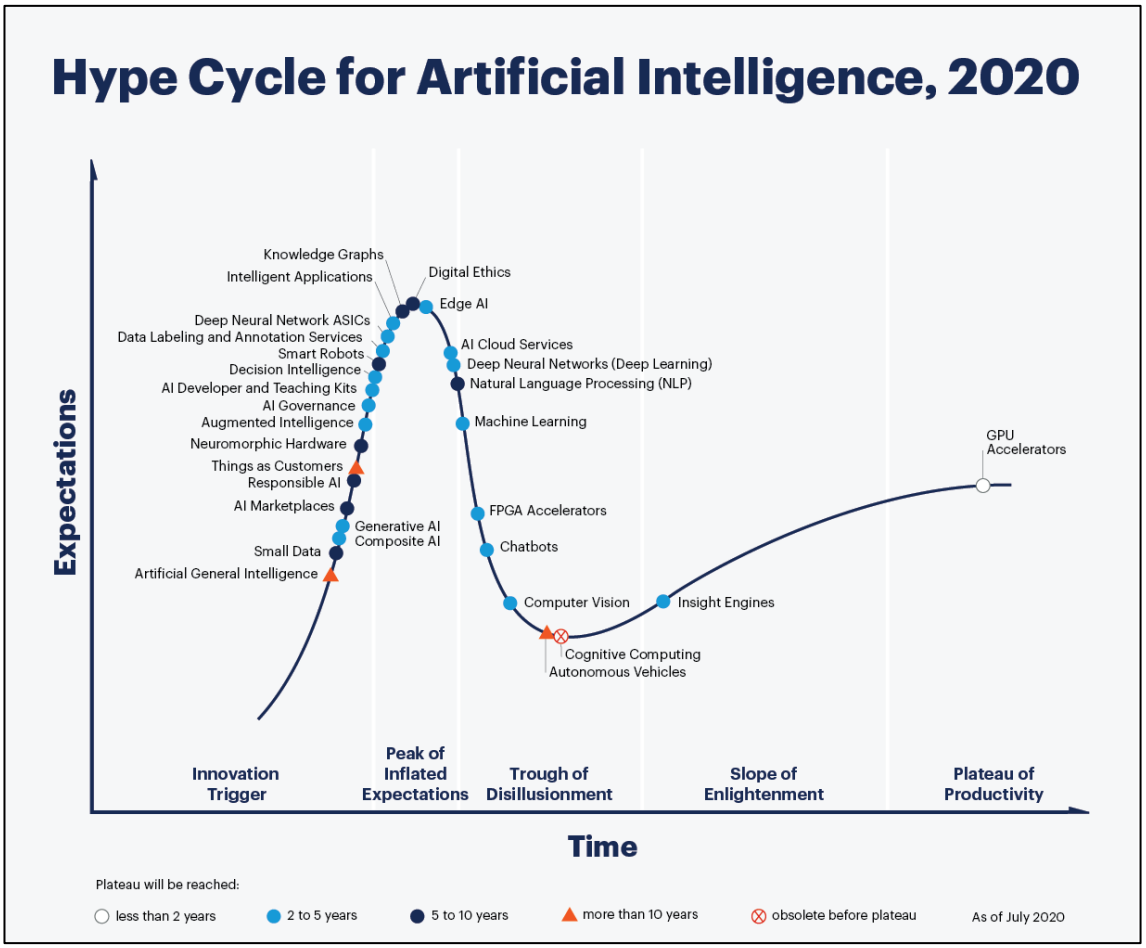

Figure 1: AI Hype Cycle 2020 Source: (Gartner, 2020)

AI initiatives have been identified as having the capability of altering an organization's performance to influence business value (Wamba-Taguimdje et al., 2020). There has been research undertaken on a multinational organization that attests to the fact that technological automation resulted in 16% increased performance efficiencies, increased sales revenue and enhanced operational effectiveness (Engle & Barnes, 2000).

The four industrial revolutions have brought about the reconfiguration of jobs, similar to previous "revolutions" that brought about job reconfigurations. As Raul explains (in Katz, 2017), there is a likely "dramatic disappearance of jobs (pessimistic view) and the creation of new jobs (optimistic view)" as a result of AI.

As business, industries and societies embrace AI, certain strategic imperatives have to be considered to address the implications of the future organization's dynamics (Thillaivasan & Wickramasinghe, 2020). The world has become a cyber-physical realm, resulting in organizations finding it difficult to live without technology. The technological revolution is redefining the future via "task disruption, new skillsets, new business models, distributed workforce, changing demographics, and new societal expectations" (Thillaivasan & Wickramasinghe, 2020). This requires organizations to respond with strategic broad-based policy initiatives to mitigate the challenge.

The statistics suggest that in Africa and South Africa in particular there may be similar outcomes emanating from the above observations. As Johannesburg is an economic hub where most national headquarters are located, the wave of automation has an impact on jobs as shown by global trends. As much as AI is good, it is inevitably impacting jobs in the FS sector. These trends have resulted in the following problem statement:
AI is impacting jobs negatively in a FS organization in Johannesburg.

1.5 RESEARCH QUESTIONS

RQ1: What are the most relevant AI technologies with perceived impact in a FS organization?

RQ2: What are the drivers of AI technology use in a FS organization?

RQ3: What is the perceived impact of AI technologies on jobs in a FS organization?

RQ4: What are the strategies for consideration to mitigate the problem of job impact due to AI at a FS organization?

1.6 RESEARCH OBJECTIVES

The objectives of this research are:

- To investigate factors leading to the problem of AI impacting jobs,
- To present the findings on the impact of AI on jobs,
- To interpret and analyse the findings on the impact of AI on job security, and
- To recommend strategies for consideration to mitigate the problem of AI impacting job losses at a FS in Johannesburg.

1.7 RESEARCH PROPOSITION

The main research proposition the research aims to establish is “AI impacts jobs negatively in a FS organization in Johannesburg”.

1.8 SIGNIFICANCE OF THE STUDY

The study is of importance in identifying AI technologies that FSPs have implemented or are considering implementing in the immediate future. The AI technologies as specified by Gartner (Goasduff, 2020) have different perceived impact on jobs depending on organizational dynamics. The drive of AI in the South African FS market (Chalmers, 2021) has been shown by TymeBank, FNB and Discovery that business models can be pivoted around the use of AI to improve customer experience. These trends are on an upward trajectory as FSPs strive to capture market share through leveraging AI technologies.

The study is of importance in determining the extent of perceived impact AI investment has on jobs in the FS organization. According to Moyo (2019), “Ernst & Young’s research findings indicate that South African firms have invested US$1.6 billion in a decade with the hope of operational optimization leading to financial gains” (Moyo, 2019). The quantum of the investments in

AI leads to the question of “where will that leave jobs?” The reliance of FSPs on employees to execute operations and the advent of AI to optimize operations results in the perceived impact on jobs.

1.9 DELIMITATIONS OF THE STUDY

The following are the delimitations of the study:

i. The research focuses on narrow AI technologies (Figure 2) – these are technologies that focus on a specific task or area of speciality (Pennachin & Goertzel, 2007) in the FS organization,
ii. The research focuses on AI’s perceived impact on job security,
iii. The research focuses on the FS sector,
iv. Due to privacy (Warikandwa, 2021) and accessibility requirements, this research focuses on a single FS organization,
v. The research is geographically limited to Johannesburg, South Africa.

1.10 DEFINITION OF TERMS

Artificial intelligence

AI is defined as “when machines are developed and used for cognitive functions normally related with the human brain. These functions include problem solving, decision making, language processing, speech and the recognition of vision” (Dial & Storkey, 2007). Minsky and McCarthy (Wachsman, 2019) define AI as “a program or machine performed task that if carried out by a human, they will have to apply intelligence”.

Artificial intelligence technologies

According to Armstrong and Lee (2021, p. 117), the following constitutes the basket of AI technologies:

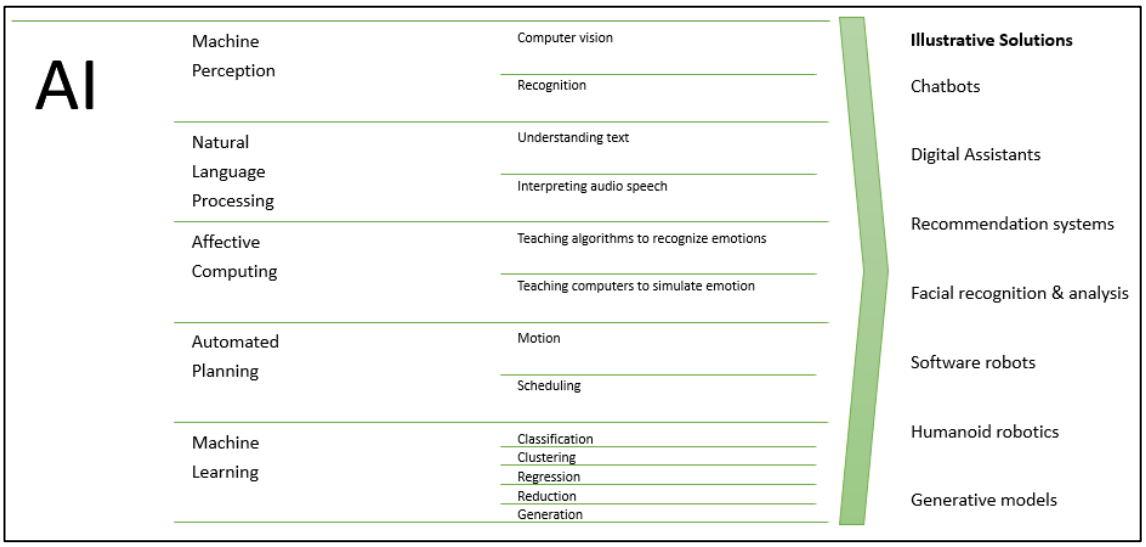

Figure 2: AI Technologies – Adapted (Armstrong & Lee, 2021, p. 117)

FS in South Africa

According to the Financial Sector Regulation Act (Gazette, 2017), a "financial service" in South Africa is "any activity conducted relating to dealing or making of financial product, foreign financial product, financial instrument or a foreign financial instrument. This includes offering, promoting, marketing, or distributing, providing advice, recommendations or guidance, operating or managing and providing administration services". The organization under study offers FS products with specific focus on pension administration, investments and insurance.

Impact

The Oxford Dictionary (2021) defines impact as "the powerful effect that something has on something" or "to have an effect on something". The "powerful effect" can result in an adverse, beneficial or catastrophic impact on job security depending on the extent of the AI technology being adopted.

Job

The Oxford Dictionary (2021) defines a job as “a particular task or piece of work that you have to do and receive regular payment”. The term “task” signifies that jobs are broken down into tasks. The perceived impact on jobs can be on tasks or on an entire job.

1.11 ASSUMPTIONS

The following assumptions are made with respect to the research:

- That the FS organization is compliant with FSP regulations, and
- That the participants have generic knowledge of AI.

1.12 SUMMARY

This chapter provided the definition of terms and the terms to reference the research. It clarified the justification of research and specified the significance of carrying out this research. The relevant literature was reviewed to assist in justifying the background of the study and defining terms. The research is carried out under specified assumptions and delimitations due the constraints faced by the researcher. The next chapter reviews existing literature pertaining to the research components.

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

A literature review analysis critically evaluates and synthesises the existing body of knowledge relevant to the research problem (Hart, 2018). In this chapter, the theoretical framework explains that technological development is due to organizations improving themselves. For any organization to progress, organizational architecture strategy is of importance as it leads to the design of new technologies such as AI. The Task-Technology Fit conceptual framework formulates the basis of this research due to its relationship with tasks and technology resulting in organizational performance impact.

2.2 SIGNIFICANCE OF LITERATURE REVIEW

Literature review aims to determine if the topic is worthwhile studying and guides the research scope to a specific area of inquiry, integrates what others have done, criticizes previous scholarly work, establishes connections between related topics and identifies central issues (Creswell & Creswell, 2018).

According to Hart (2018), literature review is conducted in research to demonstrate familiarity by distinguishing what has been done in research and what still needs to be done in the future; to discover and identify key relevant variables in the research topic; to synthesise and gain a new perspective on the topic; to position and establishing context of the research topic; and to gather a body of knowledge that relates to research findings (Hart, 2018).

2.3 THEORETICAL FRAMEWORK

Theory 1: Organizational Development

According to Schachter (2017, p. 236), organizational development is defined as an “educational strategic initiative that intends to transform the beliefs, attitudes, values and structure of an organization to better adapt technologies, markets and challenges”. It seeks to enable process change through the use of new information fostered through learning. As the discipline progressed, it addressed organizational structural changes, work design and it became a focal point of strategic planning and career development.

Organizational development emerged from the criticism of the Taylorism scientific approach and sought to propose a humanistic psychological approach (Schachter, 2017). The key pioneers in this field include Kurt Lewin through his force field theory of change. As forces of change are increased and the forces of resistance to change are decreased, more change takes place. This is attained through the “unfreeze, change and refreeze” process attributed to new values and behaviours (Schachter, 2017). Subsequently, social psychologist Douglas McGregor developed Theory Y which advocated that the characteristics of an organization influenced the source of satisfaction at a workplace (Schachter, 2017). This gave rise to the importance of companies’ change in consciousness towards a changing working environment that is fulfilling to employees. This leads to employees’ democratic perceptions driving the reality of the working environment.

Some limitations to the organizational development theory include that of only being pro-change and any resistance to change is deemed contrary and misplaced (Schachter, 2017). Such instances include when employees have unique information and valuable contributions to make to management that is contrary to the change initiative. Furthermore, this approach only

thrives in a pro-open environment where all parties disclose all information. When information is held back, it has a detrimental effect on the organization's development process.

Organizational development seeks to improve system performance and this can be aided with technology. The digital technological developments have emerged due to organizations seeking to improve themselves through refined organizational architectures.

Theory 2: Organizational Architecture

According to Lee (2019), an organizational architecture is "a model of an entire organization, organizational unit, or project, and assesses how organizations do what they do and can be used for planned interventions". Brickley, Smith and Zimmerman (Smith, 2001) reference an organizational architecture as an element that can be used for decision rights assignment, performance structural systems and for reward mechanisms. The changes in the business environment (technology, markets, regulation) and strategy has a bearing on the organizational architecture thereby determining the firm's value (Smith, 2001).

An analysis carried out by Lee (2019) on a proposed organizational architecture model indicates that "with a strategic vision in an environment with systems/structures, competencies, technology and people, co-creation can take place in an organization". These further strengthen the case of strategy being central in the organizational architecture to ensure that the right people are placed in the right structures and systems to enable strategic success.

There must be critical consideration regarding governance collapse through defined organizational architectural structures. The Steinhoff case is a typical example where over-reliance on organizational architectural can lead to misleading outcomes. When an organization's architecture is

circumvented through unethical culture, this can lead to the collapse of an organization.

In order for organizational architecture to foster positive employee behaviour, Porter's organizational strategies of innovation, quality enhancement and cost reduction need to be considered (Millmore et al., 2007). Lee refers to organizational architecture as a tool for systematic alignment leading to strategic success and error diagnostics (Lee, 2019). This positions technology as an anchor point in organizational architecture.

Theory 3: Organizational Design

According to Wienclaw (2021), organizational design is "the process of structuring the organization in a way that facilitates employee productivity and supports the organization in reaching its goals". An organizational design is meant to enable the division of labour, centralize authority and formalize interaction (Wienclaw, 2021). With the Covid-19 pandemic, organizations are transforming into organizations that require collaboration, agility and remote working. This has resulted in a shift from the traditional hierarchal organization to a completely new concept of the gig economy. This has disrupted "business models, challenged the labour-management practices" (Healy et al., 2017) and subsequently altered organizational designs from hierarchies to virtual approaches.

The above has been largely driven by the Covid-19 pandemic and organizations are moving towards self-regulated team-based structures with an emphasis on value creation (Wienclaw, 2021). The world is becoming a complex place and virtual organization designs are becoming prevalent due to the multi-company collaboration across multiple geographical locations (Wienclaw, 2021). This is also being caused by the product or service co-creation initiatives between clients and suppliers (Lee, 2019) in the gig economy. This has redefined the organizational architecture and design firmly placing technology at the centre of everything.

Organizations are changing their design to revolve around new technologies that enable new business models. AI has been identified as one of the key enablers in a virtual organization's design. Through the proliferation of virtual organizational design, AI has become integral to such virtual technologies that are enabling new business models.

Theory 4: Organizational development in the digital age

Organizational development in the digital age is focussing on AI and as a result, organizations are pivoting to redefine their business models to incorporate AI as a means of growth and productivity (Pretoria, 2018). AI has become a key component in organizational development as organizations seek to develop themselves through AI technologies (Pretoria, 2018). As an organization adopts AI, it is improving on its technology.

Rationale for AI in a FSP's organizational development

In a survey conducted across 111 countries, there is a focus on AI in the FS sector and also in Africa (Loukides, 2021). AI technologies tend to be constituted by the convergence of three broad aspects that include advanced algorithms, big data and high computing power that tend to mimic the human brain (Ergen, 2019). Ergen (2019, p. 5) furthermore supports AI technologies as having the ability to "make logical inferences, solve problems, adapt, interact and learn" (Ergen, 2019). In the FS sector, AI technologies are likely to be used for functions including customer servicing, wealth management, investment advice, risk profiling, internal controls and customer transaction surveillance for regulatory compliance (Office, 2018).

The advent of data's exponential growth is one of the key drivers of AI (Pretoria, 2018). AI's strength is in data analytics and in exceeding human capabilities on assigned tasks (Gwagwa et al., 2015). With a FS organization creating and storing terabytes of data, AI can assist in big data

financial analysis. This can be used to identify forecasts and predictions of extrapolation scenarios. It can also be useful in trend analysis to identify underlying potential issues in time. AI is known to crunch numbers faster than humans, thereby enabling the speed required in transaction processing and reporting. Once an AI algorithm is defined and there is consistent application, it processes with minimum inaccuracies compared to human errors. With the advent of Bots, AI has transformed how organizations operate, offering a 24/7 operation capability as compared to humans that work on average 8 hours per day for 5 days a week.

Organizations are pivoting to redefine their business models to incorporate AI as a means of growth and productivity (Pretoria, 2018). This can be achieved through the deployment of an AI workforce, supplement the existing labour force with AI and drive innovation through AI (Pretoria, 2018). More so in the FS sector, regulatory implications attract large penalties, hence FSPs are moving towards AI to enable regulatory compliance requirements.

At a national level, the research by the University of Pretoria identifies AI as a key economic growth stimulant. In the long term, if a country harnesses AI, “it has the potential to double its GDP growth rate by 2035” (Pretoria, 2018). One of the key industries identified as the avenue to harness AI is the FS sector.

Summary

AI as a frontier of organizational development has been chosen for the FS organization as it is of importance due to the following rationale (Agrawal et al., 2019):

- It increases productivity of tasks,
- It significantly reduces the uncertainty that is required for decision-making,

- AI technologies offer an economically viable means of carrying out certain tasks as compared to humans carrying them out.

2.4 CONCEPTUAL FRAMEWORK

The interpretivist approach is used for this research. This theory is an inductive approach based on collecting data in field research for analysis to establish which theory emerges (Oates, 2006). This theory is applicable to research that addresses new scenarios and when new dimensions to a subject are sought to obtain a new point of view (Stern, 1980).

