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Manamela, Mamaphala Meriam

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The Role of Artificial Intelligence in Change Management within Organisations in Johannesburg

by

Mamaphala Meriam Manamela

Student number: 2286934

Student email: 2286934@students.wits.ac.za Mobile: 079 610 5569)

A research report submitted to the Faculty of Commerce, Law and Management, University of the Witwatersrand,
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Supervisor: Dr Jenika Gobind

jenika.gobind@wits.ac.za, +27 11 717 3761

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ABSTRACT

Organisations are changing their work to align with the Fourth Industrial Revolution (4IR). Customers' needs have adjusted to conform to ever-changing technologies. These pressure organisations to implement technology alterations simultaneously to ensure transformation within the organisations and keep their existing customers. Moreover, technological changes require organisations to refocus their strategies and assess the capacity of Change Management to support the 4IR amid challenges brought by the change.

Currently, no technologies have been instituted to implement Change Management activities. Presently, Change Management processes are not digitally implemented within organisations. instead, they are implemented manually. This leads to a lack of performance in Change Management and an inability to evaluate successes and failures. Artificial Intelligence (AI), as a proposed technology to digitalise Change Management activities, will ensure the proper Change Management impact through the data flow, ensure the data is accurate and reliable, and improve performance.

This study explored the role of AI in implementing Change Management within organisations in Johannesburg. It considers how AI can be utilised in Change Management activities, such as ensuring governance and planning of Change Management activities using the relevant data to predict the impact, communicate, and converse with stakeholders through AI technologies. Furthermore, learning and development, automatic problem solving, and speech recognition be used to implement Change Management. This research was conducted with the intention of comprehending participants' experience, knowledge and involvement in Change Management. A triangulated qualitative research design was followed to gather data from sources that included nine one-on-one interviews and five participants for the first focus group session, seven participants for the second focus group session, and five participants for the third focus session. The participants, coming from different levels and positions, included executive management, senior management, change managers and Change Management specialists, and were interviewed using MS Teams or face-

to-face. Audio recording was used, notes were taken and transcripts made. Data was analysed using a thematic network approach to determine, analyse and report the patterns that participants repeated while being interviewed and during the focus group sessions.

Key findings from the study revealed the role of AI in Change Management and the relationships and commonalities between AI and Change Management. Additional factors included which AI factors may influence Change Management, experience of the manual Change Management processes and their impact, and how AI technologies can be used to add value and digitalise Change Management processes. AI technology influences and improves productivity in Change Management. The research provided insights into the way that through AI, Change Management activities can be implemented with speed, accuracy and reliability of data collected through the AI technology. Furthermore, AI can evaluate Change Management activities and suggest corrective measures without human interaction.

Limitations included the time spent searching for content as no previous study had been carried out on the role of AI in Change Management. Some participants withdrew from the study, while others failed to turn up for their agreed interviews. In addition, some participants proved more comfortable talking in a focus group session. These limitations had to be countered using reflexivity.

DECLARATION

I, Mamaphala Meriam Manamela, hereby declare that this dissertation is the result of my own work submitted to Wits Business School in partial fulfilment of the degree of Master in Digital Business. The research has not been submitted before to any tertiary institution. The research was based on authentic sources and authors, and citations were provided and sources acknowledged accordingly.



Signature

01 February 2022

Date

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KEYWORDS

Change Management

Artificial Intelligence

Fourth Industrial Revolution

Leadership

Stakeholder Management

Change Resilience

Communication Management

Organisational Culture

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LIST OF ACRONYMS

4IR – Fourth Industrial Revolution

AI – Artificial Intelligence

CM – Change Management

DT – Digital Transformation

AVI – Asynchronous Video Interview

HCI – Human-Computer Interaction

CHAPTER 1 – INTRODUCTION

1.1 Statement of purpose

The aim of this qualitative study was to explore the role of Artificial Intelligence (AI) in Change Management within organisations in Johannesburg. The study will further explore why AI technologies should be instituted to digitalise Change Management, how they will add value to Change Management activities and how digital Change Management activities will influence the use of AI technologies.

1.2 Background of the study

The changing world in terms of the Fourth Industrial Revolution (4IR) has influenced business processes to depend on technology to enable change (Ayinde & Kirkwood, 2020). Organisations are advancing their strategies to sustain their businesses and create customer value that serves their needs. At the same time, ensuring alignment with technological development improves customer experience, assisting businesses to remain relevant and competitive (Smuts, van der Merwe & Smuts, 2021). Smuts et al. (2021) mention that technological advances during the 4IR have impacted how employees perform their tasks. This therefore suggests that organisations need to consider empowering, upskilling and reskilling their employees.

This leads to organisations being pressured to introduce many changes to ensure they transform their organisations and retain their customers. Organisations are forced to consider assessing Change Management capacity in the 4IR whilst weathering challenges.

According to Jalagat (2016) the successful implementation of change initiatives is dependent upon effective Change Management. Boikhutso (2013) further mentions that most change initiatives fail due to a lack of relevant Change Management structures and effectiveness. Jalagat (2016) adds that a Change Management programme needs to be in place to ensure effective planning,

allocation of tasks, resources and timelines aligned with the change initiative implemented within an organisation.

Change Management plays a critical role in ensuring that stakeholders are aligned with the change that has been introduced. Interestingly, Manamela, Cassim and Karodia (2016) mention that Change Management is a process that ensures employees accept and embrace changes within their working environments. This process aims to deliver interventions that encourage and entice new behaviours, provide support through timely and honest communication, and train people on the change initiatives introduced within the organisation (Manamela et al., 2016).

Change Management activities are currently being implemented manually without the relevant technologies. Artificial Intelligence technologies seek to improve agility, data accuracy and reliability, while increasing Change Management capacity and productivity. Grewal (2014) suggests that AI is actually computer sciences with general mental ability that operate within the area of intelligent machine thinking and work like human beings. With this in mind, AI can be used for engagement sessions, planning, communication, learning, solving problems and recognising speech and conversations, while possibly being used to implement Change Management. This study explores the role of AI in implementing Change Management within organisations in Johannesburg.

1.3 Research problem

Ayinde and Kirkwood (2020) posit that organisations are improving their operations through 4IR technologies, leading to disruptive technologies that change the way employees perform their duties. Organisations are therefore tasked with ensuring that employees have the relevant mindsets that will inform their attitudes, leading to changes in their behaviour (Nagy, Oláh, Erdei, Máté & Popp, 2018). It appears that effective Change Management governance and capabilities are not implemented to enable employees to execute and adapt to change initiatives or to satisfy the pace of the 4IR. Nor are Change Management activities implemented digitally with agility. Organisations are faced with the

challenge of implementing change, predicting and mitigating risk, as a result of manually implementing Change Management: this negatively impacts efficiency, accuracy and reliability. With AI being accessible, Change Management activities can be digitally implemented. This study, therefore, intends to investigate how AI technologies can influence Change Management activities.

1.4 Research Questions

- What factors influence Change Management?
- What Artificial Intelligence factors influence Change Management?
- How can Artificial Intelligence technologies add value to Change Management processes?

1.5 Rationale

The study explores the factors that influence Change Management, endeavouring to understand the extent to which the adoption of AI has a role in Change Management in organisations, and why AI is the technology that should be adopted to implement Change Management effectively. It also investigates how AI can add value and influence Change Management. It is anticipated that the study's findings will allow leadership to recognise the value of using AI to implement Change Management within organisations, thereby encouraging continuous learning and the adoption of a digital culture. Furthermore, this involves educating employees about digital technologies such as AI and making them feel comfortable using them. In so doing, leadership will identify the practical AI factors needed for Change Management.

1.6 Delimitations of the study

The study only focuses on the role of AI in implementing Change Management. It does not, for example, include extensive Change Management theories and approaches but instead concentrates on those relevant to this research. The

study does not focus on all AI factors; investigations only deal with the AI factors that influence Change Management. Lastly, the study concentrates on organisations situated in Johannesburg, Gauteng.

1.7 Definition of terms

Change Management is a structured approach to shifting/transitioning individuals, teams and organisations from a current state to a desired future state. It is an organisational process aimed at helping employees to accept and embrace changes in their business environment (Manamela et al., 2016).

Artificial Intelligence (AI) is the ability of a computer or robot to use intelligence to complete a task that human beings can also complete (Grewal, 2014).

The Fourth Industrial Revolution (4IR) is defined as a digital revolution in which disruptive technologies and trends are implemented to improve the organisational processes, systems and business models. These include AI, robotics, the Internet of Things (IoT), and genetic engineering (Ally & Wark, 2019).

Organisational transformation refers to the process of organisations changing how they are doing business. The transformation activities include business process reengineering, digital transformation and restructuring, which will enable an organisation to improve and sustain its business (Vial, 2019).

Cloud Computing is a business model for Internet-based computing services; the billing method is based on the services required by organisations and the capacity to be consumed at particular time. Furthermore, cloud computing enables the transition from an on-premises data centre to a hybrid platform that further extends on-premises services and Internet-based space (Armstrong & Lee, 2022).

1.8 Assumptions

There is an assumption that leadership will recognise the importance of using AI for Change Management. In addition, other assumptions include factors that influence Change Management, that AI may influence Change Management, and that AI technologies may add value to Change Management activities. The last assumption related to whether participants were reluctant or agreeable about involvement in the study.

1.9 Chapter Outlines

Chapter 1: This chapter provides the background to the study, an overview of the problem statement, and the research questions. It also defines the scope and delimitations of the research, the proposition, the research method, as well as the rationale of the study.

Chapter 2: This consists of the literature review, which deals with various concepts in the research areas of AI, its role in Change Management, how AI influences Change Management, which factors of AI technologies influence Change Management, and how digitalised Change Management activities can be monitored, evaluated and measured through AI.

Chapter 3: This covers the qualitative research methodology and how data will be collected. The chapter also provides an overview of the various sources of information and how data will be analysed and interpreted. Results were achieved through a qualitative research based on the instruments' transferability, credibility and dependability.

Chapter 4: This comprises the collected data, using one-on-one interviews and focus groups within various organisations. The chapter also provides a rough idea of the role of AI in Change Management. These AI factors influence Change Management, how AI can add value to Change Management, how Change Management can be digitalised using the AI algorithm, and how effective Change Management activities can be evaluated using the technology.

Chapter 5: This contains a detailed discussion, interpretation and analysis of the study's findings about the role of AI in Change Management. Also considered are AI factors that affect Change Management, the AI value-add to Change Management and digitalising management through AI, plus suggestions on evaluating Change Management activities through AI.

Chapter 6: This finalises the conclusion, makes recommendations and offers proposals for what is required for the successful implementation of AI to add value in Change Management. It also notes limitations experienced during the research process. Additionally, how these elements relate to the objectives also suggests future research possibilities.

CHAPTER 2 – LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Introduction

The previous chapter provided an introduction and background to the study. This chapter will outline and critically analyse the theories and review the literature as they pertain to the study. It focuses on various authors' views on Artificial Intelligence (AI) and its role in Change Management. Furthermore, issues are examined of how AI technologies influence and add value to Change Management activities.

2.2 Background

The fundamental factors of Change Management will be outlined: this includes AI elements that influence Change Management. The theories reviewed will explain Change Management and AI 's fundamental elements. The chapter will also discuss the frameworks and models developed to implement Change Management and AI. Several theories and frameworks of Change Management and its factors were used to assess the significance and relevance of AI within organisations. According to Manamela et al. (2016) the Change Management factors include governance and planning, stakeholder management, communication, training and organisational culture. The AI factors influencing Change Management, such as Preference-Based Planning, Machine Learning, Natural Language Processing and Speech Recognition are also discussed in this chapter (Mariemuthu, 2019).

2.3 Artificial Intelligence role in Change Management

The study will investigate Change Management, whether AI has a role in Change Management, and how AI can influence Change Management activities.

2.3.1 Factors that influence Change Management.

In this section, factors influencing Change Management are discussed to enable an understanding of Change Management and its components.

2.3.1.1 Understanding Change Management.

Change Management is preparing, guiding and supporting stakeholders through change to ensure they embrace and are ready to change initiatives implemented to align with the Fourth Industrial Revolution (4IR) and become relevant within industries. The main aim is to solicit buy-in, commitment and ownership, which will lead to the successful implementation of change initiatives within organisations (Trivedi, 2021).

2.3.1.2 Basic components of Change Management.

- **Governance and Planning**

The success of Change Management depends on planning and governance, which ensure that assessment of the change initiative is undertaken, and all relevant stakeholders are identified, mapped in relation to the change initiatives, and analysed.

According to Spotswood and Warren (2017) there is a lack of Change Management frameworks to address people ‘s behavioural change. Governance provides oversight and assurance by ensuring that the relevant frameworks and methodologies are used for the change initiative. At the same time, planning focuses on developing work packages and ensuring that resources are available to implement the change (Manamela et al., 2016).

The Change Management framework provides an insightful model that works well, with a practical approach resonating with management within the organisation (Badham, Cançado & Darief, 2015). Lack of planning leads to unrealistic goals being set and underestimation of the required human and financial resources (Too et al., 2017). Moreover, more data flows are needed to predict and mitigate the risk of failure in implementing change initiatives.

- **Leadership**

Leadership needs to be aligned with change implemented within the organisation. Ford, Ford and Polin (2021) noted that the role of leadership is to lead and advocate change at their level. Hussain, Lei, Akram, Haider, Hussain, and Ali (2018) noted that leadership's level of commitment and influence impacts Change Management activities. When employees see commitment from their leaders, this makes it easier to solicit buy-in from staff.

Chaturvedi, Rizvi and Pasipanodya (2019) affirm that leadership can ensure employees are encouraged to do more than expected, which may be significant for the change initiative's success. Siebert, Paton and McCalman (2015) mentioned that active leadership is crucial for change implementation. If the organisation lacks a change initiative leader who leads and motivates employees, this will have a negative impact as employees will not clearly understand the change initiative.

- **Stakeholder Management**

According to Turkulainen, Aaltonen and Lohikoski (2015), stakeholder management is essential in managing change projects. Stakeholders' interests, pain points and expectations must be considered. Chan (2021) posited that change initiatives fail if not supported by stakeholders. If stakeholders do not understand why the change initiative is being implemented and how it will impact them, they will not buy into it. It is crucial to solicit buy-in and encourage the stakeholders' commitment and ownership to ensure a change initiative's successful implementation.

Stakeholders' level of influence and power needs to be used as a strategy for successful change initiative implementation (Munir & Furinto, 2022). Effective stakeholder management leads to the desired level of commitment and advocacy. The stakeholder's levels of impact and influence are clearly understood; these will indicate the stakeholder's role in implementation. It is crucial to ensure that stakeholders know and understand their role and manage their expectations accordingly (Schito, Jullier & Raubal, 2019).

- **Communication Management**

Communication plays a vital role in the success of a change initiative. Stakeholders should be made aware of the change that has been implemented, when to implement it, and the impact of the change through effective and honest communication (Manamela et al., 2016). Lack of communication leads to incorrect assumptions and criticism that cannot be managed and may cause resistance to change. A communication plan must be developed to include what needs to be communicated, the target audience, and when to communicate to stakeholders using the relevant channels (Appelbaum, Cameron, Ensink, Hazarika, Attir, Ezzedine & Shekhar, 2017).