The Task-Technology Fit (TTF) framework was used for this research. The theory according to Spies (2020, p. 397) “provides a means of quantifying the effectiveness of technology in a system by assessing the relationship between the technology and the tasks the technology aims to support and primarily focussed on generating theory or assessing certain real-world phenomena” (Spies et al., 2020).
The basic TTF framework below was used for this research:

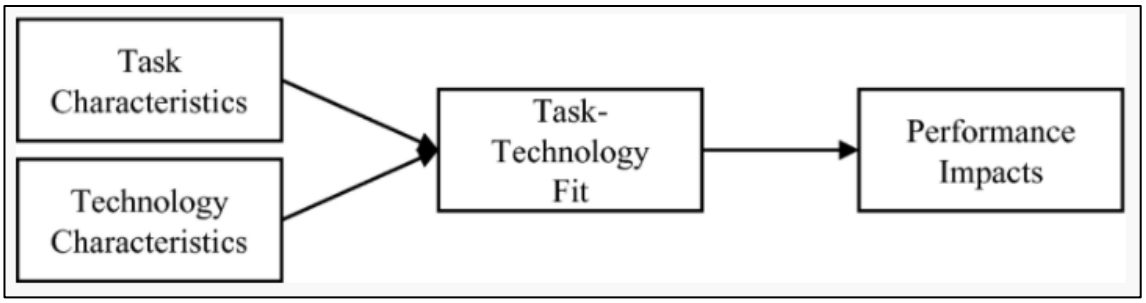

Figure 3: Basic TTF - Source: (Spies et al., 2020)

It guides the research from a worldview perspective. As AI is shaping the FS sector, there are expectations that it will generate value and support job tasks. As this occurs as an intricate process, it has necessitated the need for the research to ascertain the quantum of the impact of AI on jobs in the FS sector. The TTF theory can be used to “quantify the effectiveness of

technology in an organization” (Spies et al., 2020) thereby obtaining an informed view of the impact of AI technology.

According to Spies et al. (2020), TTF “is defined as the extent to which a technology assists an individual in performing his or her tasks and is consequently affected by the interaction between the characteristics of the task and the functionalities of the technology”. As AI technologies assist individuals in performing their tasks, this affects the interaction between tasks and functionalities resulting in the impact of jobs in the FS.

2.5 SUMMARY

This chapter summarises the existing body of knowledge of theories the research pivots and specifies the importance of carrying out literature review. The literature reviewed demonstrated familiarity and assisted in identifying untapped areas of research in a FS organization based in Johannesburg. The four pillars of the theoretical framework have technology as the common thread that organizations are using to develop. This research contributes to the body of knowledge on how one such technology as AI is impacting jobs in the FS sector in Johannesburg. The next chapter outlines the research methodology that was used for the research.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter clarifies that this research was conducted using the Saunders research onion (Figure 4) as it is a proven framework for conducting astute academic research.

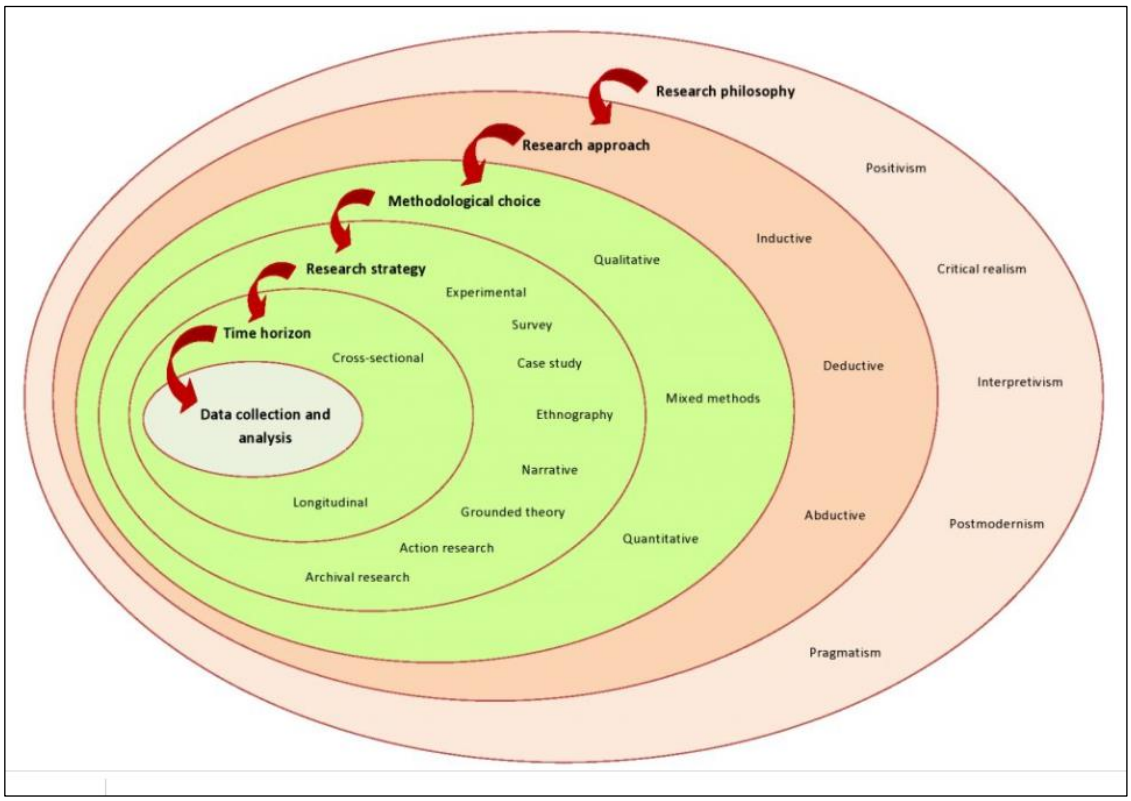

Figure 4: Saunders Research Onion: Source: (Mahesh, 2020)

3.2 RESEARCH METHODOLOGY

This research was conducted using interpretivist philosophy. It aims to inductively understand how participants view the perceived impact of AI technologies on their jobs using the selected research instrument with the intended outcome of a descriptive nature. The lens of the research is to

discover the worldview perspective from the participants and analyse the data for common themes (Merriam, 2002).

This approach was chosen as there is room for expansion because the approach is not rigid. As the research instrument is only a guide for fact-finding discussions, more descriptive information is gathered and it also provides room for follow-up questions and further clarity on unclear facts. The flexibility of this approach is beneficial to the researcher as they can pivot their questions as the situation unfolds, leading to rich descriptive information particular to the FS organization under research.

According to Oates (2006), the approach is “richly descriptive through words and pictures instead of numbers and more can be extracted from such information”. This conveys the descriptive nature of AI’s impact in context. A qualitative approach leads to more than one explanation and multiple valid conclusions can be analysed from the same information instead of numbers that tend to convey a binary view of the research. This enables more insights for the subject under research providing the needed context applicable in a FS organization in Johannesburg.

The qualitative research methodology was used to conduct this research. This approach entails engaging and studying the real world for a “naturalistic enquiry” with the aim of gathering rich data for analysis (Patton, 2005). Patton (2005) further elaborates on qualitative research as “an effort to understand situations in their uniqueness as part of a particular context”.

3.3 RESEARCH DESIGN

An interpretivist approach using a case study research design was used for this research. According to Oates (2006), a case study is when the focus is on one instance of a “thing” that is under investigation within a real-life context. The case study is a descriptive study “leading to a rich, detailed

analysis of the particular subject in context" (Oates, 2006). In this case, the research pertains to a FS organization in Johannesburg. The aim was to study the subject in depth using a chosen data instrument. The rich information derived from the research then leads to valid conclusions regarding the subject.

The FS sector is a highly regulated industry and access to multiple FS organizations is difficult for the study due the privacy constraints imposed by other FS players. An in-depth case study of an organization that is accessible to the researcher enabled the study to be implemented without hindrance. The proximity of the researcher to the organization positions the research in the context of the organization's past and future strategic plans surrounding AI.

The case study provides the real-life context needed in weaving politics, processes and relationship together in a real world. As Oates (2006, p. 142) explains, knowing the above "helps understand why certain outcomes might occur in a particular situation and generates insights and knowledge relevant to other situations" (Oates, 2006). As the case study was conducted in a natural setting focussing on depth rather than breadth from multiple sources, this had the potential to lead to a holistic study of the subject.

3.4 DATA COLLECTION METHODS

Online semi-structured interviews using open-ended questions were used for this study. According to Oates (2006), an interview is a planned conversation between people with the purpose of gaining information from the other and it follows an agenda that is controlled and guided by the interviewer steering the discussion on the topic of interest. The participant's consent to record the interview for transcribing purposes was obtained.

Why Interviews?

- Detailed information can be obtained as participants can express their views.
- Different types of complex or open-ended questions can be asked to different people in a logical manner and the use of follow-up questions triggered by the responses provided by the participants can also lead to more information being obtained by probing for more details.
- Participants find it difficult to convey in writing sensitive issues and privileged information to a researcher they have not met as sensitive and confidential issues can have emotions and non-verbal communication that cannot be captured in writing (Oates, 2006).

3.5 POPULATION AND SAMPLE

Population

The research focused on a population of a single FS organization in Johannesburg.

Case Site

The research population focused on a single FS organization in Johannesburg. The case site's core business is in pension administration, investments and insurance. It has a staff complement of three thousand employees across various functional areas. The industry is seeing extensive transformation due to the technological pressures posed by industrial revolutions, change in business models and stakeholder expectations.

Sample and sampling method

The sample comprises employees of the FS organization in Johannesburg meeting the following criteria:

- Full-time employees

  The reason for considering full-time employees was that part-time employees' contractual obligations and contract renewal timing considerations can "cloud" their perceptions of the subject.
- Employees must be based at the FS organization's head office. The organization's strategy and operations are centralized at the head office and all AI initiatives emanate from the head office, hence participants have context of the subject.
- The sample was constituted of executives (strategical), managers (managerial), team leaders (tactical), supervisors (operational) and shop floor employees (implementation) as they offer different insights due to their different exposure levels to the subject matter.

The sample size comprised ten to fifteen interviews of employees at the FS organization in Johannesburg. The number is representative of more than nine interviews that allow the researcher to reach a point of saturation (Hennink et al., 2016).

Sampling method

Non-probabilistic sampling was used as there it was not feasible to have a representation of the entire cross-section of the population under study due to time and cost constrains (Oates, 2006).

The purposive sampling technique according to Oates (2006, p. 98) was utilised as the researcher "intentionally chose representative instances of participants that would potentially provide the most valuable data for the intention of this research under the research's constrains" (Oates, 2006). The instances in the FS organization were identified as follows:

- Executives (strategical),
- Managers (managerial),
- Team leaders (tactical),
- Supervisors (operational),
- Shop floor employees (implementation).

3.6 RESEARCH INSTRUMENT

Semi-structured interviews via the Microsoft Teams online platform were conducted using an interview guide. This covered themes with prepared questions that could be changed depending on the conversation flow and issues that might be brought forth leading to more unprepared probing questions (Oates, 2006). The themes covered included the following:

- Relevance of AI technologies on jobs/tasks in the FS organization,
- Preference of AI assistance on jobs/tasks in the FS organization ,
- Preparedness to transfer knowledge to AI technologies in the FS organization,
- Drivers of AI technologies' use in the FS organization,
- Effects of AI on jobs in the FS organization,
- Proposed strategies to mitigate AI's impact on jobs.

The reason this type of interview was used is that the subject matter impacted participants differently and in a personal way, hence the need to allow for self-expression in a non-pressurised formation. This also allowed for the interviewer to probe for more facts during the process.

Oates (2006) refers to this format as having the capacity for the interviewee to raise other issues of importance relevant to the theme that the interviewer might not have anticipated (Oates, 2006). The use of this format was "watched" as it might have led to off-topic deviation regarding the subject of discussion.

3.7 DATA COLLECTION PROCEDURE

Data collection was conducted via online interviews through the Microsoft Teams platform. The timeline for data collection was over a three month period (September 2021 – November 2021). The participants were approached directly for consent to participate in the research using an introduction letter. Upon participation confirmation by the interviewee, the topic and list of questions were sent to the participant. This enabled the participant to prepare and think about their contributions to the questions. An interview was scheduled at an agreed date and time. The participant was asked for their consent to record the interview for transcribing purposes.

3.8 DATA ANALYSIS AND INTERPRETATION

Thematic analysis was used through computer-aided software – Atlas.ti. The data was transcribed to text and segmented into themes with the focus being on segments relevant to the research question (Oates, 2006). The inductive (categories) approach was used to classify the data. As themes and interconnectedness patterns emerge, these were analysed and depicted in tables and diagrams. The above was analysed back to the propositions of the research for conclusions.

The following data analysis steps were followed in the research process:

- Interview data from Microsoft Teams audio recordings was transcribed into similar formats using Microsoft Word,
- Key themes were identified in the transcripts,
- Transcript data was categorized using particular words or phase occurrence in the interview transcripts using an inductive approach,
- Categorizes were refined by merging others and formulating interconnected category links,
- The frequency of particular words and phase' occurrence was tabulated in Microsoft Excel for analysis,

- The coding process was iterative and the research utilized the following phases:
    - Open coding – process involved the initial labelling of data (Oates, 2006),
    - Axial coding – process involved the analysis of abstract codes emerging and mapping relationships of codes (Oates, 2006),
    - Selective coding – process involved identifying core codes related to the research under review (Oates, 2006).

3.9 LIMITATIONS OF THE STUDY

The following limitations pertained to the study:

- The availability of the desired levels of the participant sample that was used,
- A longitudinal study would have depicted a more accurate picture of the impact of AI on jobs as this would have been based on the actual numbers that are impacted over time,
- The time constraint that was faced in data gathering and analysis due to the course's timeframe, hence data triangulation was not used as it takes time to gather and analyse.

3.10 DATA RELIABILITY AND VALIDITY

Transferability

The research is transferable to FS sector organizations in the same line of business as their jobs' core processes are bound to be the same. However, this is dependent on the extent of the organization's Capability Maturity Model (CMM) level. For FS organizations with a higher CMM, it is most likely that they have transformed processes and job tasks and the degree of AI impact will differ as compared to organizations with a lower CMM.

Credibility

The approach used was to seek clarity from informants that the transcriptions were correct in comparison with the interviews held to ensure that the descriptions and interpretations were correctly represented (Oates, 2006). The informants confirmed that the transcribed information and documented outcomes were aligned and representative of their views.

Dependability

The recorded interview material was revised to ensure correct transcription. This was validated by an independent party to ensure that correct transcription indeed occurred. This served as a form of audit to provide assurances that all information was recorded accurately.

3.11 RESPONDENTS DEMOGRAPHIC PROFILE

The following demographics was captured.

Table 2: Demographics

DEMOGRAPHIC ITEM	DESCRIPTION	IMPLICATION
Duration at organization	0 - 2 years 3 - 5 years 6 - 9 years > 10 years	Participant will be aware of the different strategic AI initiatives at the organization.
Duration in current role	0 - 2 years 3 - 5 years 6 - 9 years > 10 years	Participant will be aware of how the different strategic AI initiatives at the organization have transformed their job profile.

Level in organization	Executive (strategical) Managers (managerial) Team leaders (tactical) Supervisors (operational) Shop floor employees (implementation)	Different job levels in an organization are impacted differently by the implementation of AI.

3.12 ETHICAL CONSIDERATIONS

The following guidelines were used to ensure that the research is ethically informed.

- All laws of the Republic of South Africa were adhered to in conducting this research including data protection, POPIA, intellectual property rights and the use of legal software (Oates, 2006).
- The rights of the participants were respected with them electing to not participate, being able to withdraw at any point in the process without explanation, being able to give consent, the right to remain anonymous and their information to be treated with confidentiality (Oates, 2006).
- The research adhered to standards of professional conduct, including being non-intrusive to participants, acting with integrity, following all necessary protocols of good conduct, not plagiarizing and undertaking the research ethically (Oates, 2006).

3.13 SUMMARY

The methodology was used for the research in accordance with Saunders' research onion (Mahesh, 2020).

Table 3: Research Methodology

METHODOLOGY	APPROACH
Research philosophy	Interpretivist
Research approach	Inductive
Methodological choice	Qualitative
Research strategy	Case study
Time horizon	Cross-sectional
Data collection	Interviews
Data analysis	Thematic

This chapter specified how collected data was analysed for validity and reliability. The researcher took into consideration the ethical considerations associated with this research.

CHAPTER 4: RESEARCH RESULTS

4.1 INTRODUCTION

The study aims to address the problem statement of “AI impacting jobs negatively in a FS organization in Johannesburg South Africa”. Through a fact-finding mission, this chapter addresses the following research objectives:

- Investigating factors leading to the problem of AI impacting jobs, and
- Presenting the findings on the impact of AI on jobs.

This chapter documents the research results in accordance with the research methodology articulated in Chapter 3, Table 3. The study’s research design was based on the interpretivist research philosophy of an inductive nature. A qualitative study was conducted through a case study of a FS organization based in Johannesburg, South Africa. The research data was collected through interviews and a thematic analysis conducted that lead to the conceptualization of this chapter.

The research’s qualitative findings were obtained through interviewing sixteen (16) participants that work for a FS organization based in Johannesburg in South Africa and careful consideration was given in selecting the most relevant and representative extracts from the interviews conducted.

4.2 DEMOGRAPHIC ANALYSIS

This section provides the demographic analysis of the research participants and highlights trends of importance to the validity of the research.

Gender

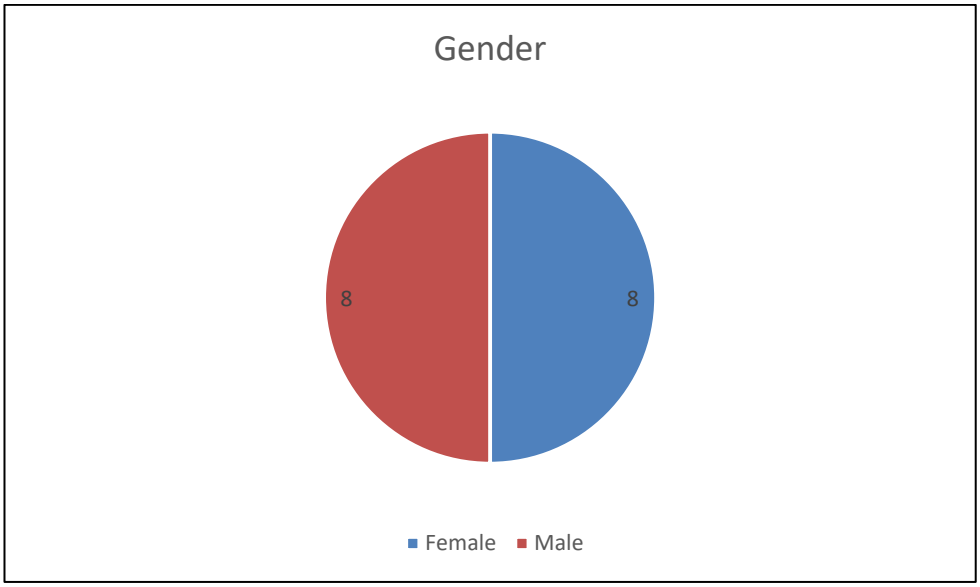

Figure 5: Gender Analysis: Source: (Participants, 2021)

The participants were equally represented on a 50% basis per gender as depicted in Figure 5.

Age Group

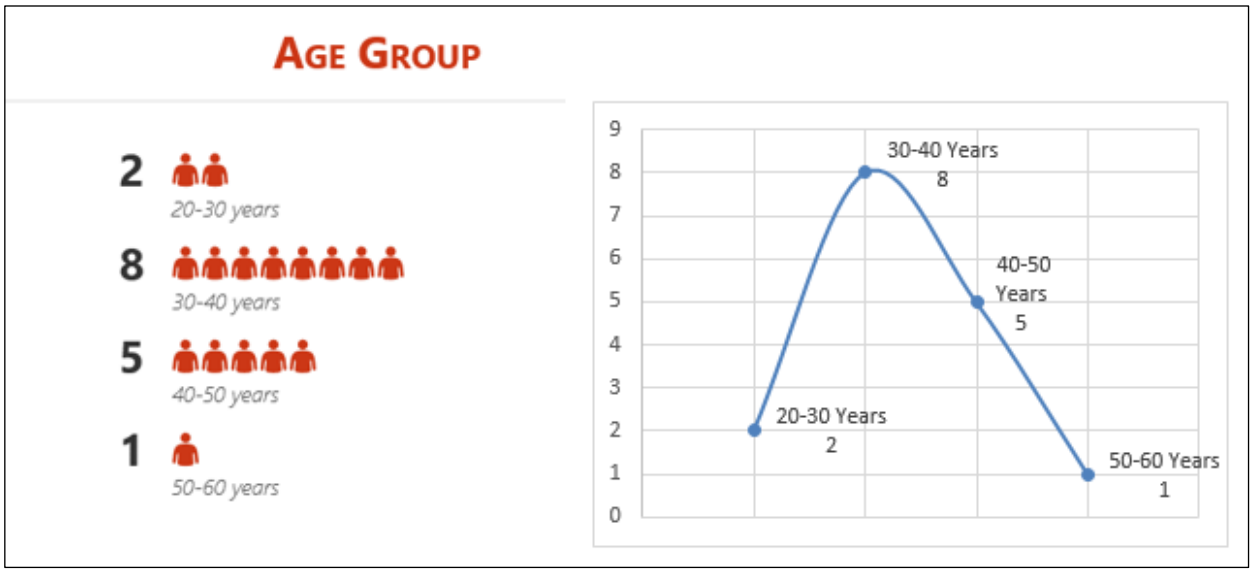

Figure 6: Age Group Analysis: Source: (Participants, 2021)

The Age Group analysis in Figure 6 displays a normal distribution curve with the interview participant average age of 37.6 years. The above is representative of the organization's age group distribution with the bulk of the participants being in the 30-40 years age group representing 50% of the interview participants. The next most highly represented age group is the 40-50 years category representing 31% of the interview participants. The 20-30 years age group represent 13% of the interview participants and the 50-60 years age group 6% of the interview participants.

Age Group – Years in FS Organization

Figure 7: Age Group – Years In Organization Analysis: Source: (Participants, 2021)

The Age Group – Years in Organization analysis in Figure 7 displays a distribution curve of the cumulative years of service of interview participant age groups. This correlates with the Age Group analysis normal distribution curve as depicted in Figure 6, whereby all the age groups follow a similar trend. Figure 6's 30-40 years age group has the most participants and the same age group has the most years of service in the organization as displayed in Figure 7.

The average cumulative years of age groups is 29.3 years. The above is representative of the organization's age group distribution with the greater

part of the cumulative years in the organization in the 30-40 years age group representing 40% of the years in service. The next highly represented age group is the 40-50 years category representing 30% of the years in service. The 50-60 years age group represents 21% of the years of service and the 20-30 years age group 9% of the years of service.

The 20-30 years age group has the least years of service as they recently joined the organization as compared to the other higher age groups that have higher years of service as they accumulated years of service over a longer tenure in the organization.

Organizational Unit

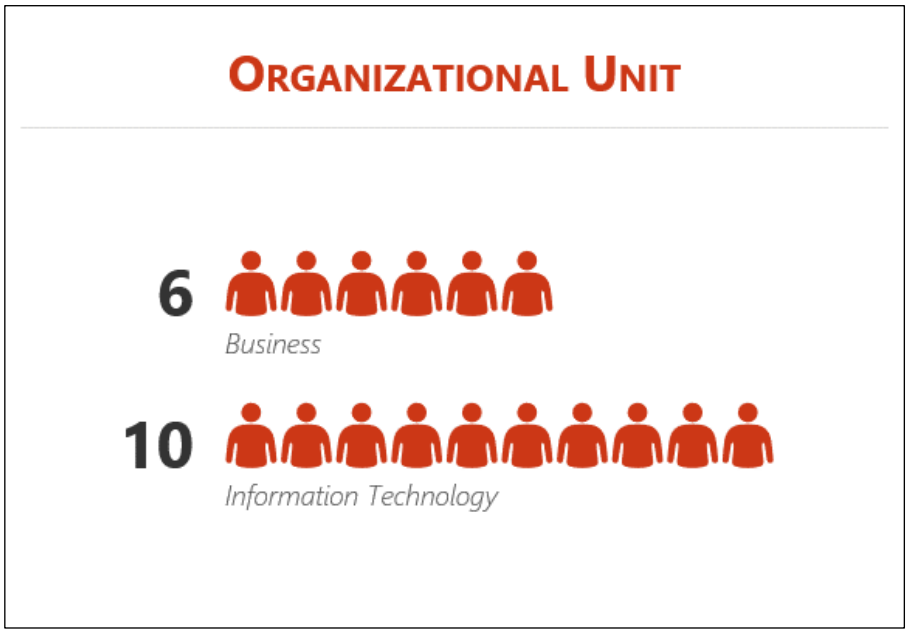

Figure 8: Organizational Unit: Source: (Participants, 2021)

From an AI standpoint, the organization can be broadly split into two units, these being Business and Information Technology. The Business unit represent an entity that requires information technology services from the Information Technology entity. The Business entity is essentially a customer and consumes services provided by the Information Technology entity as the service provider. With reference to this research, the Business entity

would request AI technologies and the Information Technology entity would provision the required services.

The participants were represented by 38% from Business and 62% from Information Technology as depicted in Figure 8.

The participants in Figure 8 were from the following functional areas of the organization:

Table 4: Participant Functional Areas: Source: (Participants, 2021) Organizational Level

ORGANIZATIONAL UNIT	FUNCTIONAL AREA
Business	Shared Services
Business	Finance
Business	Emerging Markets
Business	System Integration
Business	Programme Management
Business	Payroll
IT	Enterprise Architecture
IT	Applications
IT	Automation
IT	Service Management
IT	Data Resilience/Recovery
IT	Operations
IT	Shared Services
IT	Human Capital
IT	Regulatory
IT	Finance

Figure 9: Organizational Level: Source: (Participants, 2021)

The different organizational levels were equally represented on a 25% basis per role/level as displayed in Figure 9. This was to ensure representation of AI exposure at different levels in the organization. The above ensures a consistent representation across all levels to ensure that role/level exposure does not lead to a bias of representation. The different roles/level experience AI at different phases of AI's life cycle and this leads to different perceived impact of the same initiatives.

Employment Duration

The Employment Duration analysis in Figure 10 displays a normal distribution curve with the interview participant average employment duration of 7.3 years. The above is representative of the participants that have been part of various organizational designs involving different initiatives, some being AI related. From the above employment duration average, the participants had context of the different organizational design initiatives that could have potentially impacted on jobs and/or tasks from the different organizational strategy initiatives that are reviewed every three to five years.

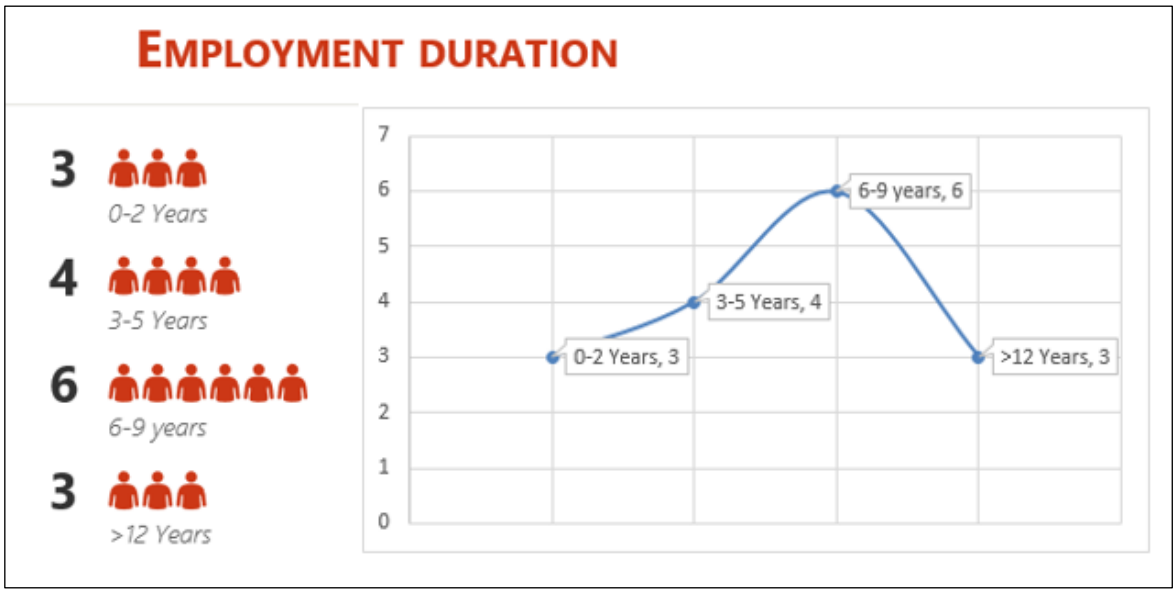

Figure 10: Employment Duration: Source: (Participants, 2021)

Cumulative Years of Service per Level

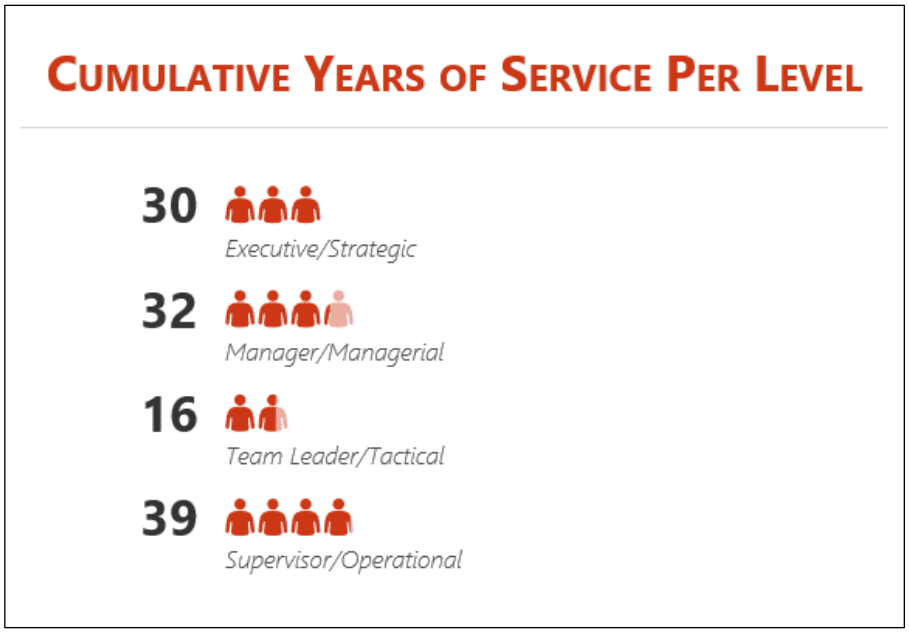

Figure 11: Cumulative Years of Service Per Level: Source: (Participants, 2021)

The Cumulative Years of Service analysis in Figure 11 displays the participants' balanced wealth of institutional knowledge in different roles/levels with the FS organization. The Executive/Strategic represents 53% of cumulative years of experience and the Team leader/Tactical and

Supervisor/Operational represents 47% of cumulative years of experience amongst participants.

Total Years of Service Analysis

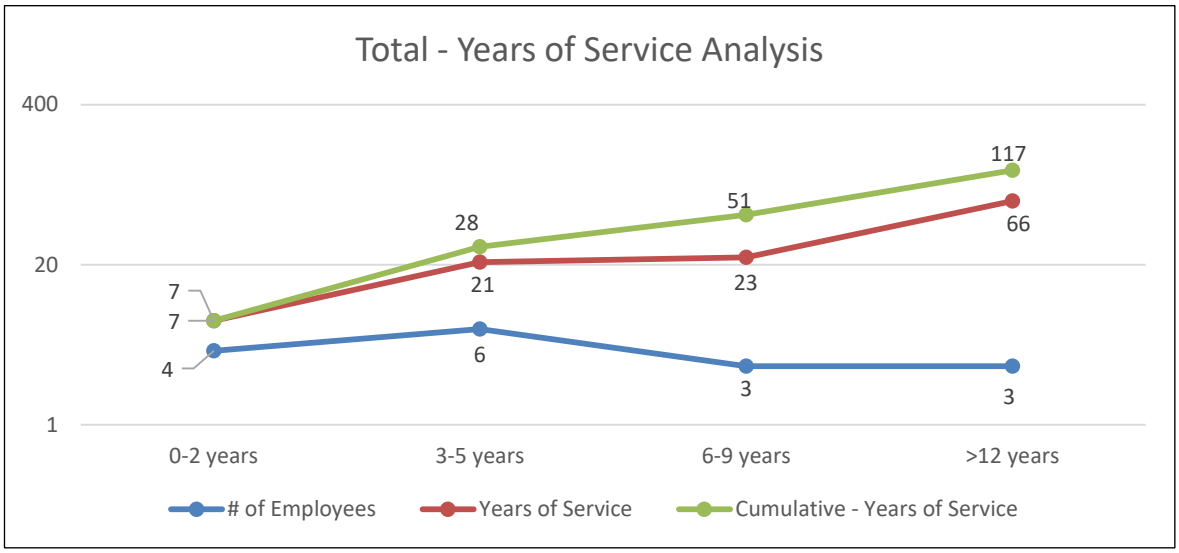

Figure 12: Cumulative Years of Service Per Level: Source: (Participants, 2021)

The Cumulative Years of Service analysis in Figure 11 displays a balanced wealth of institutional knowledge in different roles/levels within the organization. In total, the participants have 117 years of service within the organization.

4.3 QUALITATIVE DATA

4.3.1 Overview

The qualitative research data was drawn from 16 participants that were interviewed online for 25 to 35 minutes. These participants varied in demographic as highlighted in section 4.1.1. The objective was to collect data in a FS organization based in Johannesburg, South Africa in order to draw inferences and the following questions were then addressed in the interviews.

- What are the most relevant AI technologies in the FS organization with perceived impact on jobs?
    - Why do these relevant AI technologies have the perceived impact on jobs?
- What drives the usage of AI technologies in the FS organization?
- Is it perception or reality that AI has impact on jobs in the FS organization?
- What strategies can be proposed to mitigate the impact of AI on jobs in the FS organization?

4.3.2 Interview Results

The interview results are presented in the following categories:

- Relevance of AI technologies with perceived impact in a FS organization,
- Preparedness of participants to transfer knowledge to AI technologies,
- Drivers of AI technologies' use in the FS organization,
- The perceived impact of AI on jobs in the FS organization, and
- Strategies for consideration to mitigate the problem of AI's impact on jobs.

Section 1.1 - Relevance of AI technologies with perceived impact in a FS organization

This section examines the relevance of AI technologies in the FS organization. Participants attested to the fact that they are not resistant to AI assisting them in their job tasks.

"I'm not against that being done, especially if it's for tasks that are done repetitively. For those kind of tasks, I think it would work better to have help from AI." Participant 1

The participants confirmed their preference for AI technologies from a basket of preselected AI technologies from Figure 2: AI Technologies. These included (but were not limited to) AI technologies such as robotics, chatbots or biometrics. The participants indicated if they would prefer to be assisted by an AI technology on their jobs/tasks as some of the tasks they do are simple and repetitive in nature.

"…especially when it comes to providing simple information on request, answering simple questions or assisting simple tasks." Participant 4

From the interviews, participants preferred some AI assistance on repetitive and simple tasks from at least one or more of the technologies in the AI basket. The participants' sentiments about embracing it and its relevance in their day-to-day tasks and jobs was explained.

"If AI takes care of the repetitive tasks and I can look at more complex tasks……. because my function is a repetitive function. So if I can get assistance, in whichever way it would really go a long way." Participant 12

Table 5 below lists the AI technology preferences for participants.

Table 5: AI technology preferences: Source: (Participants, 2021)

AI TECHNOLOGY	NUMBER OF PARTICIPANTS
Robot	5
Biometric/Chatbots	1
Robot/Biometric/Chatbots	5
Robot/Chatbots	2
Biometrics	1
Chatbots	2

The following factors stood out in the participants' responses on the relevance of AI in their jobs/tasks.

- The ability of AI technologies to be programmed for repetitive non-complex tasks (unattended/always-on capability/24-7-365).

"If the robot takes care of the repetitive tasks and I can look at more complex tasks." Participant 1

"For example, chatbots, it's an always-on capability that can always interact with our client and provide necessary information at any time as it is not restricted to working hours." Participant 16

- The ability for AI technologies to free up time for humans to focus on complex tasks.

"It could give me time to focus on complex tasks and eventually complex tasks can be boxed under repetitive ones that AI can also do in the future" Participant 1

"As a result, one has more time on their hands to focus on other innovative things." Participant 7

- The fact that human time should not be wasted on doing low value tasks.

"You spend a lot of time collecting information as opposed to using that time doing more high-level thinking, hence some of the lower-level tasks can be performed by AI." Participant 5

"AI can provide necessary information at any time as it is not restricted to working hours. It will add a lot of value for our company." Participant 16

- The capacity of AI technologies to bring benefits to the participants' jobs, making the job easier, improve service delivery, add value and innovation to business.

  "It will probably remove 40-60% of the clutter that you will have to deal with before you get to the actual work and this also reduces the volume of the work to be done. That will add value to the business and I would not mind having something in the IT space that deals with stuff like that." Participant 6

  "It's actually low cost to the company in terms of overheads as you can hire fewer people, no admin from an HR perspective." Participant 13

The following factors highlighted that the relevance of AI comes with certain trade-offs that need to be managed.

- Complex tasks should be left for humans to fulfil instead of them being fulfilled by AI.

  "And maybe the more complex tasks then I could actually do. If AI takes care of the repetitive tasks and I can look at more complex tasks." Participant 1

  "AI works well in pre-set scenarios and any complex scenario deviating from the script will require human intervention." Participant 13

- Fear of losing jobs due to AI being implemented.

  "But when they create a robot then that's where now my current role would be on the line because it means now I won't be adding much value to the company." Participant 2

"It's actually low cost to the company in terms of overheads as you can hire fewer people, no admin from an HR perspective." Participant 13

Section 1.2 - Preparedness of participants to transfer knowledge to AI technologies

In order to ascertain the participants' AI technology preferences, the interview sought reinforcement on the preference by establishing the participants' preparedness to transfer knowledge of their skillset to AI technologies as this can be a signal to indicate the acceptance levels of AI technologies in a FS organization.

The participants responded with willingness to transfer knowledge to AI technologies resulting in a hybrid working model arrangement. No participants indicated unwillingness to transfer repetitive job task knowledge to AI technologies. Their preference was the willingness to transfer job tasks knowledge that does not involve much thinking, which is repetitive in nature and retains complex tasks.

"…..Yes, no issues with that either. AI can do the boring stuff." Participant 5

Other responses indicated willingness to transfer complex (involving much thinking) job tasks knowledge to AI only for the sole reason of them not being able to complete the complex tasks and also as the last resort to preserve their job.

"I believe if it's moderate or I'm failing to deliver on those complex tasks, then AI can do it." Participant 2

"…..but if I haven't tried and failed then I'm not willing to teach the robot." Participant 2

The participants indicated their willingness to transfer both repetitive and complex job tasks knowledge to AI for reasons as specified by the participants.

"So with certain tasks being obviously done by AI then it will give me that time to be able to think and breathe and then come up with some new features and to do research." Participant 9

"The repetitive ones because that is where you just end up wasting time. Complex problems also yes, because AI can do it much more quickly and efficiently - we would employ AI to do that. Just a matter of doing it much efficiently and less error prone." Participant 7

"The repetitive ones I wouldn't mind handing over to AI because that would be fairly easy and I'm more comfortable with the repetitive ones being handled by AI. There isn't much teaching really, it's almost just making sure that the information is found at a particular place consistently all the time because they're repetitive in nature." Participant 8

However, with regard to the above, some participants were prepared to transfer complex tasks to AI technologies but still retain control to check AI's outcome before they authorize the finalized outcome.

"The thing is I will still have to check it at the end of the day if it's a complex issue." Participant 12

"We only need to focus on the important things and sign it off with our approval." Participant 13

Other participants' viewpoints included the willingness to transfer knowledge to AI technologies:

- If it is for their own benefit

"I would because it is going to make my life easier if it is to my benefit." Participant 3

Or

- If there will be benefits derived from the arrangement, such as making the job easier, improving service delivery, adding value and innovation to business

"I would definitely prefer that especially that in the industry that we are in, we always need to try to find means and ways of innovation and improving on service delivery." Participant 9

Participants also displayed their reservations in transferring their knowledge to AI. They specified reasons such as the fear of losing their job due to AI being implemented.

"Job security in South Africa is a big thing. From that perspective I'm going to be a champion of we need both humans and robotics." Participant 6

"Remember when we give these tasks to AI then it's more like we are losing our jobs." Participant 10

Others had reservations about the ability of AI technologies to make sound decisions on complex matters.

"The complex ones (matters) would require decision making and require human intervention and negotiation." Participant 4

Section 2 – Drivers of AI technologies' use in the FS organization

With reference to section 2.3 – "Rationale for AI in a FSP's organizational development", AI's propagation is driven by certain drivers. In order to ascertain these drivers, this section examines the participants' views on the drivers of AIs in the FS organization. According to research by Agrawal et al (2019), there is a certain rationale that an organization's development is premised upon based on AI as a frontier of organizational development to

drive certain metrics. This section establishes those metrics with participants in a FS organization.