Successful Change Management is dependent on effective communication, with insufficient and irrelevant communication leading to failure in change initiatives (Yousfat & Mostefaoui, 2022). Consistent communication encourages interest and builds and sustains momentum for a change process. Stakeholders will lose interest if communication is insufficient (Hye, Miraz & Habib, 2020). If stakeholders are not well-engaged, they will not be part of the change process.

- **Training**

According to Dikert, Paasivaara and Lassenius (2016) organisations must ensure that people are well-trained and ready for change. Training is a critical success factor in change implementation. Insufficient and inadequate training leads people to settle for the preceding working method. Dikert et al. (2016) further affirm that practical training prepares employees for change: when they are well-trained, it gives them comfort to perform their tasks and be productive in their new roles and responsibilities.

According to Mbaka and Mugambi (2014), training plays a significant role in successfully implementing Change Management. The authors further assert that organisations should ensure that skills and knowledge are imparted to employees during the change process. Additionally, Manamela et al. (2016) noted that employees should be given lessons on how to best respond to change, its purpose within the organisation, and how to proceed with the change initiative.

Nastase, Giuclea and Bold (2012) stated that if employees are well-trained, they feel confident that they are ready for the change.

- **Organisational culture**

Belias and Koustelios (2014) postulate that organisational culture impacts the success of an implemented change initiative: culture and Change Management cannot be separated. According to Van Kessel, Oerlemans and Van Stroe-Biezen (2014), organisational culture is informed by the employees' level of thinking, which is their mindset that informs their attitude, leading to how they behave within the organisation.

The Organisational culture drives innovation within the organisation, with inspired employees leading to positive behavioural patterns. A learning culture is one of the change initiative's success factors (Venturato, Horner & Etherton-Beer, 2020). Organisations must embed a culture of employee empowerment in all staff to be part of the decision processes. This will create a culture that strengthens accountability and commitment to change (Li et al., 2017).

Proposition 1

The theory has proven that there are similarities and relationships between Change Management factors, and AI has a role in Change Management.

2.3.2 Artificial Intelligence factors that influence Change Management.

This section outlines AI factors influencing Change Management to allow understanding of AI technologies, the tasks that can be performed through the technologies and specific AI technologies that influence Change Management.

Defining Artificial Intelligence

According to Mirbabaie, Brünker and Stieglitz (2021), AI can undertake mental abilities such as reasoning, solving problems, learning, decision-making and interacting with people using the machine. Armstrong and Lee (2022) mentioned that AI could be given a role in analysing data and predicting work, changing how

people work, and increasing productivity. The figure below outlines Artificial Intelligence tasks.

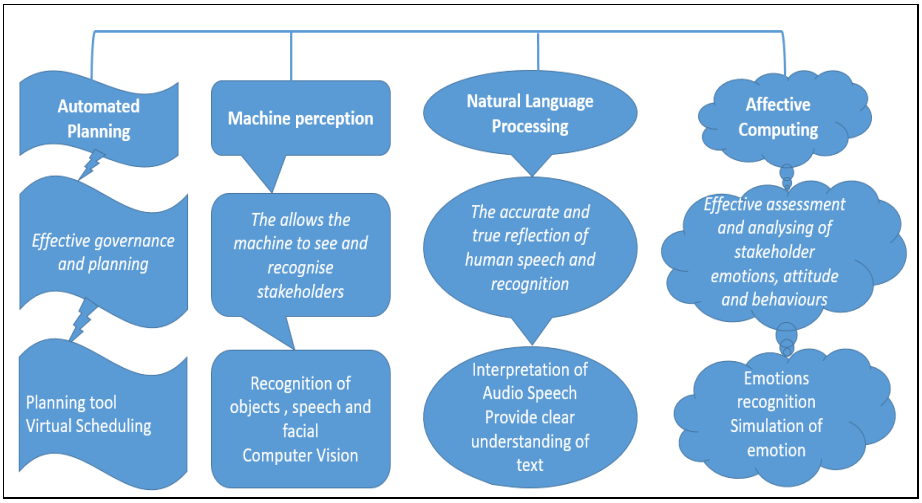


Figure 2.1: Artificial Intelligence Tasks (researcher's own construct, with reference to Armstrong and Lee (2022)).

The Artificial Intelligence Tasks aligned with Change Management are discussed below:

- **Machine Perception**

This technology involves a machine 's ability to process information through a sensory machine, similar to the way human beings observe what is happening within the world or within the organisation (Deng, 2018). It includes technology mimicking human senses' patterns, sound, touch and sight. Organisations can only achieve this through the AI machines' perceptions, and human beings cannot perform this task (Shabbir & Anwer, 2018).

According to Armstrong and Lee (2022) machine perception can correctly observe and integrate what is happening in the organisation or within the environment. Computer vision is the ability, through the algorithm, to observe and capture images via the machine. Borowski, Funke, Stosio, Brendel, Wallis and Bethge (2019) posited that machine perception is a recognition system with the capability to recognise profoundly what has been seen or heard through algorithms. Object recognition is an AI algorithm that can recognise objects, such as steel or odd objects sensed through the machine. Speech recognition entails

the ability of an algorithm to precisely identify the spoken word of stakeholders. This allows an understanding of speech or text via the algorithm.

- **Natural Language Processing**

Natural language processing uses a machine to identify speech and appropriately record the words that have been said, spoken, or written by stakeholders (Al-Makhadmeh & Tolba, 2020). Natural language processing uses an algorithm that allows understanding of what stakeholders have said, interpreting its meaning and contextualising it to make it a practical and accurate communication (Armstrong & Lee, 2022).

As per Joseph, Hlomani, Letsholo, Kaniwa and Sedimo (2016), natural language processing (NLP) could understand and manipulate natural language to perform tasks. Hirschberg and Manning (2015) declared that NLP used the algorithm to gather data and familiarity about how people talk and think by using machines. Furthermore, it used this to assess and Analyse people's languages and emotions.

- **Affective Computing**

Affective computing uses an algorithm to ensure an understanding of human emotions. It takes and identifies what people say, how they say it, and their words and facial expressions (Mohammad, 2022). This author mentioned applications such as Google Cloud Vision and IBM Watson's NLP algorithms. These AI technologies use computers to verbalise words through machines to mimic human emotions. This mimicking of human emotions and moods is a more robotic process using AI technology (Armstrong & Lee, 2022).

Marín-Morales, Llinares, Guixeres and Alcañiz (2020) mentioned that affective computing can assess and analyse stakeholders' responses utilising the algorithm with inherent methods. Affective computing has been found to assist in identifying contributing factors to the type of relationships, including emotion and decisions around matters within organisations. Wierciński, Rock, Zwierzycki, Zawadzka and Zawadzki (2022) declared that affective computing is an automatic way of qualifying and recognising people's emotions based on Artificial

Intelligence. It can be used as a measure that organisations can utilise for all change initiatives, including human behaviour, which is the culture of the organisation.

Automated Planning

Armstrong and Lee (2022) noted that automated planning can use algorithms to assist with activities planning and proposing the actions to be taken. The authors mentioned automated planning applications such as Google Maps, which makes a prediction based on traffic data for the route to a specific area, guides the traveller accordingly, and proposes alternative routes. Ordonez, Caicedo, Villota, Rodriguez-Vivas and da Fonseca (2022) assert that an automated planning algorithm can also use its sensors to ensure effective planning and scheduling of activities.

Wahl, Cossy-Gantner, Germann and Schwalbe (2018) affirm that organisations can use automated planning and scheduling within AI to plan and schedule activities effectively. The algorithm is effective in automatically identifying activities and planning them accordingly. Geist (2017) mentioned that automated planning gathers data and, based on that data, predicts the relevant activities to be implemented, plans these activities and schedules them without human intervention. Organisations can use this technology for change initiative planning based on the change initiative information to predict the impact, guide the change team to use relevant frameworks, and plan the appropriate activities to ensure successful implementation of the change initiative.

- **Machine Learning**

Peng (2018) affirms that the data for all training initiatives within the organisation entails various pictures, shapes and colours to ensure the visibility of imperfections. Armstrong and Lee (2022) noted that supervised machine learning can be used to implement training effectively within an organisation. This includes labelling by the relevant team inserted into the machine-learning algorithm to ensure a true reflection of labelling and decisions informed by the predictive model of the Artificial Intelligence. The figure below outlines the supervised machine learning process.

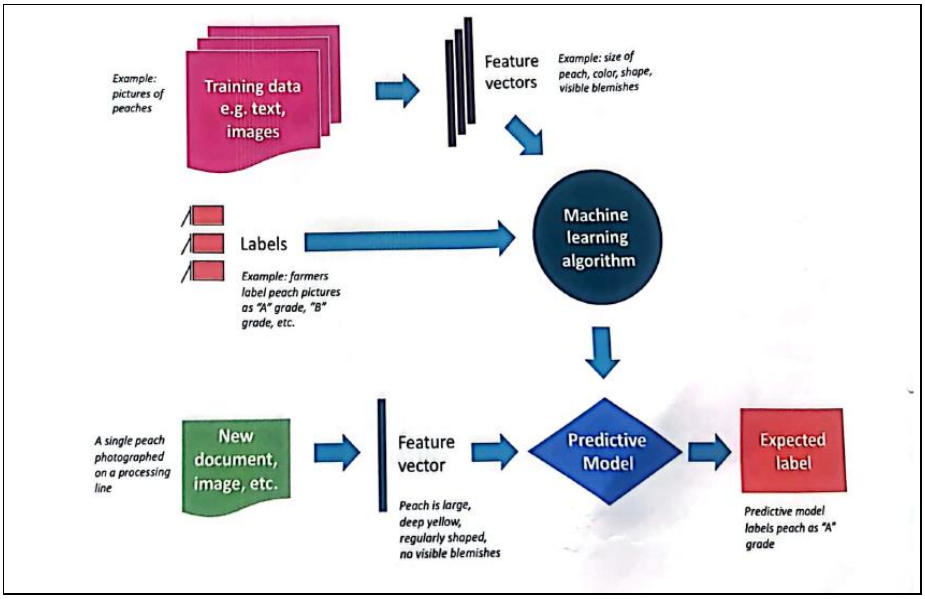


Figure 2.2: Supervised machine learning (Armstrong & Lee, 2022:123).

Organisations can use supervised machine learning that can be trained on a function using labelled training data, and based on that data, this function can map an input to produce an output (Osisanwo, Akinsola, Awodele, Hinmikaiye, Olakanmi & Akinjobi, 2017). Furthermore, supervised machine learning enables machines to predict output.

Mariemuthu (2019) affirms that AI technologies have factors that are able to influence Change Management. He further outlines the governance and planning, communication, training and culture alignment AI technologies that can be used to benefit and evaluate Change Management activities.

Artificial Intelligence technologies are outlined in the figure below.

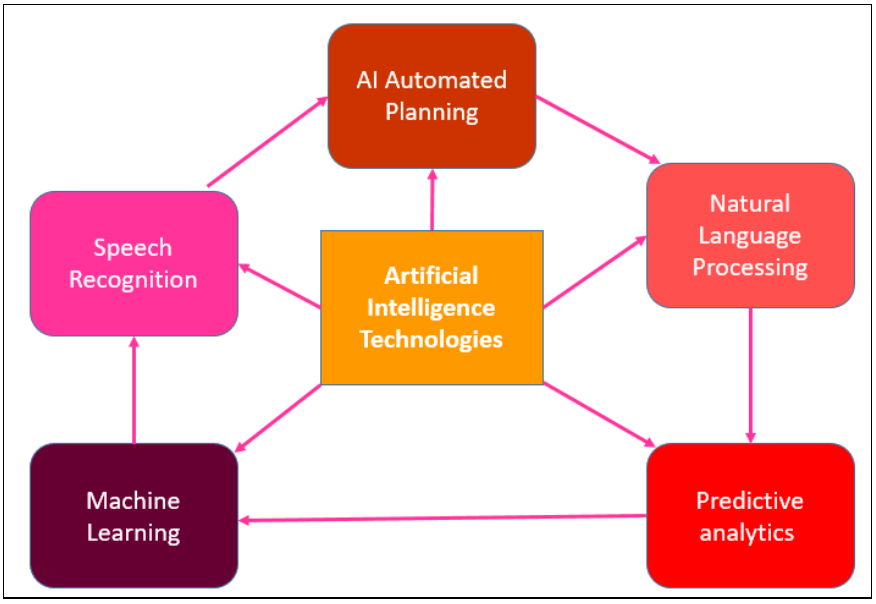


Figure 2.3: Artificial Intelligence technologies (researcher's own construct with reference to Mariemuthu (2019)).

Artificial Intelligence factors that influence Change Management are outlined below, showing how Change Management activities can be implemented using AI.

- **AI Automated Planning**

Haslum, Lipovetzky, Magazzeni and Muise (2019) noted that AI planning can formulate and automate the planning and scheduling of activities and effectively realise the sequence of actions using intelligence agents to achieve specified goals and objectives. Muise, Belle, Felli, McIlraith, Miller, Pearce and Sonenberg (2015) asserted that AI automated planning can ensure tasks are executed accordingly and on time without human intervention, this being an automated process using AI technology.

Abioye (2021) indicated that AI Automated Planning technology uses algorithms to develop proper planning and propose relevant actions to ensure governance and planning. Automated Planning algorithms use sensors to ensure that organisations plan schedule change initiatives effectively. Armstrong and Lee

(2022) note that the technology can predict situations using applications and propose a plan of action. The authors mentioned applications such as Google Maps, which can guide commuters based on traffic information.

- **Natural Language Processing**

Joseph et al. (2016) affirmed that Natural Language Processing could gather information and knowledge, using computers, about how humans talk and think. This NLP assesses human languages and emotions and interprets them. Hirschberg and Manning (2015) noted that NLP could understand and manipulate natural language to perform tasks. The software includes ChatBots, a voice assistant, and Internet search engines.

Natural Language Processing involves an algorithm that allows the machine to recognise speech and correctly capture the words that have been spoken or written by stakeholders (Al-Makhadmeh & Tolba, 2020). NLP understands what people have said, interpreting the meaning and contextualising it to render it a sensible and accurate communication (Armstrong & Lee, 2022).

- **Predictive analytics**

Predictive analytics technology uses stakeholder patterns through the intelligence to predict probabilities or what could be the next move for the particular stakeholder (Kumar & Garg, 2018). This assists organisations to predict the change success rate, based on historic data, by identifying stakeholders' patterns and use collected data to predict different results that might have a positive or negative impact and provide certain outcomes (Williamson, 2016).

The role of predictive analytics includes stakeholders' desires in relation to the change initiative, knowledge that stakeholders have acquired and skills that can be used to ensure successful implementation of the change initiative (Ogunleye, 2014).

- **Machine Learning**

Machine learning (ML), as a sub-component of AI, can gather learners' data to assess and determine the learners' knowledge and skills and then propose

relevant courses to take for learning and development. Machine learning does not merely enhance the learning platform but also makes it responsive to learners' needs by adapting intelligently to their requests (Janiesch, Zschech & Heinrich, 2021).

Supervised machine learning is a machine learning algorithm: organisations can feed the machine with the training data, then use it to train employees. Algorithms ensure the input provides appropriate and relevant output to benefit the organisation by predicting the training output (Osisanwo et al., 2017).