The first aspect under review was to assess data analytics as a driver for embracing AI. The participants attested to the fact that data analytics is beneficial to their jobs and no-one opposed this view.
"So data insights would be useful in my job especially data consolidated from multiple sources allowing artificial intelligence to do insights, pick up trends that we might not be seeing due to the time and resource constraints." Participant 5

"You know a lot of mistakes can also happen when you try to fidget around and analyse data on your own on spreadsheets. You can also make mistakes so it also prevents that human error aspect and preserved integrity of data." Participant 12

They further specified that big data analysis should be handled by AI technologies and no-one preferred to go through the manual or hybrid exercise of analysing data.
"If there is a tool that does the analytics and identify anomalies on data that is not clean or corrupt just to sift through those and make sense of it would add a lot more value and save us a lot of time." Participant 6

"AI can give you alerts or warnings instead of business telling you my system is not working is down when you've been notified upfront by the dashboard and in that way you are much more productive in terms of offering better service. It makes you proactive in service delivery." Participant 11

The participants' justification included that of AI technologies' computing power far outweighing human computational capabilities.

“A machine would have more memory as opposed to me. It can go far way back than I could and remember those processes and go into archives and retrieve such information better than a human would.” Participant 1

“AI easily picks up the patterns of anything that doesn’t match in big data.” Participant 7

“If we could get AI to help us to be able to take data and put it in a form that would be applicable to different types of stakeholders and have analytics and insights. At different layers, we need different layers of data and at different layers of understanding we need data presented differently for it to mean different things to different people.” Participant 13

Where the optimal use of work time assumes increasing importance, and where information easily becomes irrelevant if produced late, the turnaround speed of data cleansing, analysis and producing relevant information at an appropriate time would enable participants in their jobs.
“Data is not clean and to manually try sifting through, clean and fix things it’s just a no go, at the end of the day it takes much of your time.” Participant 6

The participants identified data analysis through the use of AI technologies as a critical component for new product and market development.
“So we definitely need a way of using the data that we have collected over the years to understand and to see what is our next move towards the customer. Because probably the customers that we were dealing with over the past 50 years are different to the customers that we are dealing with now. And what is it that is new that we can derive from that data that we have because one of the things there is much important is to create the markets of tomorrow. It means we need to maintain a zero distance between us and the customers. Data will close the gap between the organization and the customer.” Participant 16

The second aspect under review was to ascertain productivity of tasks and performance efficiencies as a driver for embracing AI. The participants attested to the fact that AI improves productivity for jobs by handling minor repetitive tasks, administrative tasks and reporting.

"I'm not doing an administrative function whereby 80% of my job or about 50% of my job is repetitive, so I don't think my productivity would be impacted that much. Probably by 15-20% if I would just estimate." Participant 1

"In my world, it can help with regard to reporting or statistics because numbers are numbers and they don't change." Participant 4

"Getting the right information relevant to different stakeholders. AI can assist in deep diving into information." Participant 13

Further to the computing power factor that AI brings to data analytics, participants highlighted the fact that AI improves productivity for job by providing a short turnaround time in service delivery.

"If AI is implemented, it will provide a short turnaround time to deliver rather than me taking time to actually reach out to the users or clients." Participant 2

"AI can make use of the data tools that we have internally and augment it in flight with additional data sources that are external to the organization and the fact that it can do that kind of thing potentially in real time is where the big improvements take place. Processes that can take a day can be done in real time." Participant 5

The participants attested to the fact that AI improves their productivity by introducing job efficiencies, accuracy and error reduction compared to manual processes and proactive error discovery and error resolution.

"AI has made it easier as it is very efficient, accurate and timely as before it was a tedious manual process prone to data capturing error. Productivity and efficiency are there in AI." Participant 3

"Client verification with Department of Home Affairs can be done in real time by AI as currently we have a different team of people in different workplaces finding these key pieces of information. So hopefully there will be intentional additional of information on top of our data sources to improve our processes." Participant 5

"AI assists in ensuring that issues do not repeat and also in troubleshooting repeating issues. AI would be able to identify the issue to the "T" as to whether this was actually a repeat offender and if the measures that we have put in place were actually effective against this particular issue in recurring. AI can self-learn and improve." Participant 13

From a productivity and performance efficiency point of view, participants preferred to be assisted by AI on repetitive and administrative tasks.
"…yes, then I can look at much more complex things that I do." Participant 1

"Some of my tasks for instance in the planning phase, there are just the usual run of the mill. In that case I can have an AI assistant because it's the same process of planning and it can help so that we don't overlook some tasks." Participant 4

"My take on AI, it's mostly along the lines of repetitive tasks. The likelihood of using or AI being a tool that strategizes on people's behalf is highly unlikely." Participant 13

Preference was shown for AI to assist on AI complex tasks in order to increase productivity and create the needed performance efficiencies.

"*Yes, definitely. In the space where we constantly find issues with technology, we always want some sort of an event/notification or IT technology that will be able to investigate deeper or alert us of any possible outcomes in the near future and we can know what we plan for. It gives you that proactive capability.*" Participant 9

Another view was also provided where AI's assistance on a task/job was preferred as a result of its machine learning capability.
"Machine learning is one of the sought out technologies. We rather have a fair amount of it to be allowed/introduced in the company but not have it totally take over the space because machine learning also needs people's input for it to work." Participant 2

"AI can self learn and improve." Participant 13

One participant preferred not to be assisted by AI on a task/job due to lack of AI understanding/knowledge of AI's capacity.
"I think at this point, no. I don't fully understand the capability of artificial intelligence, so it will be difficult for me to give you a definite yes or no. We are working on it and we're working to get there. But to be honest, I don't understand the capability and it would be difficult to say in my role of what I do in the business." Participant 6

The third aspect under review was to assess the role of AI in decision-making uncertainty as a driver for embracing AI. The participants attested to the fact that due to AI's impartiality, it might prove difficult to entrust it with all decision-making responsibilities. They raised the fact that AI does not have empathy, emotions or the human element required in decision-making and that AI only applies logic.
"…because obviously AI are machines, so it won't have the level of emotions or certain perceptions that a human being might have." Participant 1

"If I'm going to have a decision on a human subject, I would not want AI to make a decision as AI uses rigid logic without considering all factors and other valid information/reasons. AI would not work across the board to make all decisions as it works for some stuff and not all stuff." Participant 3

In decision-making scenarios involving uncertainty, there is a certain level of subjectivity and certain perceptions that are required in making the decision. These qualities mostly exist in humans and are difficult for AI to possess. AI tends to be known for not deviating from logic and sets of instructions unless gradually taught via machine learning.

"You need to be subjective to some extent, some decisions I don't think AI can make." Participant 1

"AI is only as smart as what you input in it or what it is instructed to do. So in decision-making there's a lot of logic that is required and logic in the sense of if we need to apply a process and we are using AI as a decision-maker it will assess the environment but it will not have the logical knowledge to undertake a logical step to analyse process impact." Participant 9

Participants were also of the view that AI should be utilized for reporting, repetitive and easily programmable decision-making.

"So unless it's a decision that can be easily programmed, then it's possible. Some decisions you can't really leave them to AI, even though you could have facts, but sometimes you need that human element that humans have." Participant 1

"As long as you have the root causes determined by rules. So as a person you'd have to know exactly what the set of rules are that make up a decision. So you have to define those rules clear so that the machine can execute them without running into issues. If your rules are not clearly defined then it can also run into problems and make wrong decisions." Participant 7

The governance of AI in decision-making was raised with participants advocating for AI to be utilized for assisting in decision-making in a regulated manner alongside the humans.

"Yes. So you'd like AI technology to provide you with the facts and all the information may be in a summarised way for you to ultimately make the final decision." Participant 1

"It's about AI's ability to recognize patterns and trends that we might not comprehend. AI can assist in broadening our understanding on a particular problem which then leads to improvements in decision-making. But the short answer to the question is that it will have an influence on decision-making absolutely yes." Participant 5

It was also noted from participants that AI should do the preparatory work in decision-making and provide the information to a human to ultimately make the decision.

"Yes, AI would have to maybe do an analysis and give me the facts and the statistics and things like that. Then that would be as far as it would go for me in its assistance in my decision-making. Ultimately, it should obviously be based on the facts and the statistics and whatever provided by the robot. Then I would ultimately make the decision, but not for AI to ultimately make this decision for me. So it can assist for me to get to my decision but not make the decision for me." Participant 1

"…especially on the heavy lifting, it's trolling reams of information that we just don't have the capacity to handle right now as its not value add tasks. AI should augment information and not be the outright decision maker." Participant 5

However, participants highlighted the fact that AI should be used as a last resort for decision-making or as backup when humans fail to make a decision.

"*I would if I run out of options and I've exhausted all solutions then AI could be a backup. Will have to see what AI can do for us and actually assist us from there. Then we can take a final decision from AI's input.*" Participant 2

Other participants indicated their preference for not utilizing AI for decision-making.

"I would not place AI on decision-making because decision-making constitutes emotion and AI does not have emotion. It constitutes consideration and I don't know if AI has that unless we programme it that way, but every decision and every consequence of a decision is different." Participant 4

"Decisions need assessment, reviews and maybe communicate to other parties, but AI chances are it will apply a blanket process and not apply a logical approach. So I would prefer human interaction in that space." Participant 9

The fourth aspect under review was to establish the role of AI in organizational data as a strategic enabler of competitiveness in the FS market. The participants attested to the fact that market intelligence can be obtained from AI data trend analysis (customer trends) to enable an organization's competitiveness through improved/new customer services/products; product/service research and development; product/service discontinuation; enabling decision-making; understanding and drawing closer to customer segments.

"In order to be competitive, any business needs to look at what is happening outside of the organization - look at the competition and what are the current trends. Data is important to make business competitive." Participant 1

“Specifically the insights into the data that can be provided by artificial intelligence could actually draw us closer to our clients. There is a huge amount of value to be extracted by understanding the demographic customer segmentation of our customers. There is an opportunity for some product development to happen because of the analytics that could be done faster on the data. Data can be aggregated and inferences made leading to the development of products to service a particular market segment. AI can dig a little bit deeper and go down to a lower level of granularity where the normal human cannot process at that level. We might find that there are some of our products that are not actually servicing the need that our clients have. This is of huge value as AI does a lot of aggregation accurately.” Participant 5

“I think the answer is yes. Because when you have data, you can make decisions like you said, when you have data, you can have sort of like an edge over your competition as well and you can plan in future and you know where there are shortfalls and pitfalls.” Participant 12

“Yes. Data can be extrapolated to advise clients of their future financial position after retirement. This enables the clients to take financial decisions to safeguard their financial future.” Participant 14

The feedback loop is a power construct in the decision-making cycle. This is made possible by data obtained from AI that can enable an in-depth feedback analysis loop providing descriptive feedback for data, processes, products, service improvement and service creation.

“*I think AI can. When it comes to numbers, maybe/maybe not but when it comes to in-depth study and analysis providing in-depth descriptive feedback or information regarding that data maybe.*” Participant 4

“Correct, that’s an obvious yes. If you understand your clients’ needs, you can give them what they want, but if you have to read their minds, then you

the most likely have more misses than you'll have hits. So if you know precisely what is it that they're looking for and what they are needing at that point in time, you can probably even cater or customize your products for those particular needs. If you don't actually understand your customers you are more likely to create more of a generic product so that you can actually try and get more hits than misses." Participant 13

"For any business to do a strategy, it should be based on information. It should be based on understanding, understanding of what or understanding of who, understanding of our customers." Participant 16

Participants highlighted the fact that AI data analysis enables the organization's market positioning for prospective business and diversification. It can also enable mergers, acquisitions and disinvestments for certain business units.

"Yes definitely, I think data analytics and how we perceive data. It speaks to trends and where people's minds are at when it comes to the different aspects of our industry. So having an understanding of what people do with their money and how they invest it and which section of that market is more likely to invest, it basically would help us to market ourselves in a way where we can possibly capture different market streams that we haven't been able to tap into, and the only way we can really do that is to understand our customer base and once we have that understanding, we can then do targeted you know advertising. But all that would be driven by your data analytics because that's the only way you will understand how to target your products and you can also target specific demographics. Without understanding those people and their trends when it comes to the financial behaviour, it's going to be difficult for us to position ourselves where we can actually speak to each section of that of the market without having that analytics." Participant 6

"Data analytics can enable us to look at other things like client segmentation, in a world without that data you couldn't do client segmentation. And it can also be used from a client segmentation perspective to identify opportunities." Participant 15

"We get to understand this customer by using the data that we have and the trends that we can understand from the data. So it's very important for us now to make sure that we use the data so that we can stay ahead." Participant 16

As the FS organization exists in a regulated industry with extensive compliance requirements, participants noted that AI can be utilized for regulatory compliance with regard to data.
"Also it comes with a responsibility if you have data and you have to follow certain guidelines and POPIA legislation when you handle data." Participant 12

Section 3 – Ascertain the perceived impact of AI on jobs in the FS organization

With reference to section 1.4, the impact of automation is inevitable and poses major challenges to 54% of jobs in Europe (Bowles, 2014a) and 47% in the United States (Bowles, 2014b). This section is critical as it gauges the reality of AI's impact in the FS organization. It aims to ascertain perception from reality. The participants' lived experiences have enabled this research to examine the perceived impact of AI on jobs in the FS organization. As defined in the Oxford Dictionary (2021), impact is "the powerful effect that something has on something". The above suggests that AI can result in both negative and positive impacts depending on the participant affected.

The first aspect under review was to establish the way in which participants thought AI had impacted their current job/tasks. The participants attested to the fact that as the organization gradually deployed new technologies, AI is

slowly impacting their jobs but they were not so sure how. They highlighted that the impact is indirect and the momentum of impact will gather in the near future resulting in direct impact.

“Yes, I think for now it's quite slow, so it hasn't really picked up. In the future it will take a few years for it to impact my job in a way that can help regarding productivity. I’m not quite sure how it will impact as currently there is not much impact and not much is being done on my job regarding AI. As AI technology grow and people open-up to AI then most definitely it will affect the way we work and the way we do things. There are fears that it could make humans obsolete.” Participant 1

“At this stage, there is not much impact but as all organizations introduce new functionalities and new methods of working, eventually I feel there are tasks that going to fall away in the near future because AI will be so smart to a point of mimicking human tasks.” Participant 2

“For me I haven't seen it currently in my current role, but I'm really obvious to the fact that when it comes to things like jobs of the future, you really start seeing that we are pushed to up. We're pushed to a corner that says start understanding how you can enable things like artificial intelligence to assist you in the work that you do instead of you being an impediment or a competitor to the machine. Rather start focusing on skills that allow you to work hand in hand or enable these future workers.” Participant 8

“For now, there's no negative impact because I'm still doing everything that I have to do myself. But going forward, it will have an impact because there will be some roles that they will be taken from me that I won't be able to do. I've got 100% capacity for the day and this robot come in, then now I will have 50% meaning will be working only half a day and not the full day. If I’m not doing anything for the benefit of the company, the company may say you are legible to work half day not full day and cut costs.” Participant 10

However, it is noted that for some participants AI's impact has resulted in improved productivity for their jobs by handling reporting, minor repetitive and administrative tasks.

"It would make some of my work easier in terms of reporting mundane tasks and statistics." Participant 4

"I think it would positively impact my job especially around the mundane tasks and picking up of problems before they occur and when they occur and then let me know about it instead of it being something reactive. It can positively impact my job in that sense. Also that of taking corrective measures when it picks up that there's a problem." Participant 7

The above is reinforced by participants' preference to be assisted by AI on repetitive and administrative tasks.

"*Yes, correct, so anything repetitive, anything that is administrative intensive. We work with cut offs, time sensitive things. So I think that would actually work. It will help if a process is blocked then something should trigger a certain action because currently if processes get blocked I need to start the troubleshooting process and all these things. So I think if a robot would do that it will help greatly as my processes are quite time sensitive."* Participant 1

"The whole process of dealing with leads and the qualification of leads and turning them into opportunities is an intense process we might be able to do better or get to more client if we allow chatbots with some kind of sequence of decision trees and to access some underlying data sources. AI will be able to qualify those leads much more efficiently than we can do right now." Participant 5

"No, not really. It would be those mundane and repetitive ones because that's where you end up wasting time or getting into issues. So if it can help

resolve those kind of things, then yes, but other stuff like innovation and thinking then I wouldn't at this point give it to AI." Participant 7

Other participants expressed their lack of confidence in AI and preference not to be assisted by AI on task/job due to lack of AI understanding/knowledge of its capacity.

"*No, I'm not willing to do that. AI is only as intelligent as what you input to it. If management changes, if weather changes, if technology changes, you require a logical mind-set that's that is willing to move with the change and adapt with the change. So AI will not have that type of intellectual unless I tell it to do that. So meaning that at some point you require someone that will be responsible for that AI analysis and integrational configuration. It has its limitations.*" Participant 9

"*For now nothing. For now I need my job maybe for IT guys you can ask AI to do some of the things for you.*" Participant 10

The second aspect under review was to ascertain a pessimistic view in the way which participants viewed the disappearance of current jobs as a result of AI. The participants attested to the fact that currently they are not aware of jobs/tasks impacted or disappearing because of AI.

"I don't know. I'm not aware of any jobs that have been impacted." Participant 1

"I can't think of a single area within our business where we've had directly impact on jobs." Participant 5

"In my current organization, no, not aware as it's still a project that is still in its infancy stage." Participant 8

"No. In our area there was system that was implemented, but I don't know why after implementing the system people who are doing certain tasks were

actually doing more tasks than what they were doing previously. It was just like different tasks. So there was no staff efficiencies or head count efficiencies from implementing this system that also has to be like an intelligent AI system." Participant 15

Other participants were of the view that currently they are aware of jobs/tasks impacted or disappearing because of AI. They were specific on data capturing being impacted/disappearing due to system integration; customer service being impacted/disappearing due to AI efficiency; branch tellers being impacted/disappearing due to automated teller terminals; operational task/jobs being impacted/disappearing due to AI automation; manual data analytics being impacted/disappearing due to human limitation in capacity to crunch data; on-premises network skillset impacted/disappearing due to network cloud operations (Amazon Web Service AI engineering Vs on-premise Windows Server engineers).

"The only thing I can think of someone used to do the data inputs but now he doesn't do that. So that job is no more. However, what they've done is to give people more interesting things to do rather than capture rates. People not only just capturing rates but have been empowered by getting more involved in reconciliations and other interesting tasks." Participant 3

"There's a lot of jobs that are actually falling away, especially with customer service. That's the first jobs to be on the line as AI machine is very good with delivering customer service. So most of the companies are actually retrenching because AI is able to conducted work efficiently without having people around." Participant 2

"...a lot of jobs that we were able to cut over the years because of implementation of AI in the administration area. Just the statistics over the last 10 years, our division had over 400 staff but with different levels of automation that we've built in a lot of the process is, I think we are down to about 160." Participant 6

"…but in terms of taking the jobs, I would definitely agree with that. With AI you are able to cut jobs/manpower and have AI do the tasks, and then have a few people literally governs the AI machine, so it does eliminate the jobs." Participant 9

"Yes, definitely I would say the administrators and accountants in our organisation are definitely impacted and will get impacted even more definitely. There used to be people validating manually, but now through the use of a portal, only one person is actually a monitoring and uploading the schedule and getting it validated through the application, one person is doing that as opposed to many administrators in the business. So a lot of their tasks are getting less and less by the year. So they are definitely impacted, so they would have to upskill themselves in another way because that's all they've been doing all this time." Participant 11

Regarding the future, participants envisioned a future where jobs/tasks will be impacted or disappear because of AI. The roles that they foresee the most being impacted or disappearing include administrative, lower ranking roles, consultancy, business analysis, accountants, backend claim processing, reporting and budgeting. The departments to be affected the most include procurement, finance, financial planning, accounting, call centre and standard advisory.

"I think mostly administration jobs would be the first to go because those are quite repetitive and they don't require much of thinking and things like that. So the task acquired routine. So I think administration jobs would be definitely be the first to go as well as probably finance jobs because those are also quite repetitive. There are systems that are in place that can do debits and credits already, so why would you actually need a person to actually do journals and all those kind of things so admin and finance would be the first to go in the future when it comes to artificial intelligence." Participant 1

“The consultancy jobs because some of the questions or work they do can be done by AI. There going to be very few person-to-person contact. There will be lots of video interaction with AI in customer servicing.” Participant 4

“In terms of roles like business analysis, large portions of those types of roles will be possible to be through AI tools that can discern and draw the relationships between processes in business and suggest improvements. All of the backend or back office staff are at risk. The procurement space or the financial area at the moment, we have quite a lot of guys. In the budgeting, financial planning and accounting roles, a lot of what they do is not particularly innovative and is straight up analysis of the financial situation of a particular business unit. There's no reason why that stuff cannot be automated.” Participant 5

“I think yes, maybe stuff like your call centre might just end up being affected as it's becoming more redundant because you can just make your call. It gets answered by machine pre-recorded and then like that decision tree that you made and then you just interact with the robot and then your case gets logged. So it doesn't have to be a person anymore behind the telephone that you're talking to.” Participant 7

“The opportunity that is in the organization, look at the call centre. The call centre has frequently asked questions. You can start training the robot or the chatbots to be able to respond to these tasks and even go a step further to log the call to the respective help desk. If the text or speech engine can master the dialects that we have as South Africans and Africa, you would then start seeing a real decrease in the manpower that sits in the call centre because there won't be any call centre agents being tired and no high turnover rates.” Participant 8

“For one, let us make an example of Operations and administration - claims processing. With AI you develop a link between Home Affairs and your process and then you develop a link between the other company With AI only exceptional queries will require manual intervention means you no longer need more staff in your processes but less.” Participant 9

The third aspect under review was to ascertain the optimistic view in the way which participants viewed the creation of new jobs as a result of AI. Some of the participants attested to a neutral view that currently they are not aware of jobs/tasks that will be created as a result of AI.

“I think with in the financial services sector I haven't followed any jobs created. To a larger extent in terms of new careers that have become available in the market, I can't really answer that question, and they probably will be but off the top of my head now, I can't think of any that have come up in the industry.” Participant 6

“Not currently exposed to that, so I wouldn't know.” Participant 10

“Not for the time being, but I know in the operations and administration area space they are automating most processes that are administrative. But I'm sure in the near future new jobs will be created.” Participant 12

There was a subset of participant that attested to fact that currently they are aware of jobs/tasks created because of AI. These include AI programmers, AI process analysts, information and cyber security specialists, machine learning specialists, data analysts, AI software developers, robotic specialists, digital analysts and network infrastructure engineers. AI has also created jobs/tasks in the fields of automated testing, cloud computing and in IT in general.

“Also in the technical field, the AI technologies cannot fix themselves and someone must fix them, technical skills can be another option. AI it still

needs a human being to tell it what to do. Machine learning is also another avenue to explore." Participant 4

"Yes, I would think maybe more jobs would be created in the technical space where there will be programming and create these robots or basically software developers. They become more in demand and get more opportunities and things start shifting towards their side favour." Participant 7

"So it definitely increased jobs focussed in the technology space. And within the technology space, it's still focussed on a particular skillset such as developer, robotic specialist or your digital analyst." Participant 9

"Yes, I think it has increased the demand for IT resources. Either resources looking at the network side of things or infrastructure, because AI need those things in order to be able to perform so because of the increasing demand, there are new jobs that are being created in those areas."
"Not really that I've noticed any new jobs. Maybe in the IT space you could say that. Nothing new that's come up that I know of." Participant 15

The participants were very optimistic that in the future more jobs/tasks will be created as a result of AI. The following future jobs have been predicted by participants: AI programmers, AI manager, AI administrators, machine learning experts, big data analysts, AI process automation specialists, technical AI specialists, data scientists, financial influencers, security specialists, AI application developers, AI technical developers, cloud computing engineers, AI reporting specialists and network infrastructure engineers.
"Probably there will have to be more people, obviously who will be able to program and maintain this AI and enhance its processes. New departments/team created that will be looking after those AI functions that

will manage the AI wave and maintain that space, and obviously not only managing but growing and enhance AI." Participant 1

"I feel like everyone in IT is working towards AI, machine learning and big data courses so for them to be safe when AI takeover in most companies." Participant 2

"I think the jobs that will be created is whereby people are going to program AI. In the IT industry there's a going to be a huge scope for artificial intelligence to maintain and enhance all these AI tasks. The jobs of focus will be on business efficiencies and data capturing could become redundant in the future." Participant 3

"So I think that whole area in the data space. There's opportunities there that we haven't yet explored, so we've got huge quantities of data. If you apply the AI on top of that new revelations can come out of the existing data pool that we have. The whole data science and the ability to interpret and interrogate and pose new questions. We have not run on that vertical and still needs to be explored. So data science are not prevalent in our organization and we don't have them in our organization. Whatever those jobs are, it is going to be things that the machines can't do. The jobs have to do with some creativity and the ability to handle uniqueness and novel situations." Participant 5

"If we are speaking about the technology space, I do see the increase in jobs for developer, security, testing and development of applications to improve the service delivery to clients via AI." Participant 9

"You would need people with the skill to actually come as specialist to program these AI technologies. AI programming or configuration new jobs will definitely be created when it comes to AI." Participant 11

Only a smaller subset had a neutral view of not being aware of any jobs that will be created as a result of AI in the future.

“I think with in the financial services sector I haven't followed any jobs created. To a larger extent in terms of new careers that have become available in the market, I can't really answer that question, and they probably will be but off the top of my head now, I can't think of any that have come up in the industry.” Participant 6

“No I can't see any.” Participant 7

“*No, so I haven't. I haven't really looked much at AI in the environment to see what it has to offer.*” Participant 14

There was also an emergent view that the AI job market of the future will be a gig economy where multi-skilled talent with 4IR skills to be able to do multiple jobs will be on demand, this resulting in a completely totally different landscape and approach towards job creation.

“*What I foresee is a gig economy as the nature of the nature of work will start changing. Companies won't have the appetite to hold a large staff compliment. The likes of LinkedIn is also going to change where you are going to be rated by the gigs that you've performed. They will be the need for us to be multi skilled in in the work that we do. Job will be about modernizing the way business is done because the revolution of the 4th Industrial Revolution.*” Participant 8

Section 4 – Establish the strategies for consideration to mitigate the problem of AI's impact on jobs

The above sections point to AI’s effect on jobs in the FS organization. As employees, employers and external parties are affected parties, this section aims to come up with strategies these role players can embrace to cushion the impact of AI on jobs. A tripartite approach involving internal and external

parties needs to be considered. The approach needs to revolve around AI's impact on jobs and how this can be mitigated.

The interviews structured participants' AI job impact mitigation strategies in a FS organization as follow:

1. Employee mitigation strategies
    a. Implement a quota system threshold of the percentage of AI allowed in an organization in order to balance the loss of jobs.

"So I think they should be some measure that not more than 20% or more, not more than 30% of the task should be automated by AI. Maybe there must be some sort of threshold to ensure that people don't really lose their jobs. Maybe put in a rule in place to say in an FS organization, AI should only be doing a certain percentage of the tasks and it should adhere to." Participant 1

"We need to find some way to strike a balance between how much of AI do we require in the environment? How much efficiency is efficiently as efficient until we get to a point whereby we say that this is more than enough people are getting a good service, the environment is not down as much and we providing good products and we not losing as many hands and feet?" Participant 13

    b. Upskill/reskill of current skillset to be AI relevant.

"For me it would basically scaling up all the team members to what is relevant to AI. This is the only way to learn the AI functionality and the new implementation of AI, so everyone is skilled in AI." Participant 2

    c. Mind-set change to embrace AI and change job roles/responsibility to align with AI.

"The most important thing to do is to actually move with the times. You need to actually say I am a bookkeeper, and I do intercompany recons and I know

that AI can actually come in and do this for me. Then maybe you an accountant and you're not in IT person, you should consider upskilling from your current job and empower yourself and not be replaced by AI. One has to upskill themselves to fit in AI processes as AI needs human intelligence to function. What's very important is mind-set and you can't dig your heels in and say I'm not moving forward, you need to actually embrace change And you need to go with it, because if you're going to have negative mentality and you actually going to lose out because the world is changing and it's moving and It's not waiting for anybody." Participant 3

"I wouldn't want to do anything to mitigate the impact on my job because I see that AI could actually help me so much I don't feel threatened by AI in any way that I would want to mitigate the impact on my job. I feel like if AI could take over more of my job, I could do more of other things, like the cooler more fun stuff that I really want to get involved in but I can't because I spend so much of time like organizing data into information. So in essence, I would like AI to take its course and formulate and shape its destiny. Because if you are looking at AI helping you to achieve certain KPI's then obviously AI it's something that we program. So for instance, that's a measure to mitigate impact in a in a positive way." Participant 15

d. Awareness campaign of AI and the new opportunities AI is creating.

"I think the first thing that needs to be done is awareness to make people aware of this and how it's going to impact them negatively or positively. If the awareness can be done to teach people, to give people more details on how AI is going to work and that some jobs will disappear but at the same time there will be job creation." Participant 10

"…because the administration part would have been impacted to the point that I probably will sit with not much to do. I'm sure it will push me to think more strategically on how to improve maybe the functions within the

department to remain relevant. So we would have to look at other things that can improve the functions or consider other things that you can do or outsource some responsibilities. Also look at how can we strategically positioned ourselves in the business and still add value to them. The work has to be rethought going forward." Participant 12

e. Education: Training and development subjects (programming; integration) in new career/job paths in AI.

"My opinion is that every child going forward from now already should learn some form of development application integration and programming and that should become like a basic skill that you learn with maths at school. Reason being, if we're going to be going into the artificial intelligence based automation of things. Every single career on the planet will require or is going to be impacted by disruption. So giving your child that skill from a young age gives them more options. We need caretakers and gatekeepers that can be reskilled to be able to take care of that automation that's been built and make sure that it works correctly. You need to upskill people then to be able to fill those AI roles so that you don't create a gap in your organization." Participant 6

"You must be working yourself out of a job. You must choose a path that is future certified. The skill might not be needed now or these competencies might not be popular today. But you must work towards a projected new career path. You need career guidance upfront in order for you to understand new career path and a roadmap for yourself and then stick to it to future proof yourself." Participant 8

f. Emergent view: Stimulate novelty/creativity and stimulate human to human interaction/contact activities as opposed to machine contact

"The kind of activities I do must be novel. That means I must be doing things that are being done for the first time. From a strategy perspective, I need to

maintain my handle on the creative elements of what I do. And try steer away from stuff that the machines can do better than I do, which is bulk processing, deep analytics of reams of data, I must stay away from that and try stay in the novel space. In our workspace, we must elevate our teams to interact with people more so it's actually improves and increases the amount of human to human contact we have, so real people phoning real customers and having proper conversations as opposed to doing backend stuff." Participant 5

2. Organizational mitigation strategies

    a. Training, empowerment and development to uplift current skillset to AI

"The organization should offer training and development on the uplifting of current skills. The workforce can be moved to other systems. The current workforce must be considered for multiskilling, uplifting and development before considering external candidates. Gradually introduce AI to the workforce and so that they become comfortable and give them that exposure as change is inevitable. There will always be change, people will always be uncomfortable about change. It's just how you manage that change that makes you progress in a new space. So I think through training and upskilling people will become more comfortable and they won't be fearful of the new era." Participant 1

    b. Multiskilling and redeployment of employees into other areas

"Maybe they should take the existing employees and diversify/multitask their job role and widely exposure them to AI and skill them in AI." Participant 2

"What type of AI is required, what are the jobs and that will be affected and how many people will be affected, and what are their skills and knowledge and lending capacity to move into the other space." Participant 9

c. Awareness: Gradually introduce/expose AI into the organization for a natural transition of employees or exposure to employees into AI (change management)

“I think there must be able to look at all avenues and not to see who benefits or who does not benefit, but the process must be fair to everyone and they must be open about all the changes that they are bringing to the employees. So they need to strategize on how they're going to implement this and to make their employees happy.” Participant 10

“They need to create some sort of awareness through workshops especially for non-information technology job disciplines I highly doubt an administrator is aware that his/her job is going to be disrupted in the future. So definitely awareness and workshops of what's actually coming through and how it will impact and affect employees in the future.” Participant 11

d. Let there be a natural organization employee attrition (external recruitment to be minimal - consider internal candidates recruitment) as AI is embraced

e. Multitask employees with AI and their current disciplines

f. Organization should balance efficiency between jobs and AI for sustainable profit

“There should be a balance in efficiency and keep people afloat in jobs because we need that income for them to invest in order for us to make a profit.” Participant 13

g. Emergent views:

i. Organizational empathy

“The organization must upskill people where they can. It is actually a sad reality because we're South Africa is concerned we have such high unemployment. The organization must have empathy and say let us not be

too efficient so this person can continue going to capture rather than being replaced by AI." Participant 3

ii. Organizations should make AI accessible in order for it to impact jobs positively"

"I actually feel that the organization should make AI more accessible to people so that you can have a bigger impact on your job from AI because it's so useful. The only AI I don't appreciate that organizations implement for staff is to monitor people working from home the entire day – surveillance." Participant 15

iii. Stimulate human to human interaction/contact activities as opposed to machine contact

"The strategy they should be elevating the importance of human to human contact. So getting our people out from behind their laptops out from behind their screens and actually interacting with clients actually making contact." Participant 5

iv. Change in organizational culture - new ways of work; innovation; skills of the future"

"The organization's culture needs to be changed as culture drives everything. For example a culture of fun, change of the ways of work." Participant 8

"Personally, I think the organization needs to start driving a culture of innovation. By driving that culture they will now start triggering ideas to people to say the world is now revolving around innovation. So as an employee you need to do to align yourself with AI. So from the organization and management they need to drive that culture. Allow people to try these new things to help them align their skills to the future." Participant 16

3. Third parties mitigation strategies
    a. Implement quota system thresholds of the percentage AI is allowed in an organization to prevent job losses

“I think probably just impose some sort of limit or volumes or something that the company can use so that it doesn't wipe out the workforce. Also have legislation that defines thresholds that organization have to adhere to in terms of AI technology investments and the extent of work that AI technologies can do.” Participant 1

b. Implement legislation/regulation/policy to govern AI investment thresholds Vs job lost/jobs created in agreement with stakeholders - government; regulators, financial service organizations, service providers

“Everything is just about up skilling people. If you are going to move the goal post, you need to actually show the people to move to the new goal post and you need to make sure that they are educated, they are upskilled so that they can fit into the environment’s workspace. It starts from the bottom, from tertiary education even lower down that we need to start. The government needs to like start thinking ahead and saying you know this is where we headed. Currently our syllabus in schools is it still relevant, once our kids go out there are they still going have jobs? Are we upskilling them in the right areas? It's more about the reviewing the existing curriculum to match AI trends and also for the government to have a policy shift to address AI. They could advocate for swapping of jobs through the relevant training.” Participant 3

c. Review current education curriculum/system to include AI early in education curriculum/system

“They should create more jobs that would demand people to learn AI. They must offer more open learning on AI in Tertiary education, post metric education being reviewed to ensure AI is included in the curriculum. The earlier they introduced this, the better it is for everyone to familiarise themselves with the AI. ” Participant 2

d. Introduce open learning of AI at tertiary level, awareness and career guidance towards AI

e. Create more AI related jobs and revamp existing jobs with AI task/roles/responsibilities

f. Introduce AI training, tooling and development (internship; sponsorship) in organizations

"They can assist with the training and development, get together and do this project together where we will sponsor or we will do internship to help with training and development in the new world. That will be required before they start putting regulations, let us get people skilled before we start putting regulation then we know we have got the manpower to manage AI technologies. The process should be done bottom up, reskill, offer internship, skills development packages, when the workforce is ready regulation can follow through. Yes, you can put in a regulation and this is how you behave but you are not looking at lets first check our skillset in this department before we say you need to put this in place. After upskilling the people to be able to satisfy regulation we can reassess whether we real need that in place or we need to chop and change some how to make it attainable. We don't need to be harsh, but we can water it down to satisfy the requirement." Participant 4

g. Retrain/Reskill/Retool workforce and redirect workforce into different industries

"The first thing is to assess where the impact is going to be the biggest, which industries, which parts of the country because that will then drive things like what do we do around retraining people, reskilling and retooling people. And then making sure that if we know that there's going to be a massive impact in a particular industry, we actually in advance start looking at how we're going to re-use those workforce or redirect them to another industry. There has to be some guidelines in terms of what ethical principles AI engines have to operate so there must be some kind of alignment

between what is good for society at large and what is good for companies enforced via regulation or some sort of guidelines from a regulator point of view or policy from a government point of view. This has to have more bias towards government from a societal point of view to avert massive disparity and terms of income inequality and massive joblessness issues." Participant 5

"..to mitigate this is to pass regulations in terms of scaling down like government to put may be regulations in place that would dictate firstly what types of jobs you can replace by AI in a phased approach and then start reviewing every two years to see how fast the industry is moving and then have a look and see if those regulations are slowing down business or if it's speeding it up. But then just keep an eye on it because from a job protection perspective we've got a very high unemployment rate, so you don't want too many jobs to disappear overnight. Because that has a huge impact on the economy, so I think basically putting a few regulations in place to protect the workforce, but at the same time you don't want to be stifling. So it needs to be reviewed on an ongoing basis to see whether it is actually stifling, or if it's actually helping the economy grow. But then you know hand in hand with those regulations, for me would be to upscale the staff and retrain them for other positions." Participant 6

h. Engage with labour unions to channel labour force into other industries

"I think there must be in partnership and collaboration in whatever that they are going to implement because if we are doing a policy. A policy must be agreed upon with all the parties, they must come together government, regulators, financial service organization and service providers they must come to an agreement that will benefit everyone and benefit companies' goals and strategies." Participant 10

i. Review and implement business friendly legislation/regulation/policy to govern AI in agreement with stakeholders - government; regulators, financial service organizations, service providers"

“I think there must be in partnership and collaboration in whatever that they are going to implement because if we are doing a policy. A policy must be agreed upon with all the parties, they must come together government, regulators, financial service organization and service providers they must come to an agreement that will benefit everyone and benefit companies’ goals and strategies.” Participant 10

“I would ensure that people don't lose their jobs as the government or regulator also depends on there being an industry. If there isn't an industry then they can't regulate anything. I would expect to come up with regulations that are conducive for an environment for jobs to still exist in these areas, and still have the human touch in these industries. Machines are very nice, but you cannot only have machines but you need human machine coexistence.” Participant 12

“So I think the key for everything is to have a regulations. If we have regulations then it will mitigate how much impact we cause into people because we don't want to gain a point where even when there is a need to have people in place but for the fact of a of us just wanting to reduce their head count, now we just put everything in AI. So there must be regulations because people need to work at the end of the day. So we need to govern that and the government and regulators should now start to be seen as private sector as alliances. And in that way, they will be able to monitor and have facts on the ground to understand what directions and what measures companies putting in place. And if they are not aligned to their regulatory requirements then they can impose fines on them. Or they can engage them before things get out of hand.” Participant 16

j. Emergent views:

a. Create universal basic income fund or taxation to compensate impacted employees

“They would have to think about how they handle taxation. AI leverages data and experience accumulated by humans over time, so this must translating as some form of benefit that must accrue to impacted job occupants as payback as a universal basic income. Profit must be redistributing back to the workforce that provided the expertise to the AI technology.” Participant 5

b. Embrace AI and let it take a natural course / its course"

“I don't think they should put anything to mitigate the impact of AI and jobs. I think that things are going to take its natural course. I don't think they should inhibit it in any way. Maybe government and regulatory institutions should present ideas on how we can achieve more automation and how we can go about AI. And instead of focusing on it taking over people’s jobs rather regulate how it's going to be applied in the business like how is it going to be a applied in terms of POPIA and protection of information. So regulate the aspects around it, but don't like stop it in any way or because of fears of it taking over peoples jobs.” Participant 15

4.4 SUMMARY

The qualitative interview results from sixteen participants were presented. The most representative and relevant extracts were exhibited. The chapter presented the participants' responses from an interview guide that was structured in four sections as follows:

- What are the most relevant AI technologies with perceived impact in a FS organization?
- What are the drivers of AI technology use in a FS organization?
- What is the perceived impact of AI on jobs in a FS organization?
- What are the strategies for consideration to mitigate the problem of job impact due to AI at a FS organization?