- **Speech Recognition**

Kamble (2016) noted that Speech Recognition was a subset of Natural Language Processing that enabled people to use devices to speak, with the technology translating the speech and documenting the information. Alhawiti (2015) noted that stakeholders did not have to type in text, but instead the machine automatically captured the words as people talked and created the document.

Automatic speech recognition (ASR) is the technology used to identify and verify speakers, speech synthesis and speech processing to create human-to-machine voice interfaces (Fendji, Tala, Yenke & Atemkeng, 2022). The technology can transform speech into a similar format categorised or classified using algorithms applied to the machine (Herff & Schultz, 2016). The technology can use various devices such as laptops, smartphones, or other connected hardware through speech.

Proposition 2

Artificial Intelligence technologies include factors that influence Change Management within organisations.

Artificial Intelligence technologies add value to Change Management activities.

The AI value-add and Implementation of digital Change Management processes are discussed below. The figure below illustrates Artificial Intelligence Abilities.

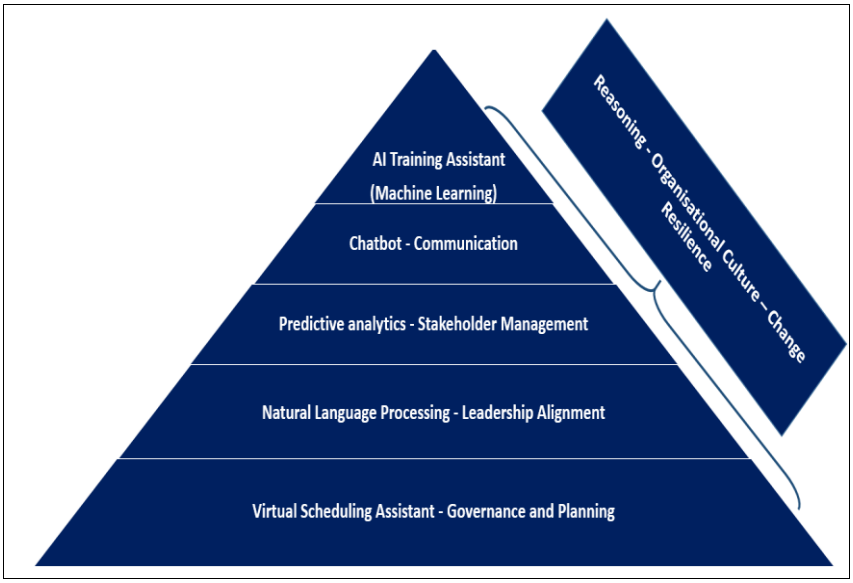


Figure 2.4: Artificial Intelligence Abilities (researcher's own construct with reference to Shabbir and Anwer, 2018)).

Artificial Intelligence Abilities and how they will play a role in and influence Change Management are covered below.

- **Virtual Scheduling Assistant – Governance and Planning**

According to Shih (2021), scheduling sessions via email requires time, especially when finding a central location: stakeholders email back and forth to record their availability. Rong, Fourney, Brewer, Morris and Bennett (2017) mentioned that AI had introduced a technology called Virtual Scheduling Assistant, an intelligent agent that could be used to schedule Change Management information sessions. This technology could also assist with sending reminders to stakeholders, and repeating them at varying periods before an upcoming session.

Wajcman (2019) mentioned that a Virtual Scheduling Assistant could send stakeholders an itinerary, enabling them to prepare accordingly for the upcoming session. Cranshaw, Elwany, Newman, Kocielnik, Yu, Soni, Teevan and Monroy-Hernández (2017) asserted that the technology was able to develop plans and assign tasks to the relevant team members to improve efficiency and productivity. The technology can be used during the designated session to take note of the information, with this able to assist Change Management in managing daily tasks and typing messages to stakeholders.

- **Natural Language Processing – Leadership Alignment**

Al-Makhadmeh and Tolba (2020) note that Natural Language Processing (NLP) can be used for leadership speech identification and to ensuring their words are recorded to show commitment by playing the role of a leader and a driver for the change initiative. The leadership needs relevant information to effectively lead and drive AI efforts within an organisation and realise its benefits to improve competitive environments (Sejera & Bocarnea, 2022). Leadership needs to understand AI's role and its relevant and significant features for the organisation. Furthermore, leadership needs to understand how the collaboration of the human element and AI environments will unfold.

Hirschberg and Manning (2015) portrayed the NLP algorithm as collecting information and knowledge based on how people talk and their thought processes, using machines. The NLP algorithm also assesses and analyses people's language and emotions. Leadership does not need to know the technical details, such as how AI algorithms can be developed. However, leadership needs to understand the function of AI in leadership and its role in assisting how they can analyse data or use AI predictions on matters such as organisational and customer needs, using AI to their benefit as business leaders (Oesch, 2018). They must also be able to translate data within AI technologies and embrace this knowledge.

- **Predictive analytics – Stakeholder Management**

Wright and Schultz (2018) stated that AI provided a stakeholder management tool to build change resilience and thus ensure stakeholder adoption to change. The AI frameworks certify that organisations adhere to the ethical obligations of stakeholders. The authors further said that one needed to be prepared to recognise the benefits of change and its impact on the organisation. Stakeholders must embrace change to solicit buy-in and take ownership of the change initiatives.

Kumar and Garg (2018) noted that Predictive Analytics algorithms used intelligent machines to assess stakeholder behaviours and predict the likelihood of the stakeholder buying into the change, or the stakeholder's thought process. The

technology can assess stakeholders' interest in change initiatives and skills, plus competencies of the stakeholders, which can benefit the implementation of change initiatives within organisations. It also uses data from a preceding project to assess the change success rate.

- **ChatBot – Communication**

Alam, Islam and Khan (2019) described a ChatBot as an AI technology that could communicate with stakeholders through one-on-one conversations in a manner similar to humans. Heo and Lee (2018) cited ChatBot technology as allowing stakeholders to have a conversation and be provided with a prompt response. A ChatBot is available 24 hours a day.

Doshi, Pawar, Shelar and Kulkarni (2017) depicted a ChatBot as an interactive partner that could also be used to identify and predict how stakeholders behaved as they conversed. Nazareth, Nussbaum, Siglen and Wicklund (2021) affirm that smartphones can be used with the assistance of ChatBots for stakeholders' daily check-ins and for assessing their moods. These kinds of interventions can promote a positive attitude towards change.

- **AI Training Assistant (Machine Learning) – Training**

Yueh and Chiang (2020) note that AI assists training instructors by using robots to provide relevant training to users on online learning platforms. The human-computer collaboration model within AI assists trainers in developing personalised content aligned with the users' training needs. The authors further mention that AI encourages learners' critical thinking, imparts interpersonal expertise, and prepares learners for the future state of the AI world.

Mirchi, Bissonnette, Yilmaz, Ledwos, Winkler-Schwartz and Del Maestro (2020) assert that AI can verify the combination of acquired skills and expertise during training. It further provides trainers with an understanding of the vast and complicated tasks that need to be unpacked and analysed to render them understandable to users. Artificial Intelligence also ensures that learners' skills when deployed on simulated tasks are assessed to meet the training requirements.

In cloud computing, AI allows organisations to run employee training and save the training content and assessments on the cloud with analytics and reporting effectiveness. It comes with space, and seamlessly integrates with other systems (Siddiqui, Alam, Khan & Gupta, 2019).

- **Reasoning – Organisational Culture – Change Resilience**

Brandon, Dionisio, Isaacs, Tornero-Velez, Kapraun, Setzer and Price (2020) declare that AI uses machine intelligence to identify patterns of behaviours based on moods and responses to change, and then predict the next step and what needs to happen to change behaviours and attitudes, thus informing a positive Organisational culture. Artificial Intelligence can also mimic human behaviours and predict solutions.

Yueh and Chiang (2020) affirm that AI can change Organisational culture by inculcating innovation collaboration and imparting digital know-how, allowing stakeholders to be digital-savvy.

Ways to digitally measure and evaluate Change Management activities:

- **Change Readiness Assessment**

Xiao, Zhou, Liao, Mark, Chi, Chen and Yang (2020) cite human-computer interaction (HCI) research in a ChatBot-powered conversational survey that adjusts the question and personalises it to suit the purpose. According to Tsai, Huang and Zhang (2020) the technology collates results, analyses them and makes recommendations. Moreover, questions based on the stakeholder's responses encourage stakeholders to continue with surveys. These facilitate the gathering of detailed information from open-ended questions, in a process that assesses employees' readiness to embrace change and predicts barriers and resistance to change.

Hibbeln, Jenkins, Schneider, Valacich and Weinmann (2017) stated that HCI was an AI technology that could understand people's attitudes toward the technology and assess user experience and ability to embrace change. The technology allows the exchange of information between machines and individuals through

output, including assessing user requirements and concerns. HCI uses the input of relevant information on the machine to provide an output regarding the ability of stakeholders to adopt change (Lv, 2022). The technology can improve change adoption and utilisation, leading to ROI.

- **Leadership Assessment**

Suen et al. (2019) mentioned that AI had introduced asynchronous video interview (AVI) software that could be used for automatic interviews at a specific time. This allowed the interviewer to review audio-visual records and develop a report when required.

Leadership's readiness to embrace change needs to be at a high level. This will help the Change Management team identify issues members might be facing during change implementation and discuss the necessary support. Suen et al. (2019) affirmed that AI might be more reliable than human beings for predicting an individual's personality. AI technology for audio-visual datasets is more accurate and dependable in analysing data than humans.

According to Kale, Suryavanshi and Jadhav (2020) AI has an interviewing technology called asynchronous video interview (AVI) and a TensorFlow AI machine that can conduct interviews with stakeholders. The technology can assess accurate behaviour scores from facial expressions and language. Suen et al. (2020) assert that AVI can also predict the five significant behaviours of a stakeholder using artificial neural networks. The authors further mention that it can observe and interpret information and draw a conclusion.

- **Post Implementation Assessment**

Sidaoui, Jaakkola and Burton (2020) noted that AI ChatBots can be used to interview stakeholders to assess their experience during change and, if they are experiencing any issues, to identify any post-implementation interventions. ChatBot represents the interviewee and can ask relevant questions, probe with follow-up questions, and predict the answers to those questions. Gupta and Chen

(2022) assert that ChatBot interviews are more efficient as they use AI to collect data through a storytelling narrative and pose relevant questions to get real-time feedback and analysis of stakeholders' change experience. The ChatBot can also be used for post-implementation surveys if required.

According to Xiao et al. (2020) AI ChatBots are very powerful and offer a new and effective way of collecting data through conversational surveys. In this case a ChatBot asks open-ended questions, automatically interprets the stakeholder's free-text responses and further probes by seeking more answers where needed. Hussain, Ameri Sianaki and & Ababneh (2019) noted that the AI-powered ChatBot used a conversational survey that encouraged participation and engagement from stakeholders, helping to gain better responses. The authors further mentioned that the answers were informative and relevant as they specified and provided clarity on stakeholders' responses.

Proposition 3

Artificial Intelligence technologies can add value to Change Management activities. Furthermore, using AI when implementing digital Change Management processes can effectively measure and evaluate Change Management activities.

2.4 Analytical Framework

In this section the theoretical and conceptual framework will be discussed.

2.4.1 Theoretical Framework.

The following section outlines the theoretical framework followed to support the study.

2.4.1.1 TOE framework.

The Technological – Organisational – Environmental (TOE) framework is mainly used to support technology innovation within organisations. It contains three main factors that impact the process of stakeholders accepting technology innovation in an organisation.

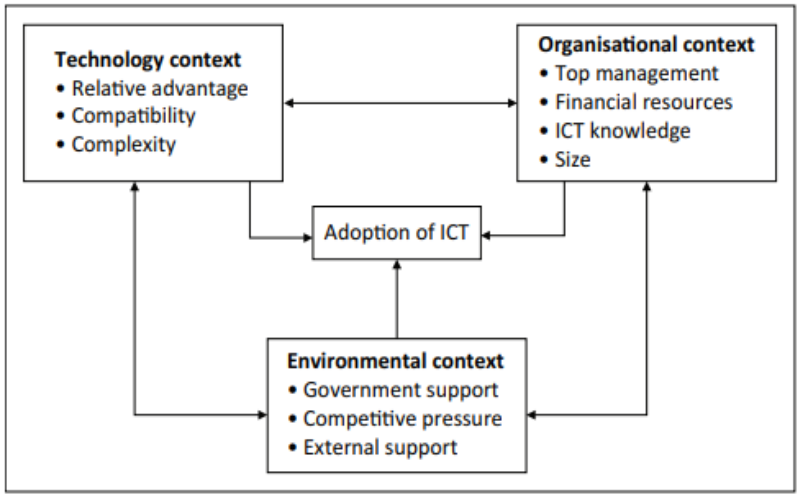


Figure 2.5: Technological – Organisational – Environmental Framework (Alkhater et al., 2018).

The following factors outline the TOE framework (Chiu, Chen & Chen, 2017).

Technological factor – AI technologies that have an impact on Change Management;

Environmental factor – the environmental factors such as Organisational culture that might influence digital Change Management activities; and

Organisational factor – the stakeholders' ability to adopt the AI technology that adds value to Change Management within organisations.

2.4.1.2 Westerman Digital transformation compass.

Various Change Management frameworks have been recommended by different authors to ensure that stakeholders are aligned and buy in to change initiatives to ensure successful implementation. However, Westerman is mainly used for digital transformation.

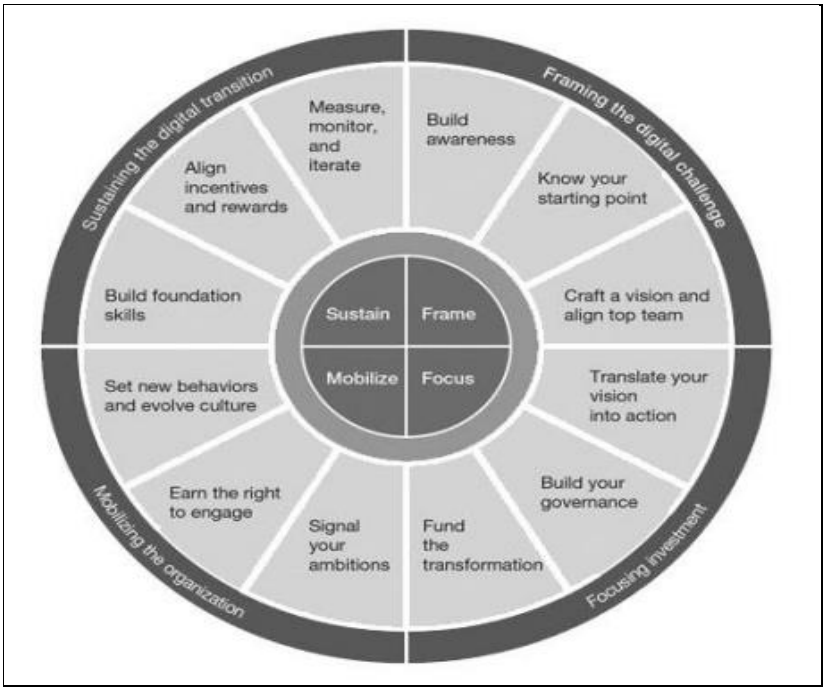


Figure 2.6: Westerman Digital Transformation compass (Furjan, Strahonja & Tomičić-Pupek, 2018).