There were no interviews discarded as all participants responded to questions satisfactorily. The results were derived by coding the participants' responses using the inductive approach and using thematic analysis. The next chapter provides an in-depth analysis of the interview findings in synthesis with Chapter 2's literature review.

CHAPTER 5: RESEARCH ANALYSIS

5.1 INTRODUCTION

The conceptual framework guiding the research analysis is the interpretivist approach. Using the research results presented in the prior chapter, the research analysis uses the inductive approach to seek emerging theories. These theories are framed in context and with reference to the Task-technology Fit research framework. The chapter aims to assess the relationship that exists between the deployment of AI technologies' functionality and the resulting consequent effects it has on jobs. As much as there is a notion that AI technologies improve performance, the research aims to ascertain the real-world phenomena of the performance impact.

This chapter aims to address the problem statement of "AI impacting jobs negatively in a FS organization in Johannesburg". After a fact-finding mission, this chapter addresses the following research objectives:

- Interpret and analyse the findings on the impact of AI on job security at a FS in Johannesburg.
- The above stems from the following research questions:
- RQ1: What are the most relevant AI technologies with perceived impact in a FS organization?
- RQ2: What are the drivers of AI technology use in a FS organization?
- RQ3: What is the perceived impact of AI technologies on jobs in a FS organization?
- RQ4: What are the strategies for consideration to mitigate the problem of job impact due to AI at a FS organization?

The main research proposition the research aims to establish is "AI impacts jobs negatively in a FS organization in Johannesburg". This chapter aims to

analyse the proposition from the research results synthesised with the literature reviewed.

Figure 13 below summarises the outcome from the thematic analysis conducted. The research questions' corresponding themes and sub-themes are highlighted and a more in-depth analysis is discussed in this chapter.

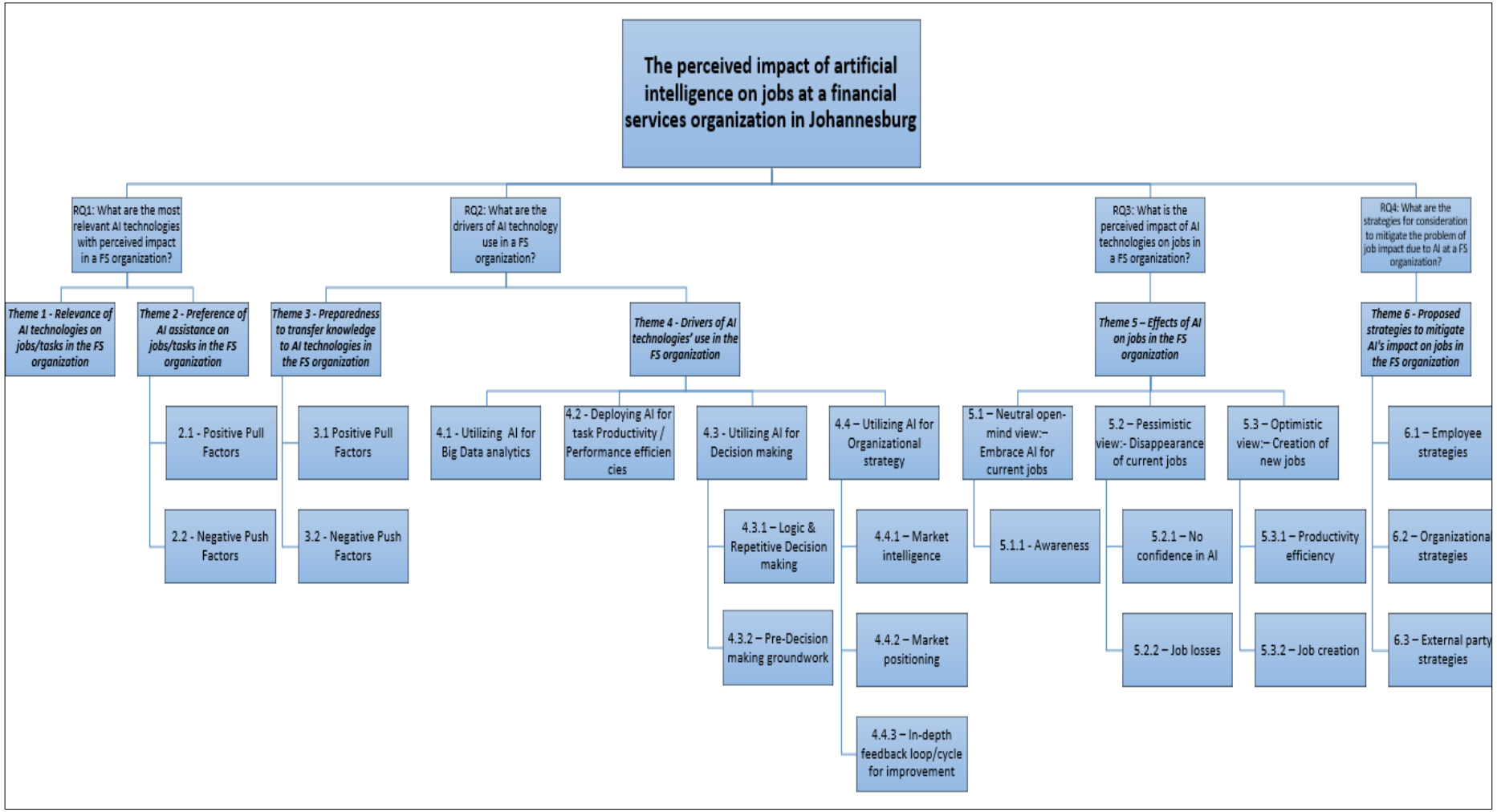

Figure 13: Thematic Analysis: Source: (Participants, 2021)

5.2 RESEARCH ANALYSIS

Research Question 1: What are the most relevant AI technologies with perceived impact in a FS organization?

Theme 1 - Relevance of AI technologies on jobs/tasks in the FS organization

The study confirmed strongly the relevance of AI technologies as 100% of the participants concurred with the view that AI has the capability of assisting them on their respective jobs. The study confirms that the FS organization is not spared by the bandwagon of digital disruption as indicated by the digital vortex (Yokoi et al., 2019). The participants highlighted technologies such as big data analytics, robotics, biometrics and chatbots as having most relevance in their roles. All the participants exhibited no resistance to AI assisting them on their job tasks for repetitive and simple tasks. The participants embraced AI's relevance as 63% indicated that AI can be programmed for repetitive and non-complex tasks thereby offering unattended service and always-on capabilities 24 hours a day and 365 days a year. This reinforces the relevance of AI on jobs/tasks in co-partnering with humans in an autonomous way. AI technologies have been identified by Gartner as relevant emerging technologies of the future, (Panetta, 2020).

In summary, the theme displays an average of 100% positivity pointing to the relevance of AI technologies being embraced in the FS organization. As Lee highlights, technology is at the centre stage of an organization's performance (Lee, 2019) and has become relevant for organizations to embrace. The centre of existence of the FS organization is based on jobs/tasks that are executed by employees with technology at the forefront of operations.

Theme 2 - Preference of AI assistance on jobs/tasks in the FS organization

The study revealed 31% of participants wanting to have dominance in their roles for complex tasks. With AI being 100% preferred for simple repetitive non-complex tasks, this frees up time for participants to focus on work that is motivating and stimulating. The above is in agreement with a view point that shows AI being embraced globally to enable productivity (Thillaivasan & Wickramasinghe, 2020). In this study, 31% of the participants indicated that their time should not be wasted on executing low value tasks but instead AI can bring the needed benefits to compliment them in doing their jobs. The view that AI will bring benefits to jobs was shared by 38% of the participants. As with any change, 13% were a hesitant that AI implementation will result in job losses.

- Sub-theme 2.1 – Positive pull factors

  The study displayed an average of 61% positivity pointing to the preference of AI technologies being embraced in the FS organization.

- Sub-theme 2.2 – Negative push factors

  The study displayed that AI is still viewed as a threat to jobs by 13% of participants hence the preference of 31% still wanting complex tasks to the fulfilled by humans. This can be viewed as a human nature's defence mechanism for participants' jobs/tasks to remain relevant in the FS organization and have control and dominance over AI.

According to Lee, digitalization effects organization's internal operations in order to improve efficiency, lower costs, introduce agility and improve quality (Lee, 2019). The above resonates with participants in their preference of AI assisting them on repetitive jobs/tasks.

In summary, the theme displays the participants' 100% willingness to move away from the repetitive monotonous jobs/tasks without resistance. The

WEF predicted that AI technologies will have a high adoption rate (Schwab, 2020) into the future hence this theme correlates with this prediction. This stamps a seal of approval on AI being a preference in job/task interventions.

Research Question 1 - Summary: What are the most relevant AI technologies with perceived impact in a FS organization?

The study displays sufficient evidence of the participants' 100% preference and non-resistance to being assisted in their jobs/tasks by AI technologies with the most preferred technologies being highlighted in Theme 2. AI technologies such as big data analytics, robotics, biometrics and chatbots have the most relevance in the FS organization. The above correlates with Gartner's AI hype cycle that predicts the impact such AI technologies will have on organizations (Gartner, 2020). Similar trends have been proven in other industries where AI has unprecedentedly proved relevant and resulted in exponential effects (Thillaivasan & Wickramasinghe, 2020). The study is evident with Theme 1 justifying the relevance of such technologies that participants embraced as having impact on their jobs/tasks through organizational design, organizational architecture and organizational development in this digital age.

Research Question 2: What are the drivers of AI technology use in a FS organization?

Theme 3 - Preparedness to transfer knowledge to AI technologies in the FS organization

The study aimed to ascertain the preparedness of participants to transfer knowledge to AI technologies as that will be the hinge that drives the use of AI technologies in the FS organization. The study displays the willingness of participants to collaborate with AI on jobs/tasks. This displays a commitment from participants to alter their performance positively and deliver business value. As the FS organization evolves, the participants' conscious effort and willingness to alter performance positively has the

ability to deliver business value (Wamba-Taguimdje et al., 2020). All participants indicated their preparedness to transfer knowledge to AI technologies to varying degrees as follows:

Table 6: Transfer Knowledge Type: Source: (Participants, 2021)

TRANSFER KNOWLEDGE TYPE	PERCENTAGE
Transfer Repetitive (not much thinking) job tasks and keep Complex tasks	38%
Transfer Complex (much thinking) job tasks and keep Repetitive tasks ONLY because I cannot do them	13%
Transfer Repetitive/Complex job tasks to AI	56%
Transfer Complex (much thinking) job tasks knowledge to AI and for a human to check AI's outcome	13%
Transfer knowledge if its for own benefit	13%
Transfer job/task knowledge to AI if job task has been attempted and failed	6%
Not willingness to transfer repetitive job tasks knowledge to AI	0%

The summary of the above table indicate that 100% of participants are technically willing and prepared to transfer their knowledge to AI technologies at varying degrees. This is due to the varying roles the participants currently fulfil in the FS organization.

The specifically reveals that 100% of the participants are will to transfer repetitive job tasks knowledge to AI. This is a significant milestone as it signals participants embracing the fact that repetitive job tasks can be fulfilled by AI in their current roles.

- Sub-theme 3.1 – Positive pull factors

  The study displays that the preparedness and willingness for participants to transfer job/task knowledge to AI technologies at certain degrees is triggered the benefits that AI technologies

introduce in the participants' roles. In the study, 31% of participants attest to the notion that the following benefits will be unlocked if they collaborate with AI technologies:

- Makes their job easier,
- Removes monotony in their job roles,
- Alters their job design's depth and breadth,
  - Makes their roles stimulating and interesting,
- Improves on service delivery,
- Add values and innovation to business.

According to Muro, digitalization (AI technologies included) has proven to result in productivity increase (Muro, 2019) and increased performance efficiencies of up to 16% (Engle & Barnes, 2000).

- Sub-theme 3.2 – Negative push factors

Although 100% of participants confirmed their commitment to knowledge transfer to AI technologies, a 25% subset (although not in opposition of embracing knowledge transfer) raised their concern about the fear of losing jobs due to AI being implemented. The above resulted in partially varying degrees with which participants are willing to let go of their current job/tasks in order for them to still retain other tasks and not be jobless.

In summary, the theme technically displays the participants' 100% willingness to transfer knowledge in varying degrees to AI technologies with some participants yearning for job preservation guarantees. The above resonates with participants that are willing to undergo organizational development through attaining new values and behaviour using the "unfreeze, change and refreeze" process (Schachter, 2017).

Theme 4 - Drivers of AI technologies' use in the FS organization

The study's Theme 3 complements Theme 4 and displays factors participants envisioned as the drivers of AI technologies' use in the FS

organization. The literature reviewed in Section 2.3 highlighted some of the drivers of AI technologies' use in organizations. These were used as the basis of formulating the interview questions used to probe participants. The study displays an outcome of four sub-themes that will be discussed as follows:

- Sub-theme 4.1 - Utilizing AI for Big Data analytics

The participants concurred that big data analytics through AI technologies is beneficial to their jobs. This view was shared by 94% of the participants whilst the remaining 6% indicated that big data analytics should be mostly used for new product development and market development. None of the participants highlighted resistance to AI big data analytics, none highlighted AI big data as not beneficial to their jobs, none preferred to manually analyse data and none preferred a hybrid arrangement for analysis data. This bring about a key element in job architecture as data being the central ingredient to decisions, all participants prefer its analysis to be done by AI technologies.

One of the biggest drivers echoed by 44% of the participants for utilizing AI big data analytics was its (AI) ability to avail enormous computing power that far outweighs human comprehension. In this computing power that AI unveils, 31% of the participants were of the view that this brings the much needs speed that is of the essence in providing a timely turnaround in data analysis for decision making. The participants concur with the University of Pretoria's research that stipulates that the exponential growth of data is the key driver of AI use (Pretoria, 2018) as AI exceeds human capabilities in data analytics (Gwagwa et al., 2015).

- Sub-theme 4.2 - Deploying AI for task Productivity / Performance efficiencies

The study displays that all participants as having a vested interest in improving productivity and performance efficiencies in their roles. The University of Pretoria's research highlights that the deployment of an AI workforce to supplement the existing labour force is known to drive innovation, drive growth and increase productivity (Pretoria, 2018). The participants sort productivity and performance efficiencies in varying capacities as per the following table below:

Table 7: Productivity / Performance Efficiencies Area: Source: (Participants, 2021)

PRODUCTIVITY / PERFORMANCE EFFICIENCIES AREA	PERCENTAGE
Productivity/Performance Efficiency - handling minor repetitive / administrative / reporting jobs/tasks	56%
Productivity/ Performance Efficiency - Providing a short turnaround time in service delivery	44%
Productivity/ Performance Efficiency - Introducing productivity, efficiency; accuracy and error reduction to manual processes; proactive error discovery & resolution	63%

The participants' preference of AI improving their productivity and performance efficiency was hinged on:

- 88% of the participants highlighting that the productivity and performance efficiency gains will be derived from AI assisting them on repetitive and administrative jobs/tasks,
- 50% of the participants highlighting that the productivity and performance efficiency gains will be derived from AI assisting them on complex jobs/tasks,
- 13% of the participants highlighting that the productivity and performance efficiency gains will be derived from AI assisting them due to AI's inherent machine learning capability.

Only 6% of the participants preferred not to be assisted by AI on jobs/tasks due to their lack of understanding and knowledge of AI's capacity. Although this subset of participants indicate this position, through awareness they are willing to reconsider their position if convinced that AI can lead to productivity and performance efficiency gains.

- Sub-theme 4.3 - Utilizing AI for Decision making

The study was very clear on decision making being a critical component that AI technologies should fulfil. The differentiators in this equation were the subjectivity of AI's of timing in decision making and its ability to apply impartially in decision making.

- Sub-theme 4.3.1 – Logic and repetitive decision making

The study highlights the 38% of the participants having neutral to negative view that stipulates that AI does not have empathy, emotions or the human element required in decision making hence only applies logic. The above view was echoed by 25% of participants highlighting that AI does not have a certain level of subjectivity and certain perceptions required in decision making hence it cannot deviate from logic. Only 19% of the participants had a view that AI should not be utilized for decision making.

Despite the above, there was a 60% cautious view of the fact that AI should be utilized for assisting in decision making in a regulated manner. Also 50% of the participants highlighted that AI should be utilized for reporting, repetitive and easily programmable decision making. Only 6% indicated that AI should be used as a last resort for decision making or as a backup when humans fail.

- Sub-theme 4.3.2 – Pre-decision making groundwork

In order to collaborate with AI and still maintain relevance and dominance, 56% of participants preferred for AI to be utilized for the pre-work towards

decision making. Once AI have processed all the related underlying aspects towards making a decision, it should provide the information to a human for them to ultimately make a decision. The above is meant to augment a human's intelligence to ensure that sound advice is provided in decision making as some AI decisions might need human reinterpretation.

- Sub-theme 4.4 – Utilizing AI for Organizational strategy
  - Sub-theme 4.4.1 – Market intelligence

In order for the FS organization to navigate through the market, market intelligence is required. With the complicated intricacies of internal and external channels market intelligence data can be obtained, 75% of participants highlighted that AI can be utilized to gather and make sense of market intelligence information.

This can be done through data trend analysis (customer trends) to enable an organization's competitiveness through improved and new customer services and products; product and service research and development; product and service discontinuation; enabling market decision making; understanding customer insights.

  - Sub-theme 4.4.2 – Market positioning

With organizations ever required to evolve, 44% of participants highlighted that AI data analysis can enable the organization's market positioning for prospective business and diversification. This concurs with a research conducted in Kenya that showed that automation results in competitive advantage for organizations (Kemboi, 2018). This can potentially lead to the discovery of blue oceans.

  - Sub-theme 4.4.3 – In-depth feedback loop/cycle for improvement

The participants (50%) highlighted that data obtained from AI can enable an in-depth feedback analysis loop cycle providing descriptive feedback for data, process, product or service improvement or creation.

In order to comply with data compliance requirements in the FS industry, 6% of the participants were of the view that AI can assist in that improvement of this process. The subject of AI assisting with compliance was also referred to by the Unite States Government Accountability Office (Office, 2018).

In summary, the theme displays a favourable position in which participants are cognisant of the drivers that influence them in embracing AI technologies in their jobs/tasks. From the varying roles of the participants, there is a job/task dependant lever they confirmed drives them to embracing AI technologies to their benefit.

Research Question 2 – Summary: What are the drivers of AI technology use in a FS organization?

As Lee puts it across, “with a strategic vision in an environment with systems/structures, competencies, technology and people, co-creation can take place in an organization” (Lee, 2019). The value derived from co-creation between participants and AI technologies has been highlighted as the central driver of AI technology use in the FS organization.

Most of the rational highlighted by the participants as drivers of AI technology use concurs with Agrawal et al that found out that AI results in productivity increases, reduced uncertainty in decision making and introduces economic viability for some jobs/tasks (Agrawal et al., 2019).

At a national level, it is predicted that AI has the ability to harness a double GDP growth rate by 2035 (Pretoria, 2018). As the FS organization uses AI,

this has a cascading effect that will result in organizational and economic growth.

Research Question 3: What is the perceived impact of AI technologies on jobs in a FS organization?

Theme 5 – Effects of AI on jobs in the FS organization

The study's prior theme "Drivers of AI technologies' use in the FS organization" highlights a high level of participant consciousness regarding how AI can be utilized to leverage their jobs/tasks. The above tends to have an effect on jobs in the FS organization. According to Raul, the prediction is the disappearance of current jobs and the creation of new jobs (Katz, 2017).

- Sub-theme 5.1 – Neutral open-mind view:– Embrace AI for current jobs
    - Sub-theme 5.1.1 – Awareness

      The study reveals that 81% of participants are aware that AI is currently impacting their jobs. They make reference to the fact that "as the organization gradually deploys new technologies, AI is slowly impacting their jobs but not so sure how (indirect impact) and that the momentum of the impact will increase in the near future resulting in direct impact".

      There is a very high level of awareness as 94% of neutral open-minded participants are willing to embrace AI on their current jobs for repetitive and administrative tasks. With reference to the above participants, 38% are aware that AI improves the productivity of their jobs by handling minor repetitive administrative tasks and reporting.