The following outlines the Westerman Digital Transformation Compass (Furjan et al., 2018).

1. Frame – The framing phase focuses on leadership interventions about external forces that trigger change and the impact on the internal vision and mission of the organisation. It also focuses on information-gathering processes, and uses specific techniques and tools to gather requirements, information and customer expectations. These are prepared in conjunction with the overall change programme and technology enablers. The approach includes documentation reviews, interviews, workshops and surveys. The Organisational change management (OCM) team can then prepare detailed Change Management strategies and plans that relate to and are specifically tailored for the environment.

2. Focus – This is on ensuring the business case is developed, the sponsor is identified to fund the change initiatives, and that governance structures facilitate quick decision-making.

3. Mobilise – This phase involves the detailed design, development and delivery of change interventions required to successfully implement the Information

Technology and Communication (ICT) Programme. These include the impact of change on strategy, systems, policy, processes and procedures. These activities will be informed by continuous engagement of critical stakeholders, the OCM team's previous experience on similar projects, and the lessons learned from previous projects within organisations. To enable change, an organisation needs to align and transition from the current state to the future state.

4. Sustain – This addresses the impact of change on employees to adopt changes through changing behaviour and attitudes. Business Readiness Assessments will be conducted, and all risks will be communicated and managed with the project leadership. This phase will also review the implementation organisation's ability to deliver the desired benefits. The OCM team will ensure sufficient knowledge transfer and that the Organisational resources are sufficiently equipped to implement OCM activities and ensure sustainability.

The framework influencing the study:

Westerman's Digital Transformation Compass framework is relevant and influences the study. The framework addresses all Change Management factors such as leadership, stakeholder management, communication, training and culture. It further supports the initiative of digitalising Change Management processes mentioned in the study (Furjan et al., 2018).

The next section discusses the conceptual framework.

2.4.2 Conceptual Framework.

The conceptual framework has been guided by the theoretical framework. It illustrates the phenomenon being researched by exploring the role of AI in implementing Change Management activities, and how this can potentially influence and digitalise Change Management. The conceptual framework is depicted in Figure 2.7 below.

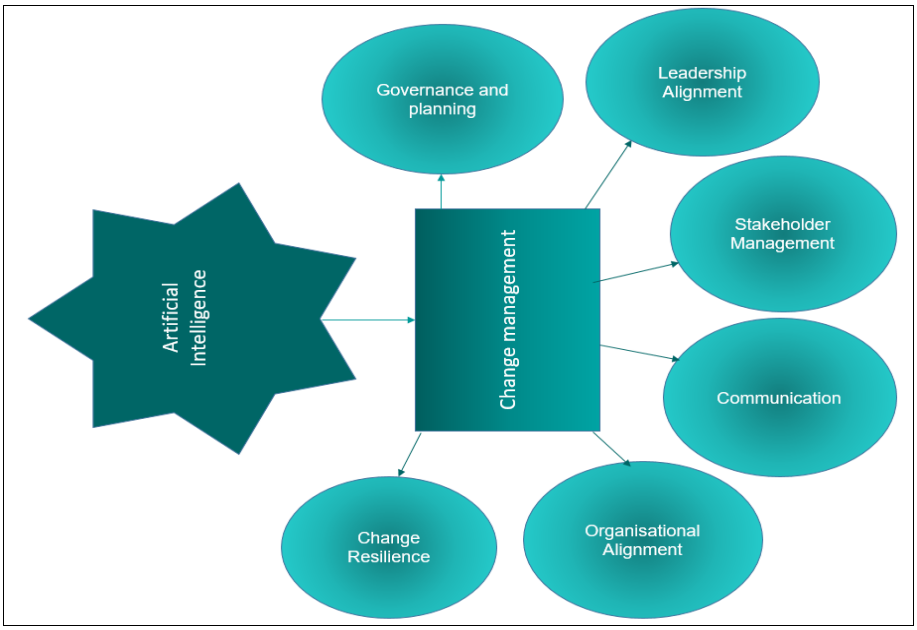


Figure 2.7: The role of AI in Change Management (researcher's own construct).

Governance and planning – This phase involve identifying the components involved in Change Management planning and governance. Identifying the scope of Change Management governance and planning also includes relevant frameworks to be adopted for planning and implementation. Planning and scheduling of Change Management activities is crucial to ensure successful implementation of change initiatives. Virtual scheduling assistants can also be adopted to ensure Change Management activities are digitally planned.

Leadership Alignment – It is important to have leadership at the front of the change initiative. Leadership needs to have information about change, plus buy-in to change such that members commit and take ownership of the change initiative. They need to be able to articulate the change initiative and advocate the initiative to ensure its successful implementation. AI has the technologies to converse with leadership to ensure that members are aligned and the level at which they embrace the change is assessed.

Stakeholder Management – Identifying the key stakeholders impacted by, and influencing, the change initiative is crucial: this will inform the engagement and analysis requirements for stakeholders. Based on the stakeholders' questions, AI

technologies have the ability to classify them and identify their needs to ensure the successful implementation of change initiatives. Furthermore, AI technologies ensure adoption of the relevant programmes to build understanding of, and commitment to, change by key stakeholders.

Communication – This phase is important as stakeholders' communication requirements will be defined, allowing relevant messages and activities to build awareness and understanding of the change initiative for the stakeholders. This phase encourages ongoing communications, which will encourage understanding, acceptance and commitment to the change introduced within the organisation. ChatBots have a significant impact on communication, digitalising it, ensuring interaction with all stakeholders at all times, and providing relevant responses and information regarding the change that has been implemented.

Organisational alignment – Stakeholders need to be aligned with the change implemented. Change readiness assessment need to be conducted to comprehend the level at which stakeholders embrace change. Virtual assistant and ChatBot AI technologies can be used to pose relevant questions to the stakeholders and, based on the stakeholders' answers, provide an accurate analysis without human intervention. This also ensures that the change impact assessment is conducted to comprehend the impact of the change that has been implemented, which will inform the training needs. Training also plays an important role in ensuring stakeholders' readiness to change. AI robots can be trained to conduct training, read the stakeholders' understanding, and provide relevant support during training.

Change Resilience – The organisation needs to have a relevant mind-set and behaviours that support the change being implemented. This phase ensures that stakeholders stick to the new way of working. Post-implementation assessment can be conducted to cover the adoption and utilisation of the change implemented, which will lead to a return on investment. A ChatBot can identify and predict how stakeholders behave based on the conversation. This can assist in assessing stakeholders' moods, behavioural patterns and emotions and predict possible reactions or behaviour which inform the organisational culture. These

can inform the improvement plan to ensure post-implementation support is provided to stakeholders to build change resilience muscle.

Change Management activities can be digitalised using AI technologies. Khanzode and Sarode (2020) note that AI is the technology that uses machines to achieve goals and objectives. Artificial Intelligence machines are structured to behave and think like human beings, however they can effectively think and act at a faster pace than a human. These AI technologies have a potential influence on Change Management, with Khanzode and Sarode (2020) mentioning that this intelligence can think, recognise and memorise the behavioural patterns and decision-making, so as to adapt to change initiatives and learning.

According to Shabbir and Anwer (2018) AI technology has the ability to conduct governance and planning, manage stakeholders, communicate with stakeholders impacted by change, and influence organisational alignment by assessing the change impact, plus employee readiness to embrace change and ensuring employee training. Shabbir and Anwer (2018) further mentioned that AI leads to change resilience as it has the technologies to assess the behavioural patterns that inform organisational culture and lead to adoption and return on investment.

2.5 Summary

The literature reviewed here outlines the Change Management components, the AI factors that influence Change Management, and how to digitalise Change Management through AI technologies relevant to developing a conceptual framework for this study. The Westerman Digital Transformation Compass used for this research has proven to be the most appropriate methodology and framework for ensuring that technology Change Management implementation is successful (Furjan et al., 2018). AI technologies have been proven to evaluate the success of the digital Change Management process.

The next chapter outlines the research methodology and design used in this study and the data collection and analysis instruments. Additionally, it will address the sampling strategy, reliability, validity and ethical considerations.

CHAPTER 3 – RESEARCH METHODOLOGY

3.1 Introduction

The previous chapter contained a review of the relevant literature. This chapter will focus on the research methodology employed in the current study. Research methodology is a systematic approach used by researchers to conduct research to solve a problem by ensuring the formulation of a hypothesis, while facts and data are collected and analysed to reach an informed conclusion (Kothari, 2017).

This chapter outlines all the critical components that need to be considered when researching. It further details the selected research method and the rationale for the method chosen for this study. It covers the research philosophy, the research strategy used to reach the targeted population, sampling strategy, how data will be collected, the pilot study, how data will be analysed, its validity and reliability, limitations of the research, how biasness will be eliminated, and lastly, ethical considerations.

3.2 Research approach

A qualitative method was identified as being suitable for collecting the primary data required for this study. According to Mishra (2016), qualitative research is based on understanding a phenomenon, which focuses on ensuring that issues are explored and questions answered. The qualitative method will be used to realise AI's role and significance in Change Management within organisations in Johannesburg. The research method will allow the researcher to understand the different factors of Change Management and how AI can add value in digitally implementing those factors, including monitoring and evaluating Change Management activities.

According to Yates and Leggett (2016) the method emphasises scientifically distinct peoples and cultures, together with their customs. This includes their anthropological tendencies or routines and mutual differences. Furthermore, by

ensuring that there is no data manipulation, things are researched as they actually are within the environment.

3.3 Research design

A research design shows how data will be collected and analysed: when arranged, it provides relevance to the research purpose and the procedure (Akhtar, 2016). A qualitative research design is the relevant strategy for this study as with it, the researcher seeks to gain a clear understanding of, and the ability to explain, the role of AI in Change Management, plus factors of AI that influence Change Management. These will further provide information on how AI can be used to digitalise and add value to Change Management processes (Roller & Lavrakas, 2015).

Advantages of qualitative research design (Queirós, Faria & Almeida, 2017):

- It will allow the researcher to collect more data, in detail, to contribute to the study, thus providing clear information which will lead to an understanding of the multiple dimensions of the study;
- The design will allow data to be collected in different ways and in this study, focus groups and interviews can be used to collect data;
- It will enable the researcher to capture the participants;
- The research will be able to explore in detail and answer questions in line with the research questions;
- It provides flexibility and experimental analysis; and
- The results can be easily explained to other audiences that do not specialise in Change Management.

Disadvantages of qualitative research design (Queirós et al., 2017)

Though there are advantages that can benefit the study, there are also disadvantages that might prove limiting:

- It is not easy to generalise a qualitative study to other settings;

- The researcher's preferences may influence the study, which could lead to biasness; and
- The qualitative nature makes it difficult to convince readers who are more comfortable with statistical answers.

3.4 Data collection methods

In this section, data collection methods are discussed. This study will follow a two-fold qualitative data collection method, the first being one-on-one interviews followed by three focus groups. This triangulation method will ensure the study's credibility and validity (Noble & Heale, 2019). Participants are within the researcher's networks and have a relationship with the researcher. The researcher will leverage these existing relationships and participants have assured the researcher of their availability to join the focus groups in support of the study. The data collection process is shown in Figure 3.1 below:

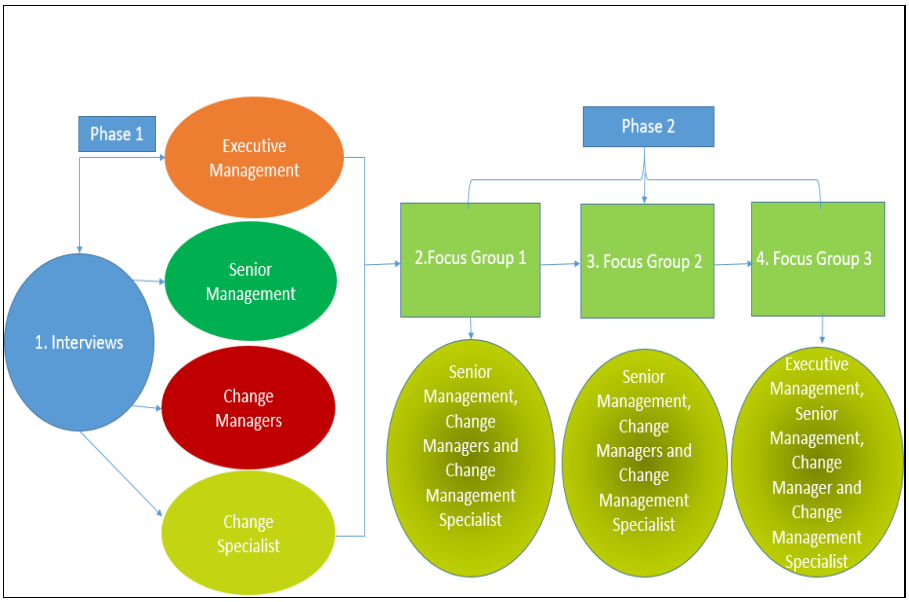


Figure: 3.1: Data collection process (researcher's own construct).

3.4.1 Phase 1: One-on-One Interviews.

The in-depth semi-structured individual and one-on-one interviews will be conducted to ensure effective data collection from individual participants

regarding what they believe to be the role of AI in Change Management, why AI technologies should be adopted within organisations, and the perceived value-add of AI to Change Management. This will involve an overview of issues and challenges affecting individual participants, finding out how digitalising Change Management activities will help individuals and the organisation as a whole, and lastly if and how AI can be utilised to effectively monitor and evaluate Change Management activities within organisations in Johannesburg. Interviews to gather data were conducted on four levels: three executive management, three senior management, two change managers and one Change Management specialist. Participants were asked questions related to the study and expected to respond verbally (Peter, 2015).

Open-ended questions in line with the study were asked. Interviewees were provided with the opportunity to give detailed answers based on their experience and knowledge related to the study. Interviews were conducted in English and online using an MS Teams platform, the session being recorded on the platform, while some were face-to-face in a conducive environment. A voice recorder was used to capture interview data, and notes were made to ensure the analyses provided a true reflection of the interview data that was collected (Owen-Smith & Coast, 2017).

3.4.2 Phase 2: Focus Groups.

Focus groups were used for the study as they contributed by exploring perspectives, offering participant attitudes about the role of AI in Change Management, explaining why it is important, the value-add from implementing Change Management activities digitally, and whether AI will be able to monitor and evaluate Change Management activities within organisations in Johannesburg. Participants shared their involvement, thoughts, extensive experience and exposure to the topic that allowed and encouraged them to discuss the issues (Gill & Baillie, 2018).

According to Mishra (2016) a focus group defines a group of participants being interviewed to gain in-depth knowledge for a study. Participants' characteristics should meet the size, composition and interview procedures in line with the

proposal. This will focus on the interaction of the group, meaning that answers will be influenced by the ideas, contributions and how participants challenge each other during the discussion.

Focus group interview setup

Participants were invited to attend a focus group. The topic was defined and explained to them, including why it was required and that it was important for them to join in the focus group and share their ideas from their wide experience. Participation and interaction were encouraged as basic to the discussion to answer the study question. Participants came from different levels.

The first focus group included two senior management members, two change managers and one Change Management specialist. The second focus group included two from senior management, four change managers and one Change Management specialist. The third focus group included one Executive management member, two from senior management, one change manager and one Change Management specialist. The triangulation method provided an accurate reflection of the topic and contributed to the study. It was apparent that different position levels are exposed to Change Management in different ways (Noble & Heale, 2019).

The focus group interview was conducted in English. Participants were asked 12 questions about their understanding of Artificial Intelligence and the role of AI in Change Management, also whether Change Management processes were digital or manual within their organisation. They were asked about the impact of the manual/digital Change Management process on their way of work as they experienced this day-by-day, also whether they believed AI could improve Change Management efficiency within their organisations. Participants were asked how they currently measured Change Management activities, and what was the impact?

3.5 Sample and sampling method

According to Majid (2018), sampling is the process of selecting a representative group of participants from the population of interest for the study. This process gave the researcher the opportunity to gather more, clearer and relevant data from specific participants than would have been the case if data was gathered from everyone in the population, so leading to generalising the study. Data was collected from different sectors within Johannesburg to obtain insight from individuals who have knowledge and experience from different levels within different industries. This prevented generalising, based on one industry, rather than gathering information from different industries to contribute to the study and ensured transferability and credibility.

3.5.1 Sample.

The study was conducted with nine participants for one-on-one interviews followed by five participants in Focus Group 1, seven participants in Focus Group 2 and lastly, five participants in Focus Group 3. The significance of sampling is to ensure the study was not overloaded by participants as the population of interest consists of a large number of individuals (Majid, 2018).

3.5.2 Sampling method.

Quota sampling is relevant for the study as the selection of participants is based on experience and their professional levels – executives, senior managers, and specialists with Change Management experience within organisations in Johannesburg.

The sample involved different sets of participants and consisted of three in executive management, three in senior management, two change managers and one Change Management specialist for the one-on-one interviews. These were followed by Focus Group 1, which contained two senior managers, two change managers and one Change Management specialist. Focus Group 2 consisted of two senior managers, four change managers and one Change Management

specialist to ensure the relevant data was collected and the study would reflect authenticated information.

3.6 Research instrument

Qualitative research instruments were employed to ensure data was gathered in such a way that it would contribute to the study. Individual interviews and focus groups were used as the research instruments for this study.

3.6.1 Interviews and focus groups.

The in-depth focus groups and individual interviews were semi-structured to ensure effective data collection on the role of AI in Change Management, why it is necessary for the organisation to adopt the technology, and whether they believed AI would add value to Change Management. A broad overview was sought of issues and challenges affecting the individuals, how it would help to digitalise Change Management activities, and lastly how best AI could be utilised to effectively monitor and evaluate Change Management activities within organisations in Johannesburg (Gill & Baillie, 2018).

Interviews were done on four levels (executive management, senior management, change managers and Change Management specialist) to gather data, with participants asked to respond verbally to the questions asked. Open-ended questions were posed based on the study, and participants were provided with the opportunity to give details related to the study. The interviews were conducted using the online platform MS Teams, being recorded thereon, while some were face-to-face, in which case a voice recorder was used to record the interview data, and interview notes were made to ensure that the analyses provided a true reflection of the interview data collected.

3.7 Procedure for data collection

Focus group and individual interview meeting requests were emailed to participants. Interviews were conducted on four levels (executives, management, change managers and Change Management specialist) to gather data by questioning participants and seeking verbal responses. The open-ended questions were based on the study, and participants were provided with the opportunity to give details related to the study. Interviews were conducted on MS Teams and recorded, while in face-to-face meetings a voice recorder was used to capture the interview data, and interview notes were made to assist with the subsequent analyses.

3.8 Data analysis strategies and interpretation

Boikhutso (2013) depicted analysis as an approach that a researcher uses affecting the manner in which the data is selected, evaluated, simplified and transformed, before leading to the interpretation and findings for the study being produced. Boikhutso (2013) asserts that the researcher is required to develop conceptual frameworks and classify data, which enables the data to be interpreted and explained.

Qualitative data analysis was used for this study to describe the characteristics, organise data into categories to make it easy to retrieve, and comprehend relationships between the phenomena observed. The phenomena of the research were clearly described (Mayer, 2015). The study used the thematic data analysis strategy to identify, analyse and report the patterns that participants repeated during interviews and focus groups.

3.9 Limitations and challenges of the study

3.9.1 Overall.

- There was no previous study on the role of AI in Change Management.

- Some participants might not have been honest about the information provided.
- Certain participants failed to honour their acceptance of the interviews.
- Some participants withdrew from the study.

3.9.2 Interviews.

- The interviews took a long time, and for some this was a challenge related to time constraints.
- Participants' moods led to emotional strain on the researcher.

3.9.3 Focus Groups.

- Participants were not always available at the same times for focus groups.
- Some participants were not comfortable about talking in a group setup.
- Some participants were effective in a focus group.

3.10 Quality Assurance

According to Zychla (2019), Quality Assurance is a process or activities undertaken as part of the research and includes techniques, systems and resources that are used during the research process to provide assurance and controls ensuring quality.

3.10.1 Transferability.

The study is based on the role of AI in Change Management within organisations in Johannesburg, with participants having Change Management experience from different positions within various organisations. The study is transferable as qualitative study results can be used to reach a conclusion that is applicable to other populations in other organisations (Connelly, 2016).

3.10.2 Credibility.

The study followed a standard process with triangulation being used to ensure the credibility of the study (Noble & Heale, 2019). Data collection from the three focus groups followed the individual interviews, and participants were challenging each other's answers to ensure credibility as they gave answers based on their experience and knowledge of Change Management and AI. Participants are in different positions within different organisations in Johannesburg (Nassaji, 2020).

3.10.3 Dependability.

The study's findings are reliable and consistent as both individual and focus group interviews were recorded. Furthermore, notes were taken and documented for easy access, should the findings need to be audited or any relevant stakeholder seek to view or critique the results. The data's stability was ensured by saving data on the cloud, so that information can be accessed even a long time after the research process (Connelly, 2016).

3.11 Ethical considerations

According to Manamela et al. (2016), research requires a professional code of ethical principles, formulated by professional societies to protect participants' rights. These principles included the fact that participation was voluntary, meaning participants were not forced to join in the research, plus maintaining the confidentiality and anonymity of participant responses. Participants were emailed informed consent forms to obtain their agreement and were assured that their responses formed part of the bigger study and would not be attributed or traced back to them.

3.11.1 Focus group.

Letters were emailed to focus group participants to outline the topic for the research, explain why the study was being done, and what was required from participants who would form part of the focus group. Participants were informed

that research is a necessary part of the researcher's official qualification and would not negatively affect their lives or careers. Participants were also notified of the rules of the focus group, which included maintaining respectful behaviour and respecting other participants, including their privacy and confidentiality (Voltelen, Konradsen & Østergaard, 2018).

Participants' consent forms included a non-disclosure clause to ensure that what was discussed in the focus group was not disclosed outside the discussion. Finally, participants in the focus group were assured that they would not be exposed to any stressful conditions or physical harm (this included members of their families), and that their data would be protected, with all data privacy policies or legal requirements being adhered to (Peter, 2015).

3.11.2 Individual interviews.

Letters emailed to the participants clearly defined the purpose and objectives of the study, its topic and what was required from participants. They were informed that research is an official study activity and assured that the study would not negatively impact them. Lastly, participants were given a guarantee that they would not by any means be exposed to any physical harm or stressful conditions (and their families), while all legal requirements on protecting their data were adhered to (Husband, 2020).

The detailed Wits Business School ethics form was completed and sent to the Post-Graduate Committee (PGC) for approval before commencing with data collection. Ethical clearance was granted before collecting any data.

3.12 Proposed schedule and timelines

Tasks planned	**Deadline**
Proposal (Chapters 1, 2 and 3) Submission for approval	30 June 2022
Data Collection	30 August 2022
Chapter 4: Presentation of Findings	21 November 2022
Chapter 5: Discussion of the findings	02 December 2022
Chapter 6: Conclusion and Recommendations	20 December 2022
Internal Review and Resubmit	21 February 2023

Table 3.1: Proposed schedule and timelines

RQ #	State Research Question	Prop #	Proposition	Theoretical framework	Research methodology	Data collection	Data analysis method
1	To what extent does Artificial Intelligence have a role in Change Management?	1	The theory has proven that AI has a role in change management.	Change management activities can be digitalised using AI technologies. Khanzode and Sarode (2020) noted that AI uses machines to achieve goals and objectives. AI machines are structured to behave and think like human beings, however they can effectively think and act at a faster pace. AI technologies have potential influence in change management, Khanzode and Sarode (2020) further mention that this intelligence can think, memorise and recognise behavioural patterns and decision-making to adapt to change initiatives and learning (Shabbir & Anwer, 2018).	Qualitative	Document and literature review Interview guide questions 1, 2, 3	Thematic analysis

1.1	What are the factors that influence Change Management?	1.1	The theory has proven the similarities and relationship between change management factors and AI that surfaced in the literature review.	According to Manamela et al (2016) the change management factors include governance and planning, stakeholder management communication, leadership, training and organisational culture.	Qualitative	Document and literature review Interview guide questions 1, 2, 3	Thematic analysis
2	What are the AI factors that influence Change in Management?	2	AI technologies have factors that influence change management within organisations.	The effective AI factors influencing change management are as follows: Preference-Based Planning, Machine Learning, Natural Language Processing and Speech Recognition (Mariemuthu, 2019).	Qualitative	Document and literature review Interview guide questions 2,3, 4,	Thematic analysis

3	How can AI technologies add value to change management activities?	3	Artificial Intelligence technologies can add value to change management activities. Furthermore, using AI and implementing digital change management processes can effectively measure and evaluate change management activities.	According to Shabbir and Anwer (2018), AI technology has the ability to conduct governance and planning, manage stakeholders, communicate with stakeholders impacted by change, influence organisational alignment by assessing the change impact, helping employee readiness to embrace change and ensuring employee training. Shabbir and Anwer (2018) further mentioned that AI led to change resilience as it has technologies that assess the behavioural patterns which inform the organisational culture, leading to adoption and return on investment.	Qualitative	Document and literature review Interview guide questions 4,5,6,7,8,9,10, 11,12,13	Thematic analysis

Table 3.2: Consistency table – research questions, propositions, data collection and data analysis.

3.13 Summary

The research approach, research design and how data was collected for the purpose of research about the role of AI in Change Management within organisations in Johannesburg have been outlined in this chapter. A qualitative research design will be used for the study. The nine participants were interviewed, with the first focus group including five participants, while seven formed part of the second focus group and lastly five were in the third focus group.

Participants were asked 12 questions, and a quota sampling method was adopted to ensure that relevant participants with different levels of knowledge and experience were interviewed to provide a true reflection for the purposes of the study. The study's transferability, credibility and dependability were addressed accordingly. Focus group participants were informed of the interview rules necessary to protect other participants. Ethical considerations were also outlined in this chapter.

CHAPTER 4 – PRESENTATION OF FINDINGS

4.1 Introduction

The preceding chapter outlined the research methodology used for this study. This chapter analyses responses to the research questions guiding the research, with findings being based on the qualitative research method. The findings gained through participant responses are presented here. A thematic analysis was used to collate qualitative data gathered during the one-on-one interviews and focus groups conducted with executives, senior managers, middle managers and Change Management specialists within banking, mining, construction, information technology, communication, telecommunication and academic institutions.

The research findings are presented according to the main themes as per the propositions outlined in Chapter 2 of this study. The main themes that arose during the participant one-on-one interviews and the two one-hour focus groups will be discussed in this chapter. Key themes in one-on-one interviews and focus groups were governance and planning, leadership, Organisational culture, stakeholder management, communication, and Artificial Intelligence technologies and Change Management within the organisation. The findings are connected to theories deliberated in Chapter 2 of this study, which contained the literature review.

4.2 Demographics

4.2.1 Industries.

This section discusses the industries and representations of the various sectors in Johannesburg that formed part of the study.

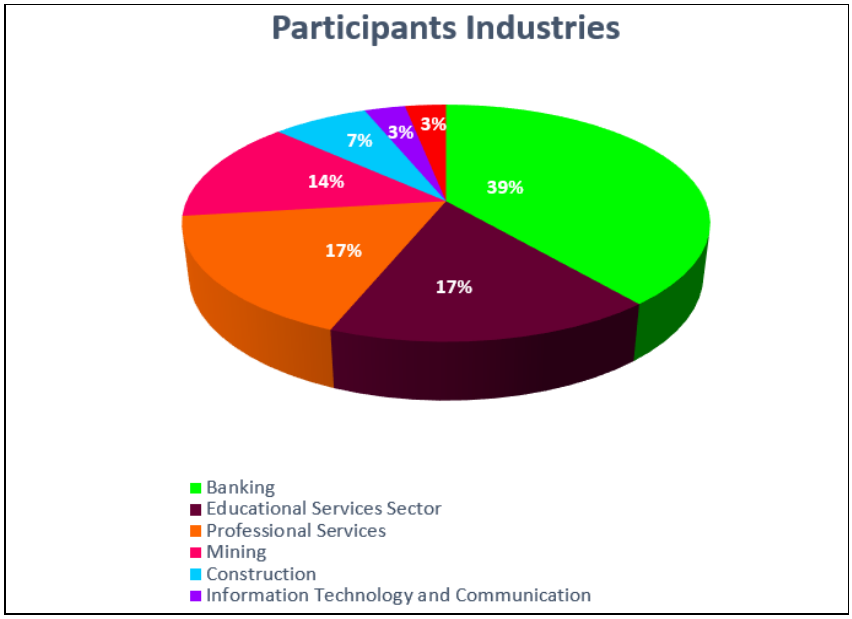


Figure 4.1: Participants' Industries.

As shown in Figure 4.1 above, participants were involved in various industries and areas of expertise. The figure above shows that a wide range of perspectives and representations of the numerous sectors in Johannesburg are involved in this study. The most prominent groups of participants appear to be from the banking sector, which comprises 39 percent of the sample, followed by the educational services sectors and professional services equal with 17 percent each, the mining industry with 14 percent participation, followed by construction, information technology and communication, and telecommunications which, collectively, comprised 13 percent of the sample.

4.2.2 Position of employment.

The following section discusses the level of position held by the participants who contributed to the study.

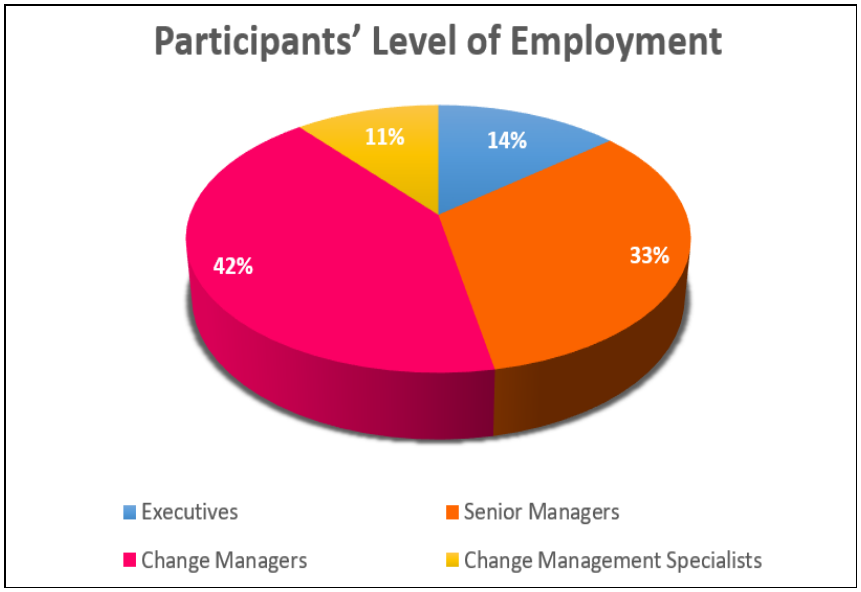


Figure 4.2: Participants' Position of Employment.