      Only 13% prefer not to be assisted by AI on tasks/jobs due to lack of AI understanding/knowledge of its functionality's capacity. Through information dissemination, these participants can be educated in order for them to reconsider their viewpoint.
- Sub-theme 5.2 – Pessimistic view:- Disappearance of current jobs

- Sub-theme 5.2.1 – No confidence in AI

From the feedback received, 38% of participants were not aware of any current jobs/tasks that have disappeared as a result of AI and 6% of participants were not aware of any future jobs/tasks that will disappear as a result of AI. As much as AI technologies are being implemented in the organization, the impact to result in job disappearance is still yet to be felt.

- Sub-theme 5.2.2 – Job losses

There is a fair number of participants (56%) that highlighted awareness to current jobs/tasks disappearing as a result of AI mostly jobs relating to repetition and data analytics. This number is even higher in the future with 94% of participants predicting job losses due to AI technologies. Current trends in Europe and USA have shown a similar pattern where AI poses a threat to jobs (Bowles, 2014a).

- Sub-theme 5.3 – Optimistic view:– Creation of new jobs
  - Sub-theme 5.3.1 – Productivity efficiency

As jobs/tasks centre on productivity efficiencies, currently 69% of participants highlighted that new jobs/tasks have ben created as a result of AI technologies. These are being created as a direct result of bolstering capacity and improving efficiencies to current roles. As the FS organization's operational complexities increase, there is need to introduce AI to complement operations such as data processing and security.

  - Sub-theme 5.3.2 – Job creation

There is a positive future outlook on job creation with 81% of participants highlighting that new jobs will be created due to AI. These are new jobs to develop, administer and manage AI technologies. Most of the jobs that will be created are technically and technologically aligned. A view shared by 6% of participants, was that "this has the potential to result in a gig economy where multi-skilled talent with 4IR skillsets will be able to perform multiple jobs in the FS organization".

In summary, the theme highlights the fact that participants are cognisant of the view that AI currently impacting their jobs and that the rate of impact will accelerate into the future the FS organization seeks to improve its productivity and efficiency levels. An average of 75% of participants highlighted that jobs will disappear and on the other hand 75% of participants highlighted that new jobs will be created. This displays an equilibrium position of the participants' conscious view on AI's effects on jobs/tasks.

Research Question 3 – Summary: What is the perceived impact of AI technologies on jobs in a FS organization?

It is inevitable for an organization not to undergo organizational redesign. This process restructures the organization to facilitate employee productivity and enables the organization to reach its goals (Wienclaw, 2021). The above is inclusive of the implementation of AI technologies and in turn has disrupted the status quo of traditional labour practices (Healy et al., 2017).

From the above participants' responses and literature reviewed, it is evident that AI technologies impacts jobs in the FS organization. There are enough AI technology levers exhibited that pull participants and push participants into the "impact zone". Every participant was cognisant of the fact that their job/task is impacted and the only variable in the equation is the degree of impact (positive or negative) depending on the participant's appetite for change and view point.

Research Question 4: What are the strategies for consideration to mitigate the problem of job impact due to AI at a FS organization?

Theme 6 - Proposed strategies to mitigate AI's impact on jobs

- Sub-theme 6.1 – Employee strategies

The study showed that 94% of the participants are in agreement that measures should be put in place to mitigate AI's impact on jobs.

These measures include enforcing a quota system to balance job losses, upskilling/reskilling existing talent towards AI, run awareness campaigns that entrench a mind-set change towards AI and the review of the education's curriculum to include AI inclusive content.

Another view point expressed by 13% of the participants was to stimulating human novelty/creativity and human to human interaction/contact as opposed to "putting this into the hands" of machines.

- Sub-theme 6.2 – Organizational strategies

Lee has been a proponent for organizational redesign as a solution for organizational sustainability (Lee, 2019). The study showed that 75% of the participants are in agreement with Lee that organizations should be put in place measures to mitigate AI's impact on jobs through organizational architecture (Lee, 2019). These measures include organizations empowering and developing employee skillsets in preparation for redeployment, gradually expose employees to AI through change management, let natural organizational employment attrition take place in filling vacancies and let there be a balance between jobs and AI for sustainable profit.

The view point of organizational culture was raised by 19% of the participants. The participants raised that the FS organization should change its culture to stimulate new ways of work, encourage AI innovation, nature skills of the future and promote human to human interaction/contact activities.

Other participants (13%) had a socio-psychological view point the FS organization should have organizational empathy and also make AI accessible to in order for it to positively impact jobs. A research by the University of Pretoria advocates for the redefinition of business

models to incorporate AI as a means of growth and productivity (Pretoria, 2018) thereby positively impacting jobs.

- Sub-theme 6.3 – External part strategies

The study showed that 94% of the participants are in agreement with the fact that external parties should put measures in place to mitigate AI's impact on jobs. These measures include enforcing a quota system to prevent job losses, government should regulate and legislate policy that governs acceptance thresholds of AI job displacement, adopt AI into the education curriculum and engage labour unions to channel reskilled labour force into different industries.

Only 6% of the participants suggested that the job ecosystem should embrace AI, let the job market forces realigning jobs through the natural course and that government should introduce a universal fund or taxation to compensate impacted employees.

Research Question 4 – Summary: What are the strategies for consideration to mitigate the problem of job impact due to AI at a FS organization?

The study has shown that tangible action has to be taken to mitigate the impact of AI on jobs in the FS organization. It take the tripartite alliance of employees, employers and third parties to formulate complementary strategies to address the issue.

The strategies highlighted the most include tripartite alliance's ability to pivot the status quo and lean towards upskilling and reskilling employees for reassignment into other roles and responsibilities. Any emergent view raised by participants and also echoed by Lee includes averting the disruption of jobs by focusing on redeploying employees to jobs that are less likely to be disrupted involving emotional intelligence, relationship building, novelty, strategic planning and leadership (Lee, 2019).

5.3 SUMMARY

The chapter analysed the research findings in conjunction with the literature reviewed. The research analysis addressed the research's proposition "AI impacts jobs negatively in a FS organization in Johannesburg" through the in-depth analysis of the research questions.

The chapter has unpacked:

- The most relevant AI technologies with perceived impact in a FS organization,
- The drivers of AI technology use in a FS organization,
- The perceived impact of AI technologies on jobs in a FS organization,
- The strategies for consideration to mitigate the problem of job impact due to AI at a FS organization.

The research analysis outcome can be summarized by the below key insights derived from the in-depth analysis of the research findings. The participants raised the following top 10 aspects pertaining the perceived impact of AI on jobs as depicted in Figure 14.

- Repetitive
- Administrative
- Training/Upskilling
- Legislation
- Complex
- Customer/Market
- Productivity
- Benefit (Easier/Faster/Efficient/Less Error-prone)
- Decision making
- Power - computing/logic/algorithms

Figure 14: Key Insights: Source: (Participants, 2021)

The research's thematic analysis outcome can be summarized by the below key insights derived from the in-depth analysis of the research findings. The research findings have been summarized into three thematic code types pertaining to the research problem:

- AI is impacting jobs negatively in a FS organization in Johannesburg.

Table 8: Thematic Analysis Code Summary: Source: (Participants, 2021)

CODE TYPE*	CODE TYPE DESCRIPTION	CODE COUNT**	CODE COUNT %	PARTICIPANT COUNT***	PARTICIPANT COUNT %	REFERENCE COUNT****	REFERENCE COUNT %
Negative	AI is impacting jobs NEGATIVELY in a FS organization in Johannesburg	16 - Medium	24% - Medium	59 - Medium	14% - Medium	77 - Medium	15% - Medium
Neutral	AI is impacting jobs NEUTRALLY in a FS organization in Johannesburg	7 – Low	10% - Low	31 – Low	7% – Low	32 – Low	6% – Low
Positive	AI is impacting jobs POSITIVELY in a FS organization in Johannesburg	44 – High	66% - High	330 - High	79% - High	407 - High	79% - High
TOTALS		**67**	**100%**	**420**	**100%**	**516**	**100%**

Keys: Thematic Analysis Code Summary

Table 9: Thematic Analysis Code Summary Keys

ITEM	ITEM DESCRIPTION
Code Type*	Participant's view on AI's impact on jobs in a FS organization in Johannesburg
Code Count**	Thematic code count
Participant Count***	How many participants mention a code type
Reference Count******	How many times a code type is mentioned across all participants interviews

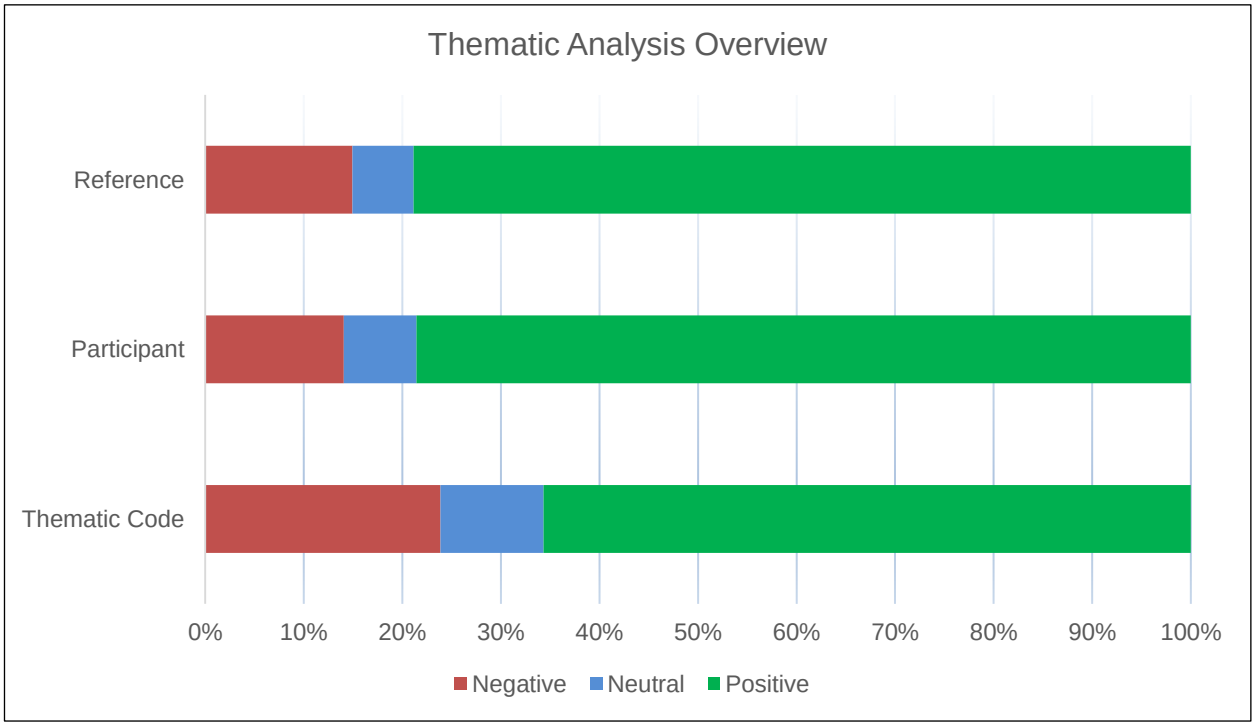

Figure 15: Thematic Analysis Code Overview: Source: (Participants, 2021)

The research has displayed that AI is impacting jobs positively as displayed by the positive classification in Figure 15. The participants referenced a definite view of how AI technologies are positively impacting their jobs through efficiencies, productivity and decision-making.

The neutral percentage was more of participants that were not aware or not so sure of how AI technologies are currently impacting their jobs and how AI technologies will impact their jobs in the future.

The negative classification is that of participants with the view that AI technologies are negatively impacting their jobs. They resist AI technologies due the fact that complex tasks cannot be handled by AI technologies, AI technologies do not have empathy in decision-making and that such technologies are making their jobs disappear.

From the above analysis in Figure 15, the perceived notion of AI is impacting jobs negatively in a FS organization in Johannesburg has been disproved. This provides the foundation for the research recommendations and highlights of emergent themes that can be explored in the future.

CHAPTER 6: RESEARCH CONCLUSION

6.1 INTRODUCTION

In Chapter 5 which presented the research analysis, the relevance of AI technologies that the FS organization prefers was assessed and these are in line with the trends predicted by Gartner's AI hype cycle. These AI technologies have proven to result in impacting jobs through the redesign of the organization to enable it for future performance. The FS organization has a vested interest in sustaining its competitive advantage in the market, and thereby seeks to leverage AI technologies to its advantage.

From the research analysis findings, the co-creation of value between participants and AI technologies has the ability to unlock key performance drivers that can enable the organization to attain economic viability and cascading effects that contribute positively towards the GDP. The permeation of AI technologies has been identified as the driver of job impact in the FS organization. This is as a result of the inevitable restructuring that takes places when AI technologies are deployed. This in-turn results in the varied impact of jobs both negatively and positively as the research analysis highlighted. As the FS organization transforms, strategies have to be entrenched to result in an amicable balance between AI technologies' use and the impact it causes on jobs.

The purpose of the study was to explore the perceived impact of AI on jobs at a FS organization in Johannesburg. Qualitative research was conducted on 16 participants and the data gathered was analysed to ascertain the perceived impact of AI on jobs on the FS organization. The research findings concluded that 66% of thematic codes (79% of participants) were in agreement that AI technologies have positively impacted their jobs, 24% of thematic codes (14% of participants) were in agreement that AI technologies have negatively impacted their jobs and 10% of thematic

codes (7% of participants) were neutral on how AI technologies have impacted their jobs.

The 24% of thematic codes (14% of participants) highlighting the negative impact cannot be discarded as this is a significant viewpoint in the context of the employee complement of the FS organization. The 10% of neutral thematic codes (7% of participants) needs to be addressed as these can pose a challenge in managing the change management impact of AI technologies in the FS organization.

6.2 CONCLUSIONS

6.2.1 Objectives

As highlighted in the introductory chapter of the research, the following were presented as the research objectives and this is how they were achieved:

Objective 1: To investigate factors leading to the problem of AI impacting jobs

- The study indicated the factor of AI technologies' relevance in the operations of the FS organization. There was confirmation from the study that AI technologies are relevant in the jobs/tasks that participants perform, hence the FS organization embraces the use of AI technologies. The embracing of such technologies has resulted in a correlational effect resulting in jobs being impacted. This is further influenced by the digital vortex that indicates that the FS sector is spared from the digital disruption bandwagon (Yokoi et al., 2019). The study further displayed that there is a preference for AI technologies to assist in jobs/tasks in the FS organization. Most participants indicated their preference to let go of repetitive non-complex jobs/tasks for motivating and stimulating jobs/tasks. The

study was of the view that AI technologies are more efficient and effective in delivering repetitive jobs/tasks at a lower cost and improved quality.

Objective 2: To present the findings on the impact of AI on jobs

- Qualitative research was conducted and representative and relevant responses were provided as evidence. The research design was based on the interpretivist research philosophy of an inductive nature. The findings presented the demographic analysis of the participants. This validates the participants to ensure the validity of the completeness of an equitable representation of the FS organization. The research findings were drawn from 16 participants through online interviews with the aim of inferring conclusions to the research questions. The research findings were presented as categorized into the following sections:
    - Relevance of AI technologies with perceived impact in a FS organization,
    - Preparedness of participants to transfer knowledge to AI technologies,
    - Drivers of AI technologies' use in the FS organization,
    - Ascertain the perceived impact of AI on jobs in the FS organization, and
    - Establishing the strategies for consideration to mitigate the problem of AI's impact on jobs.

Objective 3: To interpret and analyse the findings on the impact of AI on job security

- The research's main proposition was "AI impacts jobs negatively in a FS organization in Johannesburg". Through the analysis of the research results and literature reviewed, the study interpreted the findings to the above proposition. A thematic analysis was conducted and various themes and sub-themes emerged. A

more in-depth analysis was conducted on the themes and sub-themes and various outcomes emerged. From the interpretation and analysis phase, ten key insights were noted as major aspects on AI impacting jobs in the FS organization. From the study conducted, various narratives emerged in varying degrees.

From the study, the narrative of AI impacting jobs POSITIVELY had the most viewpoints as it introduced efficiencies, productivity and aided in decision-making.

Objective 4: To recommend strategies for consideration to mitigate the problem AI impacting job losses at a FS in Johannesburg.

- Through the various insights derived from the literature reviewed, the study conducted and the researcher's input, the research has put forth strategic recommendations for consideration to mitigate the problem of AI impacting job losses at a FS in Johannesburg. The research also provided lessons similar organizations can learn from this research and areas they can pay attention regarding AI impacting jobs losses.

6.3 RESEARCH SUMMARY

Chapter 1 – Introduction

This chapter outlined the research terms of reference and terms were defined for the clarity of the research. The justification of the study and why this research came into being was outlined. The purpose of the research study was clearly outlined as having to conduct a qualitative study to explore the perceived impact of AI on jobs at a FS organization in Johannesburg and derive conclusions. To provide context of the research, the background of the study was discussed and how this resulted in the formation to the research problem. The research problem "AI is impacting jobs negatively in a FS organization in Johannesburg" was analysed and this led to the

formation of four research questions. The research's objectives, assumptions and delimitations were specified to act as a yardstick to the research outcome.

Chapter 2 – Literature Review

This chapter outlined the research's literature review analysis. It outlined the importance of conducting literature review and its significance for this research study. The chapter analysed the body of existing knowledge to establish the context of the research topic and its contribution to the body of knowledge. The research was underpinned by a theoretical framework composed of four theories namely: Organizational development, Organizational architecture, Organizational design and Organizational development in the digital age. From the above theoretical framework, AI was identified as a frontier of organizational development in the digital age due to it being able to materialize certain benefits. From a conceptual framework, the interpretivist inductive approach was utilized. The Task-Technology Fit framework was utilized form this research. From the literature review conducted, it gravitated in the research direction towards a FS organization based in Johannesburg that warranted further research.

Chapter 3 – Research Methodology

This chapter outlined the research's methodology. The research was conducted using the proven Saunders research onion framework (Mahesh, 2020). An interpretivist, inductive, qualitative case study approach was followed. Through the use of cross-sectional time horizon, sixteen interviews were conducted as part of the study. The data collected was analysed using thematic analysis. The aspects of data reliability and validity were discussed in this chapter. The research's ethical considerations were in compliance with all laws of the Republic of South Africa.

Chapter 4 – Research Results

This chapter outlined the research results from the sixteen (16) interviews conducted. The chapter aimed to investigate factors that led to the problem of AI impacting jobs and present these findings. Through the use of the methodology specified in Chapter 3, the research was conducted and presented using thematic analysis. A key aspect noted for the validity of this research is the demographic composition of the participants. The qualitative data presented was to enable the researcher to infer from the following conclusions:

- What are the most relevant AI technologies in the FS organization with perceived impact on jobs?
- Why do these relevant AI technologies have the perceived impact on jobs?
- What drives the usage of AI technologies in the FS organization?
- Is it perception or reality that AI has impact on jobs in the FS organization?
- What strategies can be proposed to mitigate the impact of AI on jobs in the FS organization?

Chapter 5 – Research Analysis

This chapter outlined the research analysis as guided by the Task-Technology Fit conceptual framework and the literature reviewed. The research analysis sought to surface emerging theories from the qualitative data. Most importantly, the research analysis sought to identify the silver lining between the deployment of AI technologies and the resulting impact it has on jobs juxtaposed with the literature reviewed. The chapter unpacked the most relevant AI technologies with perceived impact in a FS organization, the drivers of AI technology use in a FS organization, the perceived impact of AI technologies on jobs in a FS organization and the strategies for consideration to mitigate the problem of job impact due to AI at a FS organization. The chapter summarizes in-depth the key insights pertaining to the perceived impact of AI on jobs in the FS organization. It

also addresses the research proposition “AI impacts jobs negatively in a FS organization in Johannesburg”.

6.4 RECOMMENDATIONS

6.4.1 Introduction

As indicated in Chapter 1 of the study, the problem statement was, “AI is impacting jobs negatively in a FS organization in Johannesburg. With reference to Figure 15, the research analysis outcome highlights 79% of participants, 79% of references and 66% of the thematic codes point to the fact that AI technologies impact jobs positively in the FS organization. The research analysis outcome highlights most of the themes that Lee has included in the proposed organizational architecture (Figure 16) that can be used for digital transformations.