Figure 4.2 above demonstrates that the largest number of participants comprised Change Managers. Interestingly, most participants at the Senior Management level were keen to participate in the study, while fewer executive and Change Management specialist personnel were eager to be included in the sample. This indicates the sample characteristics within the different levels of positions, as Change Managers the largest percentage of participants are impacted by the study both directly and indirectly.

These designated categories enabled an understanding of whether there were any differences in participant perceptions based on employment designations. Differences centred on the assumption that Change Managers and Change Management specialists perform the tasks related to the study daily, while senior managers oversee the Change Management activities. Furthermore, executives are involved in Change Management during the implementation of change initiatives as they form part of the decision-making process.

4.3 Thematic analysis of findings

Findings that emerged in the one-on-one interviews and focus groups are outlined in the table below:

One on one Interviews	Focus group 1	Focus group 2	Focus group 3
AI algorithms for Planning change management activities.	Understanding of AI.	Leadership Alignment and active sponsorship to drive change.	change management can be digitalized through AI.
IA impact on the organizational culture	Manual Change Management processes.	impact of the Manual Change Management processes.	Interactive communication through various AI algorithms.
AI eliminating human errors	AI technologies to digitalise Change Management.	Assessing and analysing the impact of change.	Collaboration of change management activities.
Relationship between Change Management and Artificial Intelligence.	AI Technologies influencing Change Management.	AI technologies to implement change management.	Training is an essential component of change management.
AI assessment of trends and predication of required change management activities.	Change Management managed through AI algorithms.	Digitalising Change Management.	AI technologies work at a faster pace than human.
Assessments of stakeholder patterns to predict change management activities are required.	Organisations' Artificial Intelligence adoption.	Communication management	Stakeholders Management is an integral part of managing change.
AI value add to change management activities.	Evaluating the effectiveness of change management activities.		

Table 4.1: Thematic Analysis of Findings.

At the beginning of the data collection for the interviews one executive manager withdrew from participation in the study owing to personal issues. At the same time, nine individuals who had committed to taking part in focus group sessions were no longer available. The plan for Focus Group 1 was to have nine participants who would include three senior managers, three middle managers and three Change Management specialists, however only five-comprising two senior managers, two change managers and one Change Management specialist-managed to take part in the session, while three could not attend the focus group session for personal reasons. Focus Group 2 was expected to have

13 participants who would include four executive managers, three senior managers, three change managers and three Change Management specialists: regrettably only seven, comprising two senior managers, four Change managers and one Change Management specialist could join the focus group session. Of the six who were unable to be part of the session, four executive managers were unavailable because of work commitments and unforeseen circumstances kept two Change Management specialists away.

Their decisions had to be respected because involvement in this study was on a voluntary basis. However, the withdrawals had an impact on the possibility of gathering data regarding the executive management response and their understanding of Artificial Intelligence and its role in Change Management within the focus groups, while having different levels involved in the focus groups would assist in gathering views as they debated at multiple levels to contribute to the study.

Realising that the information gathered from two groups would be insufficient, Focus Group 3 was introduced in the data-gathering process. This focus group comprised five individuals who included one executive manager, two senior managers, one change manager and one change specialist to provide insights on more AI technologies that might influence Change Management.

Table 4.2 below shows the code classifications used to ensure the ability to easily identify one-on-one interview participants by allocating descriptions, placed after the participant's comment or quotation contributing to the study. Participants were assured of anonymity, so in order to maintain anonymity and ensure comment was not traced back to them, participants in the research report were labelled and categorised based on their roles.

The "I" in the table below stands for interview, so in this regard the executive managers who participated in the one-on-one interviews were allocated EMI, the senior management SMI, change managers MI and Change Management specialist SI. Additionally, participants in focus groups were allocated FG labels, for instance FG01 Focus Group 1, FG02 Focus Group 2 and FG03 for Focus Group 3.

Classification of one-on-one interview participants	**Code Classification**
Interview Participant 1, Change Manager	MI01
Interview Participant 2, Executive Manager	EMI01
Interview Participant 3, Change Manager	MI02
Interview Participant 4, Change Management Specialist	SI01
Interview Participant 5, Executive Manager	EMI02
Interview Participant 6, Senior Programme Manager	SMI01
Interview Participant 7, Senior Portfolio Manager	SMI02
Interview Participant 8, Executive Manager	EMI03
Participant 9, Lead Architect	SMI03
Classification of Focus Groups	**Code Classification**
Focus Group 1 Focus Group Participant 1 (Senior Manager) Focus Group Participant 2 (Senior Manager)	**FG01** FG01-P1 FG01-P2 FG01-P3

Focus Group Participant 3 (Change Manager)	FG01-P4
Focus Group Participant 4 (Change Manager)	FG01-P5
Focus Group Participant 5 (Change Management Specialist)	
Focus Group 2	**FG02**
Focus Group Participant 1 (Senior Manager)	FG02-P1
Focus Group Participant 2 (Senior Manager)	FG02-P2
Focus Group Participant 3 (Change Manager)	FG02-P3
Focus Group Participant 4 (Change Manager)	FG02-P4
Focus Group Participant 5 (Change Manager)	FG02-P5
Focus Group Participant 6 (Change Manager)	FG02-P6
Focus Group Participant 7 (Change Management Specialist)	FG02-P7
Focus Group 3	**FG03**
Focus Group Participant 1 (Executive Manager)	FG03-P1
Focus Group Participant 2 (Senior Manager)	FG03-P2
Focus Group Participant 3 (Senior Project Manager)	FG03-P3

Focus Group Participant 4 (Change Manager)	FG03-P4
Focus Group Participant 5 (Change Management Specialist)	FG03-P5

Table 4.2: Naming conventions of participants.

One-on-one interviews

The participants interviewed on a one-on-one basis included executive management, senior management, change managers and Change Management specialists within different industries. These are not in any way direct reports, moreover the four levels of participants are different depending on the industry.

The one-on-one interviews were conducted to collect data on participants' perceptions of the factors that influence Change Management, the role that Artificial Intelligence has on Change Management factors, and the AI factors that can influence Change Management. These include the value AI can add to Change Management and AI technologies that can be adapted to digitalise the Change Management process. Their experience involved manual Change Management processes, its impact on the work as they experience it day-to-day, and involvement in implementing Change Management activities.

Key themes of this study focused on in the one-on-one interviews were Change Management, Artificial Intelligence, Organisational culture, technology, and algorithms. The key themes were outlined in the context of change initiatives implemented within the organisation at the industry and at organisational level within different industries. Nine one-on-one interviews was conducted, followed by Focus Group 1, Focus Group 2 and Focus Group 3, spotlighting the same key themes and observing the patterns, similarities and commonalities at a group level.

The themes for one-on-one and focus groups are demonstrated below, these will show how the study was categorised.

One-on-one interviews and Focus Groups Themes	**Sub-Themes**
4.3.1 Factors influencing Change Management	4.3.1.1 Participants' experience in Change Management governance and planning 4.3.1.2 Participants' perception of leadership as an integral part of Change Management 4.3.1.3 Participants' experience and knowledge of Stakeholders' Management 4.3.1.4 Participants' knowledge and experience in stakeholders' management 4.3.1.5 Participants' knowledge and involvement in Communication management 4.3.1.6 Participants' experience and perception of training 4.3.1.7 Participants' perception of Organisational culture
4.3.2 Relationship between Change Management and Artificial Intelligence.	4.3.2.1 Participants' perception of the relationship between Change Management and AI.

One-on-one interviews and Focus Groups Themes	Sub-Themes
	4.3.2.2 Participants' perception of commonalities of Change Management and AI factors.
4.3.3 Artificial Intelligent factors influencing Change Management	4.3.3.1 Participants' knowledge of AI technologies that can influence Change Management
4.3.4 AI value-add to Change Management	4.3.4.1 Participants' experience and knowledge of manual Change Management process and its impact. 4.3.4.2 Participants' perception of AI's positive effect on Change Management 4.3.4.3 Participants' experience in evaluating the effectiveness of Change Management activities 4.3.4.4 Participants' perception and knowledge in using AI and implementing digital Change Management processes can effectively measure and evaluate Change Management activities

Table 4.3: Key themes from the one-on-one interviews.

The following shows how each industry is changing, the types of initiatives implemented and the level of impact including the sizes of change initiatives.

One-on-one interviews and Focus Groups

It is crucial to note that various organisations within different industries are part of the investigation. Some industries, such as banking, use systems security to protect customers' data, and network security systems to ensure limited access to the Organisational network including leadership changes that have led to restructuring of some sub-business units.

With educational services implementing learning management systems for digital teaching and learning, especially after having been hit by the Covid-19 pandemic, their way of working required a 360-degree digital transformation initiative. Lastly, professional services are experiencing massive transformation as they ensure that the human and financial resources are available to provide support to their clients as they implement multiple change initiatives within their organisations.

Industries such as telecommunications are at the top of those undergoing some medium Organisational change implementation. Information and technology follows as it provides government and parastatals with IT support and digital transformation initiatives. The mining industry is last on the list of those undergoing moderate Organisational change implementation. The Change Management for all initiatives is manually implemented, which leaves the Change Management teams overwhelmed, impacting productivity and leading the team having to perform more administrative work.

Lastly the construction industry is experiencing only limited change, with most of its services depending on the demand for building. Many such business owners are registered builders, and despite technology changes being required, their Change Management maturity is limited. The listed classifications have a negative impact on agility and accuracy of data gathering during change initiatives implementation. Additionally, biasness in analysis leads to issues of data reliability.

The analysis

The following section will focus on analysis, how data was collected and participants' comments for each proposition.

The analysis process for each proposition consisted of two phases, the one-on-one phase and the focus group. The sections below will focus on each proposition that relied on one-on-one interviews and focus groups for the data collection and analysis process.

Main Proposition 1: AI has a role in Change Management

4.3.1.2 Participants' perception of leadership as an integral part of Change Management.

Participants' perceptions of Organisational leadership as a crucial part of change initiatives from the one-on-one interviews and the focus groups are discussed in the following paragraphs.

The leadership can influence the success or otherwise of Change Management activities. Their commitment and support impact the implementation.

One-on-one interviews

The one-on-one interviews indicated that leadership was the factor influencing Change Management as practised by most participants, by ensuring that leadership takes the lead and drives the change. Some participants felt that ensuring executive and senior management were aligned helped to cascade and influence the implementation of Change Management activities.

> *Uh, in all the theories you will find that are on change, you will know that, uh, people listen to their immediate supervisors, uh, the person they are reporting to, as well as the most senior person in the organisation.* (SI01)

> *Change Management is influenced by, and requires sponsor buy-in. I think it is important to have leadership guiding the change narrative driven by the leadership. We tend to get more buy-in, you know, so I think for me, at the*

very top of mind is really to get sponsor, um, buy-in, sponsor, you know, leadership that's going to own and, and really. (MI02)

Understanding change by the leadership is critical in every organisation because the leadership must walk the talk. If the leadership does not understand the effect, the impact and the efficiency of change within the organisation, how will they cascade the message down to the employees to adopt change? (MI01)

Focus Group sessions

Focus group participants believe that ensuring their reporting line is on board with understanding and transforming them into becoming advocates for change is a factor that influences them. Employees buy into the change when they see commitment from leadership.

The first step is leadership engagement. Moreover, I am thinking about things like your executive sponsor. It would drop down to your accountable executive and the product owner. (FG02-P1)

4.3.1.3 Participants' experience and knowledge of Stakeholders' Management.

The knowledge and experience of participants with regard to managing the stakeholders, and its significance, are mentioned in the following paragraphs.

Success of the change implementation is highly dependent on how stakeholders are managed. How they are informed and engaged about change initiatives, and made to feel they are part of the change process, are crucial.

One-on-one interviews

The findings suggest that stakeholder management is an integral part of managing change. Stakeholders must have managed in order for them to adopt change.

In terms of factors that influence the successful Change Management implementation? I believe that, uh, I will talk to it first to say like stakeholder management, you know, because you need to make your stakeholders part of the change process, you need to ensure that you get the buy-in. (EMI02)

Stakeholder management and ensuring that they have a common vision they are working towards and, you know, delivering on the vision and strategy we need to deliver. (SMI03)

Um, engaging with various stakeholders is quite key. Ensuring that change does become a success. Stakeholder management, really to engage with stakeholders, and, um, make the stakeholders say, I want to change. The level of awareness ensures that the person is well-engaged. To ensure that the person has full information. (SMI02)

Focus Group sessions

Stakeholders need to understand the vision behind the change and how the change initiative will benefit them and the organisation. Furthermore, they must be informed about how they are impacted.

One of a very big factor. They players in terms of the mind space that the team occupies in your various stakeholders, yeah. How you manage them to ensure success of Change Management activities. (FG02-P5)

A people's change or a process change. It's you are about creating a change that is going to delight your customers. So, when you communicate through social media, you are demonstrating to your customers and your stakeholders that changes happening and is happening for the better for them as they are the recipients of your product or and or your services. (FG03-P4)

Business intelligence and analytics project that we've worked on. I think Change Management was, you know, a bit more effective only because the whole lot of agents and stakeholders were brought on board. But you know

we were able to inform a wider range of stakeholders within the institution. Stakeholder management is a one of the key factors. (FG03-P5)

4.3.1.5 Participants' knowledge and involvement in Communication management.

The purposes of communication, participants' knowledge and involvement are analysed here.

Communication ensures that people are aware of change initiatives implemented within organisations. One-on-one and focus group participants alluded to the fact that stakeholders need information regarding the change initiative, why the change is introduced, its benefits, and their role in ensuring successful implementation of the change.

One-on-one interviews

Without communicating with the stakeholders, uh, that they must be aware of the change that is taking place and the change that needs to be implemented in the organisation and what they need to expect so that they can, in the end, support the change that you are bringing into the organisation. (EMI02)

Change Management is applied when people are moved from the old, uh, to the new, and therefore people have emotions. They have needs, they have life circumstances, they have expectations, and therefore, adequate communication, providing the necessary insights into the change and uplifting the relevance and the agency of the change, as well as the role that the respective role players ought to play, then becomes a, a crucial, uh, requirement. (SI01)

It is, fundamentally, effective communication. Yes. Um, and understanding that many resist change of any nature and that you almost have to sell your communication. Why you cannot stay where you are, but why certain changes are required. To calm the nerves as to what will hopefully be a best-case scenario and the impact on the user. (SMI01)

Focus Group sessions

Focus group participants additionally believe that effective communication will help manage resistance to change, as it helps to calm and empower employees during change implementation.