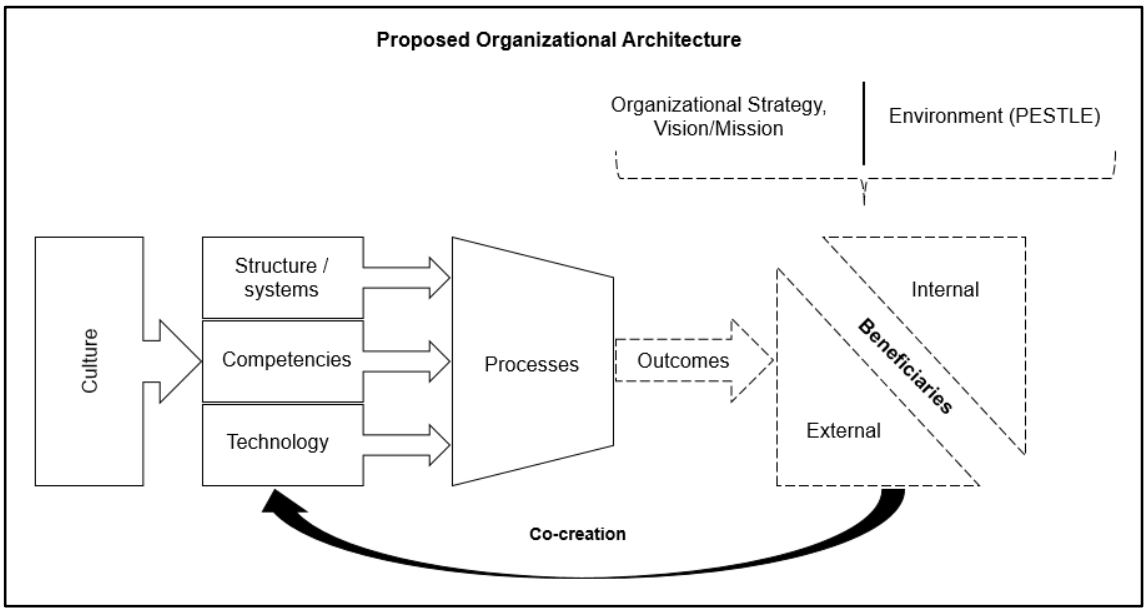

Figure 16: Proposed Organizational Architecture: Source: (Lee, 2019)

The implementation of AI technologies in the FS organization has a touchpoint on all of the factors highlighted in Figure 16 as themes that emerged from the research. In order to answer the research problem, the FS organization has to entrench the below recurring cycle of events to its organizational architecture in order to achieve sustainability.

- A change in organizational culture to introduce new ways of working, innovation and skills of the future effectively kick-starts the implementation of AI technologies in the FS organization. Culture was identified as a key ingredient to driving transformation and can result in employees aligning with AI technologies irrespective of their jobs being impacted negatively or positively.
- The use of AI technologies results in an organizational design that alters structures/systems. From the research analysis, repetition, simplification, efficiency, productivity and speed were the key drivers of AI technologies' use. In order to reap these benefits of AI technologies, the organizational design has to change to align with a new organizational architecture such as the one depicted in Figure 16.
- The magnitude of AI technologies' impact on jobs is determined by the competencies the organization's employees possess. For organizations that prepare their employees for future skills, the impact will be positive as these employees have the tenacity to embrace new skills. The vice versa can proof adverse as employees can cling to old skills and miss the AI technology wave.
- The infusion of AI technologies into the FS organization's business model, has the ability to redefine and impact jobs. This is testament from the Google, Apple, Facebook and Amazon (GAFA) companies that have pivoted their business models on AI technologies and are ranked in the top 6 of the world's largest companies by market capitalization (Szmigiera, 2021). These organizations redefined jobs resulting in certain jobs disappearing and new jobs being created.

- The introduction of AI technologies, change of competencies and altering structures/systems variably leads to the reengineering of the FS organization's process. This is inclusive of the FS organization embarking on a job architecture redesign to alter jobs/tasks' composition resulting in the impact of jobs.
- The outcome of the above has job impact on internal and external beneficiaries of the FS organization. As organization development transpires, key consideration has to be taken into account of how these stakeholders will be impacted and repositioned in the future digital age.
- As the research analysis pinpointed, there is need for a tripartite alliance of employees, employers and third parties to co-create complementary strategies to address the issue of job impact as a result of AI technologies. This is to be a continuous cycle reviewed and redefined in the FS organization's organizational strategy and vision/mission as the environment (PESTLE) keeps on changing calling the regeneration of the FS organization to remain competitive and sustain its competitive advantage.

6.4.2 Research Recommendations to the FS organization

The following recommendations are for the problem statement identified in Chapter 1 of the study and how it can be solved. The research study recommendations are classified in 3 categories: neutral, pessimistic and optimistic viewpoints. These recommendations aim to mitigate the impact of AI technologies on jobs as per the outcome of the 3 thematic analysis categories (Figure 15) from the research analysis. The research study's outcome can be juxtaposed with the "valley of despair" change analogy as displayed below.

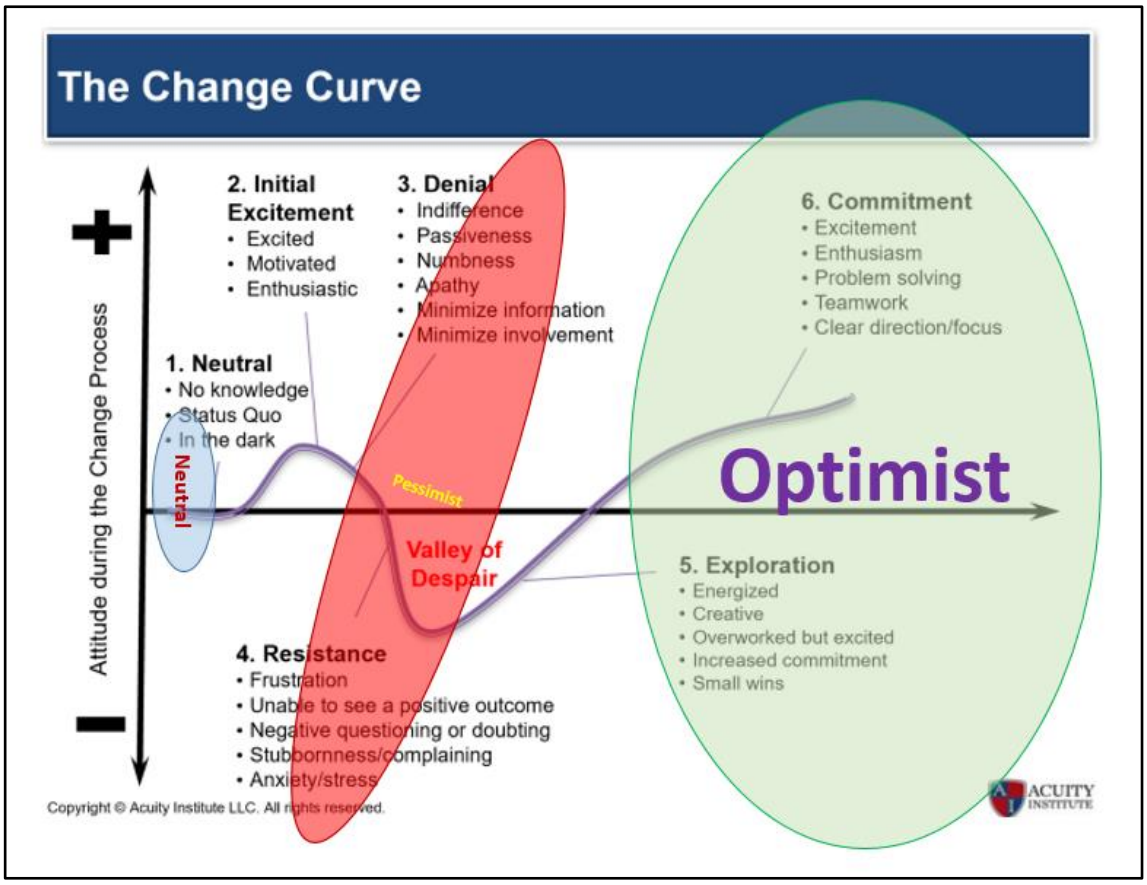

Figure 17: Valley of Despair - Adapted: Source Adapted: (Acuity, 2020)

Neutral viewpoint stakeholders

The research study highlighted that these participants (7% of participants) were not aware of the impact that AI technologies has on their jobs. These participants might have misconceptions regarding the true sense of what AI technologies can achieve. If there are in strategic key decision-making roles, they can potentially cause the regression of AI initiatives and hamper the digitalization journey the FS organization goes through. The lack of buy-in from such stakeholders due to their neutrality can result in adverse and counterproductive effects for AI technological journeys. Their “silence” can misconstrue organizational intelligence and lead to strategic blunders.

The study recommends that for such stakeholders, strategic change management plans be crafted to address AI technological awareness and

its impact on jobs. There needs to be a mind-set shift for them to embrace AI technologies for change of job roles and responsibilities to align with AI. Through strategic campaigns and exposure to successful AI technology sites, a mind-set shift can be achieved of the new opportunities AI can unlock. Their gradual exposure and introduction of AI into the organization can potentially result in a natural transition of such stakeholders.

These are also potential candidates for learning through self–paced open learning platforms such as Degreed (Degreed, 2022). The FS organization can upskill and reskill such stakeholders to the relevance of AI technology skillsets as they are neutral and undecided on the impact of AI on their jobs. This offers awareness and career guidance towards AI related fields. This tends to create an organizational culture of employee readiness to new skills of the future. With such a mind-set, the friction of resistance to change is potentially reduced. As AI technologies impact such stakeholders' jobs, there are in a position to embrace the change, can be redeployed and pivot to AI related roles and other positions of their newly acquired skills.

Pessimistic viewpoint recommendations

The research study highlighted these stakeholders (14% of participants) as having no confidence in AI technologies and having fears of job losses due to AI technologies. Their resistance to AI technologies is also based on the notion that AI technologies' intelligence in decision-making matters cannot incorporate empathy, subjectivity and certain perceptions hence it cannot come to a humanly decision that is right. Another view point raised was merely that AI technologies are not able to understand the complexities associated with certain jobs/tasks as these have shaped with time due to experience.

The study recommends that for these stakeholders, AI technology trial runs, proof of concept and pilot sites be setup to convince them that the impact of AI technologies on jobs can be managed and worked around. The effect of

the above is that when stakeholders experience the impact of AI technologies in a different or simulated environment than their own, it can potentially cause them to reconsider their opinion and reposition themselves to embrace AI technologies' natural course.

A further recommendation is to implement a legislative quota system that defines AI technologies thresholds acceptable to prevent undesirable impact. This can be achieved through the FS organization engaging with labour unions to review and implement business friendly legislation/regulation/policy to govern AI in agreement with stakeholders – government, regulators, financial service organizations, service providers. The legislation/regulation/policy can also govern AI investment thresholds Vs job lost/jobs created in agreement with stakeholders - government; regulators, financial service organizations, service providers.

An additional recommendation is to introduce AI training, tooling and development (internship; sponsorship) in organizations. This enables the retraining, reskill and retooling of the existing workforce and potentially redirect them into different industries. The law of supply and demand will result in the channelling of labour force into other industries with skills shortages and vacant jobs.

Optimistic viewpoint recommendations

The research study highlighted these stakeholders (79% of participants) as having confidence in AI technologies. They embrace AI technologies based on the notion that AI technologies result in productivity efficiency and job creation. These are evangelists in the advancement of AI technologies in the FS organization.

These stakeholders should advance their education through training and development in new career/job paths in AI technologies such as AI programming and system integration. The FS organization should create

more AI related jobs and revamp existing jobs with AI task/roles/responsibilities in order to create an environment of natural organization employee attrition as AI is embraced (external recruitment to be minimal and internal candidates to be considered for AI technologies recruitment).

The study recommends that the FS organization makes AI accessible in order for it to impact jobs positively. The FS organization should multitask employees with AI and their current disciplines as the organization balances efficiency between jobs and AI for sustainable profitability. The above can potentially change the organizational culture and promote new ways of work, innovation and nurture skills of the future.

Another recommendation is for the FS organization to have empathy as AI technologies impact jobs. This can be shown by the organization's ability to stimulate novelty and creativity. This can result in blue oceans that deflate the negativity and compensate for adverse effects AI technologies introduce. A typical example is the creation of a niche customer service that stimulate human to human interaction as opposed to machine contact.

6.4.3 Research Recommendations to similar FS organizations

There are valuable lessons that can be learnt by similar FS organizations from this research's outcome. The FS organizations can also pay attention to the following details regarding the research outcome.

- **FS Organizations in the metropolitan: Johannesburg**

For some organizations in Johannesburg, AI has enabled them to introduce new business models underpinned by AI (Discovery, 2021). As business models transform, FS organizations should upskill/reskill their current skillset to be AI relevant. Through various awareness campaigns of AI and the new opportunities AI is creating, FS organizations can result in a positive

mind-set change for their employees to embrace AI and change job roles/responsibility to align with AI.

- **FS Organizations in Gauteng Province**

The Gauteng Province is an economic hub of South Africa producing 34% of South Africa's GDP (StatsSA, 2017) and has a concentration of FS organizations that seek strategic positioning. The FS organizations can embark on awareness campaigns to gradually introduce/expose AI into their organizations for a natural transition of employees or exposure to employees into AI through change management plans. The FS organizations can also facilitate a natural organization employee attrition where by external recruitment is minimised and internal candidates are considered for recruitment as AI is embraced.

- **FS Organizations in the country: South Africa**

The unemployment rate of South Africa is 34.9% as at the third quarter of 2021 (StatsSA, 2021). The FS sector created 138,000 jobs in the second and third quarters of 2021 (StatsSA, 2021). To maintain an upward trajectory of job creation, the FS organizations can implement a quota system with a threshold of the percentage of AI allowed in an organization in order to balance the impact to jobs. Multiskilling and redeployment of employees into other areas in the FS organizations can stabilize the impact of AI on jobs.

- **FS Organizations in the region: SADC**

In SADC, countries that have made AI use inroads have gained competitive advantage through operational efficiencies resulting in significant profit gains (Kemboi, 2018). The FS organizations should make AI accessible to its employees in order for it to impact jobs positively. This will require a change in the FS organizational culture to be able to embrace new ways of work, innovation and skills of the future.

- **FS Organizations in the continent: Africa**

A study of developing countries by the World Bank showed that there is a positive correlation between AI related digital transformation and productivity and economic growth (Muro, 2019). We recommend that FS organizations create more AI related jobs and revamp existing jobs with AI task/roles/responsibilities as this increases productivity and economic growth. This need to be complimented by introducing AI training, tooling and development (internship; sponsorship) in FS organizations.

- **FS Organizations in the global community: World**

AI enabled organizations have displayed exponential performance (Thillaivasan & Wickramasinghe, 2020) and it is predicated that through the use of AI, these organizations will deliver 14% of the global GDP (Thillaivasan & Wickramasinghe, 2020). We urge the conservative leadership of FS organizations to embrace AI and let AI take its course. From the above AI is known to result in exponential performance and increase GDP. The global leaders of FS organizations should review and implement business friendly legislation, regulation and policy to govern AI in agreement with stakeholders like government, regulators, other financial service organizations and service providers.

6.5 LIMITATIONS OF STUDY

This study was not a longitudinal research. Some of the impact of AI technologies on jobs are long term in their manifestation and take effect years after the deployment of AI technologies. This impact is not evident in the scope of this research as the research timeline was a limiting factor.

The research was confirmed to a qualitative study rather than a mixed methods research approach - inclusive of quantitative analysis. This would have extended the scope of the participants and gather quantitative data. The research could have triangulated the data to validate the outcome from the two approaches.

The research's thematic analysis was not inclusive the relational analysis and causal inference of codes. This was as a result of the number of interview transcripts that had to be analysed in a limited timeframe. Further relational insights could have been draw form the raw data.

6.6 FUTURE RESEARCH

This research study highlights the rise of the gig economy as a new model of future employment. This model embraces multi-skilled talent with 4IR skills that enables them to perform multiple jobs. This is an area of further research as it introduces new dynamics of the impact of AI technologies on jobs. The impact takes a different dimension when employees are mentally and psychologically geared for a gig economy and the opportunities this presents.

The curriculum review in the education system to enable the acceptance of AI technologies warrants for further research. One of the research study's outcomes was that "participants could use training to pivot and adapt to the impact AI technologies has on jobs". Further research studies can be conducted to ascertain whether the education curriculum review to incorporate AI can cushion the impact of jobs in the FS organization.

The research can be further extended to other FS organizations to ascertain if the outcome is constant or if it results in varied deviations. The FS sector is a key contributor to GDP and the research findings can enable to sector's future stability by pivoting and striking a balance between AI technologies' job impact and profitability.

6.7 SUMMARY

The qualitative research study concludes that the perceived impact of artificial intelligence on jobs at a financial services organization in Johannesburg is a reality. The research study disproved the notion that AI impacts jobs negatively in a FS organization in Johannesburg. An unqualified position from the research shows that AI has positively impacted jobs in the FS organization. This was backed by the relevant AI technologies that have been widely embraced to aid in the key performance areas of the participants. The participants specified strategic drivers that has resulted in them embracing AI. As much as AI has altered the job/task landscape, this has been for the advancement of the interests of the participants and of the organization.

In order to address the problem statement, strategies for consideration to mitigate the problem of job impact due to AI at a FS organization have need highlighted. These strategies have been coined to address the divergent positions that the participants experience. As the FS organization adopts AI, the research study has evidently proved that the impact is not homogeneous for all participants; hence varied strategies have been proposed to mitigate the negative impact of AI on jobs in the FS organization with organizational architecture being one of the cornerstones of impact mitigation.

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APPENDIX A

Table 10: Interview Guide

RQ1: What are the most relevant AI technologies with perceived impact in a FS organization?	
	1. ***"Jobs are composed with complex multitasks."*** Would you prefer to be assisted with robots/chatbots/biometrics on some of your job tasks? Why/why not? 2. ***"Teaching a machine new task."*** Are you prepared to teach a robot some of your job tasks (repetitive/complex)? Why/Why not? ***3. "The organization has a fair amount of data."*** Would data insights/analytics (discover, organize, analyse of data provide insights for advice / decision making) be of benefit to your job or you would rather manually analyse data? Why/why not?
RQ2: What are the drivers of AI technology use in a FS organization?	
	4. "Productivity of tasks / Performance efficiencies." How can AI improve on the productivity of your work? Would you rather have AI assist you in the performance of your tasks? Why/why not? ***5. "Decision making uncertainty."***

	What is your take on AI in decision making? In your role, would you embrace AI to assist you in your decision making? • If yes, in what way can AI assist you in your decision making? ***6. "Data is the new currency."*** Can data enable the organization to be competitive in the financial services market? Why/why not?
RQ3: What is the perceived impact of AI on jobs in a FS organization?	
	7. *AI – "Cyber meets the physical."* In what way do you think the AI has impacted/will impact your current tasks/job? Are they any tasks you are willing to let go and let them be fulfilled by AI technologies? Why/why not?
	8. "Disappearance of current jobs (pessimistic view)." Are you aware of any existing tasks/jobs at the FS organization that have been impacted directly/indirectly because of AI technologies? • If yes, how have they been impacted? Are you aware of any existing tasks/jobs at the FS organization that will be impacted directly/indirectly because of AI technologies? • If yes, how will they be impacted?
	9. "Creation of new jobs (optimistic view)."

	Are you aware of any new tasks/jobs at the FS organization that have been created directly/indirectly because of AI technologies? • If yes, what tasks/jobs have been created? Are you aware of any new tasks/jobs at the FS organization that will be created directly/indirectly because of AI technologies? • If yes, what tasks/jobs will be created?
RQ4: What are the strategies for consideration to mitigate the problem of job impact due to AI at a FS organization?	
	10. "What should be done?" What measures would you like to put in place to mitigate the impact of AI on your job/jobs of others? What measures would you like the organization to put in place to mitigate the impact of AI on jobs? What measures would you like external parties (government/regulators) to put in place to mitigate the impact of AI on jobs?