> *Yeah, it is communication. Communication is an excellent aspect of it, is one of the core aspects of Change Management. There are all the different mediums that we rely on to make sure that communication is effective and that we get value out of it.* (FG02-P1)

4.3.1.6 Experiences and perceptions of training.

Participants' experiences and perceptions of training have shown that change initiatives will not be successfully implemented without training. Stakeholders require training to prepare them for the change initiative and to ensure their readiness and that the necessary knowledge is imparted to them.

One-on-one interviews

Findings from the one-on-one interviews show that training helps to achieve adaption for change initiatives implemented within the organisation. People training is required to implement change initiatives successfully.

> *Firstly, the change at the people level is that they are no longer going to be doing things the way they used to. Mm-hmm, um, that means training employees to ensure they are knowledgeable about the change initiative. Moreover, um, helping people to adjust to the new way.* (EMI01)

> *I mean, you know, this is for change. A lot of factors influence management. There is also the training component that the change manager can sometimes do themselves by putting together. If it is a simple one, easy guides ensure the solution's adoption and utilisation.* (SMI01)

Focus Group sessions

Findings from the focus groups affirm that there is a need to ensure people are trained in the new way of working. Training is one of the criteria for success as it ensures people's readiness for change.

> *Furthermore, there is also an important part where people need an idea of what Change Management is because most things change comes, and change is training. So there needs to be a real crisp of the strategic importance of people Change Management and why it is important in our work. Going back to advance said there are pockets within the business.* (FG02-P3)

4.3.1.7 Participants' perception of Organisational culture.

Organisations may implement the best solutions, however, if their Organisational culture, which is the relevant mindset and behaviour, does not support the change, then implementation will fail. The Organisational culture must be taken into consideration during the implementation of change initiatives.

One-on-one interviews

Findings demonstrated that most participants in the one-on-one interviews believe that Organisational culture influences successful change implementation. How people think, or their mindset, informs the attitude of employees and affects how people behave within the organisation.

> *Change Management and mm-hmm. And the culture of the organisation. We are a traditional organisation which never, you know, um, explore the new ways of working on the new technologies in, of, of working. You know, our culture will also be that one-off, you know, us is not growing, us not having agile, uh, employees.* (MI01)

> *Um, Mm. Okay. Successful changes. Um, a history of taking the end user seriously. Mm. Furthermore, minimising and, and, and, and hand on hard and doing the best job under the circumstances in minimising impact to both*

user and organisation and building a track record. Um, that is the only way I can see that AI can affect the culture, from a culture of resisting change to accepting and participating in change. (SM01)

Focus Group sessions

Participants in focus groups seemed to believe that a continuous learning culture is also a critical success factor influencing Change Management. This includes ensuring support for the initiatives that will transform the culture to influence successful implementation of change initiatives implemented within the organisation.

The culture of an organisation transforms based on its people. What the people want, what the people need an organisation to give them, what is the staying power in that organisation, what the leadership is like – all of these things depend on people. It is all people-centred. Change Management is one of the key factors. It could be a key enabler for an organisation to transform its culture, according to FG02-P1.

Proposition 1.1: There are similarities and relationship between Change Management factors and AI.

4.3.2 Relationship between Change Management and Artificial Intelligence.

4.2.2.1 Participants' perception of the relationship between Change Management and AI.

The following section deals with perceptions of the relationship between Change Management and AI from the one-on-one interviews and the focus groups.

One-on-one interviews

Most participants suggest that AI enables Change Management to improve the approach to implementing Change Management activities, improve change-related decisions, and ensure the change process moves with speed and agility using the Change Management teams within organisations.

> *Technology can be used then to provide the answer without human intervention. Moreover, therefore, the more advanced Artificial Intelligence technology is, the more it can cater to a broader range of information. Alternatively, questions that people may have around a given subject matter. Uh, understanding those trends, uh, to the point of them making that predictive capability more and more accurate.* (SI01)

> *Uh, in my understanding, Artificial Intelligence is really around using robots or intelligence, um, and technology, uh, to do various, um, uh, a task, for example. Um, you know, if we have seen a lot of robotics, um, uh, in websites, for example, would teach, uh, a robot, to start asking questions to say: Hey, how can AI help you? As you log into a website, and they have trained these robots, uh, to artificially start having that intelligence to understand the questions and then provide the relevant answers*. (SM02)

> *I will just put it in layman's terms. It is that a computer process does its intelligence or that is, um, what is the word? That is, things that are*

automated. Because, as human beings, we have our intelligence. However, if it is artificial, then it is not intelligence that comes from a human being. Intelligence has been fed into a computer by a human being, but then the computer can extract or show some patterns. (EMI03)

Focus Group sessions

The findings indicated that the Change Management team would have sufficient time to run the people side of things leading the change process, but not managing the process of change. This will ensure that change managers are leaders, not administrators. In contrast, others have shown that AI technologies can be used to analyse and gather specific patterns, the stakeholder line of thinking, and the range of needs, proving the relationship between Change Management and AI.

Yeah, it is for me Artificial Intelligence is just any application or technological solution that applies problem-solving. So, in other words, it is comprehensive, lots of things would count as Artificial Intelligence, but it uses computer technology to solve. Moreover, problems are the type of problems that require intelligence, and intelligence usually means gathering information, doing something with that information to AI to craft the solution, applying the solution, checking whether it worked or not, and then sorting the whole process again. So broadly, that is what Artificial Intelligence is. It is an artificial replication of problem-solving. (FG03-P2)

My understanding of Artificial Intelligence is that it is not a little bit deeper, so I understand that it is machine learning that happens in the background. It is when we build into a system around behaviours algorithms. When I hear Artificial Intelligence, the first thing that comes to mind for me is the technology and what a large part technology plays in Artificial Intelligence, and there is machine learning. However, remember that many observing feeds their data into those machines for them to react a certain way. (FG02-P1)

4.3.2.2 Participants on the perception of commonalities of Change Management and Artificial Intelligence factors.

The commonalities of Change Management and AI factors are discussed as follows.

One-on-one interviews

The findings suggest that AI predicts the change impact, which changes management can use for governance and planning, and ensuring that stakeholder management performs and enables effective communication. Additionally, participants believe in the commonalities between AI's ability to assess the stakeholder gap, perform needed training, and provide the relevant data to ensure adequate training.

> *AI role in Change Management? Which role can Artificial Intelligence play? Yes, yes. Artificial Intelligence can add significant value, especially in large projects involving many users or stakeholders. Uh, large project. The project provides the necessary platform for a wide range of information needs. Mm-hmm. And for inquiries, user end-user inquiries. Mm-hmm. And also, uh, information needs, uh, or questions they may have. Moreover, that means that Artificial Intelligence in a large project can save the utilisation of human resources in tackling.* (SI01)

> *Yeah. Well, Artificial Intelligence can play a role in Analysing stakeholders. You know, it can assist in Analysing stakeholders. It can assist in communicating and evaluating them throughout the change implementation through machines without human interaction. Wow. That is what, you know, Artificial Intelligence can do as a role in Change Management.* (EMI02)

> *Artificial Intelligence would then assist them to apply the change by identifying patterns, um, and what people are doing without actually seeing or physically being their face-to-face to identify or see those.* (EMI03)

Focus Group sessions

Findings show that changing the way people do things promotes the relevant mindsets and behaviour to support change initiatives, leading to improved Organisational culture. The above-mentioned are factors that influence Change Management, which shows that there are some commonalities between AI and Change Management.

> *We leverage technology to come up with solutions towards or solutions for effective Change Management. I would say, umm, I foresee a few, a situation where we can engage with all of our stakeholders at any given time in real time. Moreover, that can help us provide insight into our work without waiting to know how people are feeling or experiencing it throughout the change journey. We can use social listening. In using technology to get to that feedback in real time quicker.* (FG01-P2)

Proposition 1.2: AI technologies have factors that influence Change Management within organisations.

4.3.3 Artificial Intelligent factors influencing Change Management.

4.3.3.1 Participants' experience and knowledge of AI technologies influencing Change Management.

The findings on participants' experience and knowledge of AI technologies influencing Change Management are discussed below.

One-on-one interviews

Participants shared their knowledge and experiences and provided insights on how AI technologies can influence Change Management. The findings show that AI abilities and capabilities can be used to implement Change Management activities with speed and agility, and furthermore, can measure the effectiveness of Change Management through AI algorithms.

> *I would not go to the particular articulation of what technologies, but I would rather talk about the perfect and applicable functionalities in Change*

Management projects. My summary response says that the proper understanding of the intricacies of a project and the anticipation of all the users' needs. Mm, which means forming very sound strong foundations of the data. Mm. That is relevant to the users. Then, the level of the users and the environment of the users becomes important. (SI01)

See, it can assist in scheduling, uh, meetings. Furthermore, it can also assist in ensuring that, like scheduling, scheduling assistance, like I said, Natural Language Processing, speech recognition, and machine vision. Wow. You know, it can recognise the speech. Yeah. Wow. It can communicate to us like human beings. (EMI02)

We have the same touch points but are not away because we do not always align. Right? Yeah. Um, and so, themes in our projects that we can cluster together and have a more impactful impact, uh, a change impact activity or a change activity that we can do to the same impacted group as opposed to going, the next person is going, but we really get people so fatigued. Yeah, so it would be nice to have that. Yeah. That, that, that. A tool that can automate all of these and really give us a view to say: Do not go to this team. (MI02)

The patterns of the responses that we anticipated come out correctly to the users. Mm-hmm. Did, uh, were the users not misled, uh, with the algorithms that we set up? Furthermore, if they are necessary, such modifications need to be applied. Nevertheless, even if all the base is correct, the question ought to be asked. (MI01)

Focus Group sessions

Most of the participants in the focus groups believe that AI has tools that can assist with planning Change Management activities. They believe AI can assist in gathering the change initiatives' information and analysing it. Some participants believe that having voiceover tools within the AI can influence Change Management.

Exciting for me are tools that can help us with the actual change, not the planning of the change but the gathering of information and Analysing information and decision-making, and those things that would be exciting, more exciting for me then. (FG01-P1)

Umm. The program runs to create or pick up themes, but it is brilliant because it also picks up the emotion that comes through in the people's vocals. So, it does not only look at the words, but it looks at, yeah, it manages to pick up on the emotions, tones and everything. It is really phenomenal. (FG03-P1)

You know, it would be nice in the future if, you know, you had something, I guess, using more Artificial Intelligence so that people can learn by doing and perhaps this, you know, some AI involved that, you know, with maybe voiceovers, etcetera, saying: OK, no, that has come on. Do not press that, this is what you need to do, and this is how you need to do it, and you know that would be great from a training and tutorial perspective. (FG02-P4)

Proposition 1.3: Artificial Intelligence technologies can add value to Change Management activities.

4.3.4. AI value-add to Change Management.

The effects of AI and how it can add value on Change Management are outlined, including how participants perceive Change Management manual processes. The impact of not having Change Management digitalised is shown below.

Using AI to implement digital Change Management processes can improve productivity and effectively measure and evaluate Change Management activities.

4.3.4.1 Participants' experience and knowledge of manual Change Management process and its impact.

Manual Change Management processes negatively affect productivity and accuracy and make it difficult to evaluate the success rate of the Change Management activities and their effects.

The feedback and analysis are noted below, based on experience and knowledge of participants about the manual Change Management process and its impact as they experience this daily.

One-on-one interviews

The findings show that most participants in one-on-one interviews believe organisations are using manual Change Management processes which have a negative impact on productivity, accuracy and efficiency.

> *Um like I have indicated before, the processes mostly are still manually. Sure. Obviously, it come with a lot of changes being implemented to be aligned with the Fourth Industrial Revolution. The manual processing really has an impact on productivity accuracy due to the lack of agility and human errors. You know as long as there is human intervention, obviously there are a lot of errors that, you know, you can find or get.* (EMI02)

> *They're very much manual at this point in time. I mean, I've worked for an organisation that was looking into, um, getting, um, like a tool to really consolidate all our change activities, to have a single view of how everything fits in, you know, and I think this will help with things like saturation levels, um, change fatigue, you know, but actually that's actually tells that just sort of.* (MI02)

> *And right now, we are still taking this function off the ground. So, for now, I would say, uh, we are really getting there, but a lot of processes are still manual. It impacts the, the productivity in that way. Of course, of course it does, because I mean, it takes a lot of time, you know, if ever there was a system in place that I can use to measure all those, uh, uh, intervention[s]. It'll save time. Right now, I don't have an administrator in my office. I have to do all this manual work, taking all this attendance registers, you know, and it is taking my time.* (MI01)

> *The bulk of what we do is manual and based on engagement. So, which means when you look at the bell curve, maybe looking at maturity to where we are really, we are still at the lower side of, um, maturity. Our Change Management are manual, Yeah, it means we continuously, of course, have*

to rely on an old way of driving change. Um, and, um, we might be lagging behind because then the outside world is moving speedily. (EMI01)

Focus Group sessions

Findings from focus groups confirm that organisations' use of manual Change Management causes delays in Change Management processes, diminishes the accuracy of data, which affect the objectivity of the analysis, and requires too much administration, which lead to biasness.

Ahh, Change Management is manually implemented, there's nothing digital. Because the certain functions that really, I mean you need [to] do administration, you need to do record-keeping. You need to engage; so there's too much admin that goes with the work. This takes time and it really affects productivity, for instance and efficiency in that regard. I wish I had a little robot that works with me. (FG01-P2)

I think most of the projects that I've been on have been more manual. I mean, there's some data that we use, but it's very manual and I think my frustration is that the information is so critical that, yeah, there is a lot of administration around correlating data, having conversations. (FG01-P1)

We are still live in passive in the way that we deliver Change Management, our tools and our methods are still very manual. If I could put it that way, we still use PowerPoints, we still using Excel. I think we find that the change manager spent a lot of time doing admin. Which is quite sad because change managers are generally recruited for their personalities. And that's the way I put change managers. You see, you know, I recruit for people that have a voice that want to speak, that want to speak to other people because that's, you know, that's biggest. (FG02-P1)

Change is still very much at an infant stage, an organisation like you need to. I mean the changes that were brought about by COVID have had a very big impact in the way that we are doing business and in the way that we are waking. So, and the uptake has been moving quite slow. (FG03-P3)

The participants' statements demonstrate their frustrations caused by manual Change Management processes, moreover, how much they would like to have a digital process implemented for Change Management.

4.3.4.2. Participants' perception of AI's positive effect on Change Management.

Participants' views and perception of how AI has an effect on Change Management are shown below:

Findings show the participants' perception of AI's positive effect on Change Management, with most participants demonstrating that AI can add value to Change Management activities. They further emphasised that AI enables the Change Management team to be proactive and manage risks before they become issues. Moreover, it can plan Change Management interventions based on the prediction made by the AI technology, manage stakeholders' requirements and expectations, and manage the relationship. Effective communication also ensures Organisational alignment and change resilience through behaviours and patterns.

Governance and Planning

Governance and planning are the initial processes of Change Management. This component ensures that Change Management activities follow the relevant framework and methodology, develop the Change Management strategy, and plan activities accordingly. Moreover, the activities are tracked, monitored and reported as they are implemented using the AI technology.

One-on-one interviews

The findings show that AI technologies could assist in identifying the required Change Management and plan accordingly. The technology uses the flow of data to predict probabilities of situations and occurrences. These mean the Change Management team can perform without interventions, allowing the team to develop well-informed Change Management strategies and plans that are informed by accurate data.

Mm-hmm, it is the same thing here. So, um, you know, it feeds that information. Gets that, you know, data and intelligence around, um, the data that has been, uh, gathered and intelligently analysed so that it gives us a better lens from a Change Management perspective so that there are areas that we know precisely how we can improve and how we can start engaging differently. These will ensure effective planning. (SMI02)

Processing all those vast amounts of data that might be generated as part of Change Management initiative, like, for example, you know, if you have got a blog of sorts where people are, you know, better participating in the change initiative, sending their inputs, concerns, things like that. Feedback and stuff like that. Then you can have an AI engine coming in to analyse all that data and draw inferences about what those responses actually mean. That can help the organisation make better decisions from a Change Management perspective; this will improve Change Management planning, so those are my thoughts. (SMI03)

Focus Group sessions

The findings further illustrated that AI technology could automatically make changes in specific scenarios to avoid issues and plan relevant Change Management interventions for issues predicted by the technology.

Uh. Make it like they have one interface to input data and we have this pulled through into plans for them. It gives them more time to interact. Also, if change managers could create for themselves. (FG02-P1)

You know, Artificial Intelligence that makes our lives more efficient and easier, and can reach our stakeholders better and can help, you know, give us all the stats that we need in terms of measurement in a quick, efficient manner. (FG02-P3)

Stakeholder Management

Stakeholders are people impacted by, or who can influence, the change implementation. They can influence the success of the change initiatives

implemented within organisations. Their needs must be well understood, and relevant support must be provided to meet their needs and expectations. They need to be well-engaged and clearly understand the change initiative to buy into it. AI technologies can assess and analyse the stakeholders' needs and propose a solution to ensure successful implementation of the change initiatives.

One-on-one interviews

The findings demonstrate that AI can add value in ensuring continuous stakeholder management by continuously engaging the stakeholders, assessing their needs, and predicting possible steps that stakeholders can take and proposing solutions.

> *AI becomes a continuous technological engagement process. Moreover, it is less about technology and more about brain power. Yeah. That is applied in, uh, configuring the technology to add tangible value, uh, to a process, whether it is a system installation project, whether it is an SAP, E R P program, whether it is a learning management system, uh, whether it is a change of a business process and so forth.* (SI01)

> *You know, what are our customer needs, you know? Um, what are the pain points in our stakeholders' lives? How can we improve our Change Management service? How can we improve our Change Management offering? AI can help to improve what we deliver. Even as change managers, what are the behavioural factors we are picking up, you know, so you can get richer information and data and become a better problem solver.* (MI02)

> *You should start saying, um, as we are getting feedback from the users and stakeholders, you put it into a learning machine, and it can start doing some analysis for you. And it can start predicting to say, because based on previous projects, Yeah. Alternatively, in previous engagements that we have had, based on that, you must start engaging more. Wow, with this quadrant of stakeholders. Uh, so you almost like, start feeding it certain data based on feedback received.* (SMI02)

Focus Group sessions

The findings confirm that with AI, stakeholders can be identified, and the relationships can be managed accordingly in alignment with how they are impacted by the change, while additionally enhancing the stakeholders' engagement.

> *You can put different variables in the pool, and based on the different variables, and a system could generate. You know what it means and what actions need to happen. That could help, but I think even how we do change impact assessment and stakeholder analysis.* (FG01-P5)

> *AI technologies background picks up what you have identified as something of interest to you, and then it starts personalising your page and the pop-ups in front of you. So, you start seeing a lot more of the things you showed interest in and would be interested in purchasing or reading about. And that is an excellent example of explaining what AI does for people; this can help us [in] Change Management to manage and identify stakeholders' requirements and interests and manage them accordingly.* (FG03-P1)

> *If you have Artificial Intelligence that makes our lives more efficient and easier, can reach our stakeholders better and can help, you know, give us all the stats that we need in terms of measurement in a quick, efficient manner.* (FG02-P3)

Communication

Communication has been the core activity to ensure that all stakeholders know about the change initiative. Continuous communication for stakeholders to understand the benefits of the change initiative and accept the change is key to the change initiative implementation. AI technologies can ensure consistent communication by providing 24 hours' communication to stakeholders.

One-on-one interviews

Participants' findings illustrate that AI can communicate with the stakeholders by ensuring that stakeholders are aware they have a clear understanding of the change and how it will benefit them and the organisation through AI technology. The technology will ensure consistent and relevant messaging to stakeholders.

> *Artificial Intelligence can then have some form of a conversation with the users by getting all the algorithms right, saying if, uh, the, if, if an answer to the first question is, is A, then the conclusion is this. If the answer is B, then you move the user to C, or you move the user to F because the algorithm then understands that if you ask this kind of a question, it means that what is further relevant will be this, will be that, so that it then saves the day in that maybe a full staff compliment of 60 people attending 6 000 people can be saved*. (SI01)

> *It is a two-way communication. Mm-hmm. Um, you might be sending out a questioning, uh, and then someone might be coming back with, um, you might be sending out information, and someone is coming back with a question. Mm-hmm. And then tender gently start programming some of the answers.* (SMI02)

> The participant further expressed that*, AI assist in terms of answering and giving out information. Mm. Uh and making sure that information is readily available out there. Because you want to be able, change is making sure that people are not confused. Mm. There is one level of communication, so Artificial Intelligence will assist in consistent communication as human beings*. (SMI02)

> *So, the Artificial Intelligence engine can then add value to the Change Management process in that people need to know to move from one point to another, to one stage or phase of change to another. They can then be assisted by technology and, uh, talking of the Change Management model and the outcome model, uh, actually Artificial Intelligence can speak to the awareness activities about the change.* (SI01)

Focus Groups sessions

The findings confirm that AI technology can converse with the stakeholders and ensure alignment. Furthermore, AI algorithms can be used to enhance communication.

> *So, if we were to [use] video clips, or robot speaking enhancing that knowledge and enhancing that information, we wanted to go out there. It could be better read and take even the feedback; maybe some of the communication could be interactive, and that communication and that interactive communication could be loaded into their various algorithms. We could use that instantly, you know, and we could have. Real-time information is just my view.* (FG03-P4)

> *AI can assist in the background by reaching larger audiences through communication mediums that would involve technology of some sort. Built into how we communicate, make it more exciting, make it interactive so more people would want to interact with it, make the platforms changeable, exciting, reaching the different audiences and gathering data as they go along.* (FG02-P1)

> *Yeah, the context and my little experience, ChatBots or text box, will be a nice feature to have with Change Management. I also suppose one must then make sure that the ChatBot is correctly trained to focus on the Change Management side.* (FG03-P1)

Training

Training is one of the critical Change Management activities for any change initiative; with AI technology, machines can train stakeholders based on the needs of the stakeholders. Stakeholders must be trained on what is required to avoid confusion and ensure readiness to embrace change throughout the implementation.

One-on-one interviews

The findings demonstrate that participants in the one-on-one interviews believe AI has influenced Change Management. They believe machines can be trained to train people.

> *Furthermore, that is why Artificial Intelligence comes in without necessarily staging a session or going through a handheld human being. Uh, during the knowledge, uh, the case stage, but now I am trying to figure out how to do this. I am getting stuck. Let me go to the PC and ask the question. So, it, it, that means that, uh, through Artificial Intelligence, the subjects of change are exposed at any time. Um, and immediately, there is no holding on for the helper online.* (SI01)

> *Mm-hmm. Um, and as well as create desire and, and that sense of affinity with the change, can be used to train on simple subjects and handle, uh, q and or troubleshooting. On, um, the specific topics and if I am talking about ability whereby people can say, I have been trained to do ABC.* (SMI01)

> *During the knowledge, uh, the case stage, but now I need to figure out how to do this. I am getting stuck. Let me go to the PC and ask the question. And that is why Artificial Intelligence comes in without necessarily staging a session or going through a handhold of a human being.* (SMI01)

> *AI covers things like machine learning and, you know, voice recognition. Image recognition, and the list goes on.* (SMI03)

Focus Group sessions

The findings confirm that machines can be programmed and the information can be provided through AI technology for the machines to train stakeholders on the new way of working.

> *Some of the initiatives we can, you know, improve using AI is some of the initiatives like training as an example. You know, if that data is fed into a*

machine, that machine can then train, you know, the things you need to, such as the training initiatives. (FG02-P2)

And it will. It will take you through the steps like it will simulate it for you. It's more like a simulation, a training kind of, yeah, but it's context-based like, yeah. (FG01-P2)

Pruning your training model, understanding what should or should not be in your training model, and what data not to include, you know data scientists and AI exists. These people are likely essential for any implementation of this technology when it is going to be used to change something. (FG03-P2)

Change Resilience – Organisational Culture

It is imperative to have change resilience within the organisation as the change resilience muscle ensures that stakeholders can adapt quickly to change, and should there be any challenges during the change implementation, they can keep on, and that strengthens and improve the Organisational culture.

Findings on how culture can play a role in Change Management and AI are illustrated below.

One-on-one interviews

Most participants indicated that AI could change how things are done within the organisation. The technology mindset could improve the Organisational culture as this will encourage stakeholders to adapt to change with agility, and the AI technology can provide a view adoption in terms of culture.

Oh, yes, I think culture is the way we do things around here. Mm-hmm., um, and, um, so if you are bringing in that Artificial Intelligence, it gives you a better understanding of how, um, the culture is being adopted and what, uh, people's views so that you can be able to do that influencing. (SMI02)

In this digitalised world that we are in, in this multinational, um, multi, uh, multi-geographical, um, a corporation, um, space that we are, we are working in, then you can get a crawl that brings people from Korea, from us, from Africa, um, from the UK, uh, and engage and exchange knowledge and exchange, uh, uh, information and guidance and advice. It opens avenues that say our culture is not a micro-culture but a mega. Um, in an organisation, it can enhance globalisation, digitalisation, engagement, and the immediacy of engagement. (SI01)

Nevertheless, once the people in the organisation understand the value and the benefit of AI, it can help improve the culture. Um, and I, I do think there could be that. The big shift in how things are done, you know, ways of work. Right. Because that is what it does, you know, it improves on ways of work. (MI02)

Focus Group sessions

The findings further affirm that adopting AI will ensure that the knowledge is embedded, strengthening the resilience muscle and contributing to people's behaviours, which becomes an Organisational culture.

Culture speaks about, uh, traditions, customs, but it also speaks about what people use to engage; uh, people engage around the crawl, the Artificial Intelligence then becomes a crawl. Mm. Uh, around which people can, can engage on, uh, a corporate and project matters. And then it can also, a unity, but also this interactivity I have been talking about. (FG01-P2)

To ensure that people adopt those changes, we see behavioural change at the end, and that knowledge is embedded and this continuity long after that change has actually, or rather the transformation, has happened. Thank you, that's just my 2-cent worth. (FG03-P4)

4.3.4.4 Participants' perception and knowledge in using Artificial Intelligence and implementing digital Change Management processes can effectively measure and evaluate Change Management activities.

The findings demonstrate that participants believe AI has the technologies to digitalise Change Management and effectively measure the success of Change Management activities implemented within the organisation.

> *On a certain stakeholder type. Uh, we were able to do that penetration. I do not know right now if there is a proper measure of success. That we are using. However, uh, on the one project that I am aware of, there is also the qualitative analysis we use because we are getting, you know, detailed answers, but on the qualitative, quantitative side. The measure can be improved, uh, based on the number of engagements and the feedback and number one, attendance and a level of awareness, um, that has been achieved.* (SMI02)

> *It comes to when a benefits realisation, which, more often than not, is not even. The perceived benefits are being defined at the beginning of a change initiative, but I have yet to see them — the tracking of the results once a project is transitioned into.* (SMI03)

> *Uh, machines can, I can ensure that the adoption is taking place so that the AI component assists with tracking adoption. So, to make sure that people are using the new way instead of reverting back to the old one, that could be one.* (MI02)

> *The one I think could be a source for it can be utilised for data gathering and monitoring of a change. So, when change is executed, Artificial Intelligence in the background can monitor whether it is some form of technology change, right? Let us say it is a technology change or executed.* (FG02-P1)

> *By building in measurements everywhere throughout the business, and then what you do is you use a machine learning algorithm to, from that data and then maybe you can then use that to predict what will happen if you change certain things which might inform a strategy or something to do, and then you can have other types of systems that help you implement it and measure the outcomes of it.* (FG03-P2)

4.4 Unexpected findings

Certain unexpected findings were identified from the focus groups. These were considered to ensure that recommendations were included to find the solutions. Below are the participants' comments in this category.

Focus Group sessions

The findings indicate that some participants resist AI as a technology to digitalise Change Management processes. They believe it might take over their jobs and render them unemployed.

> *Umm yeah. I think we should if they are those tools, but if it is at the Organisational level or we have to convince someone, I think it is OK. We are doing OK without it, even though it could help.* (FG01-P2)
>
> *Come to think of it, after implementing AI, and we will not have jobs. I am not comfortable being replaced by the machine*. (FG02-P3)
>
> *Umm. Technology can replace humans, and there is that whole debate out there and there. I want to avoid getting into it, but there are certain elements.* (FG01-P3)

4.5 Linking findings with propositions

Findings pertaining to Main Proposition 1:

AI has a role in Change Management

The following themes were linked to understanding AI's role in Change Management.

Themes	Sub-Themes
Understanding AI's role in Change Management.	• AI has the role of digitalising Change Management activities.

Themes	Sub-Themes
	• AI is the technology that uses machines through their intelligence to perform tasks at a faster pace. Its role will be to ensure that Change Management activities are implemented at a faster pace with agility. • Artificial Intelligence machines can identify and recognise the behavioural patterns that can inform the Change Management strategies and plans for effective implementation.

Table 4.4: Role of AI in Change Management.

Findings pertaining to Proposition 1.1:

There are similarities and relationships between factors of Change Management and AI.

The following demonstrates the similarities and relationship between factors of Change Management and AI.

Themes	Sub-Themes
A relationship between Change Management and AI.	• Change Management is required to gather information regarding change initiatives.

Themes	Sub-Themes
	• Change Management can develop required interventions, and AI can gather information. • Change Management proposes a solution; however, AI proposes the solution and applies the solution without human interaction.
Similarities between AI and Change Management	• The commonalities between AI and Change Management are that AI has functions that assess stakeholder needs and communicate with stakeholders. • Perform training needs assessment and analysis and provide the relevant data to ensure adequate training. • AI has an impact on changing how people do things, promoting relevant mindsets and behaviour to support change initiatives, and improving Organisational culture.

Table 4.5: AI and Change Management similarities and relationships.

Findings pertaining to Proposition 1.2:

AI technologies have factors that influence Change Management within organisations.

The following table illustrates the AI technologies or factors that influence Change Management within organisations. The factors are outlined below.

Themes	Sub-Themes
Artificial Intelligent factors influencing Change Management	• AI has a technology to plan and ensure governance for Change Management activities. • Effective stakeholder management can be achieved through AI technologies • AI can improve communication to ensure it is continuous. • Training can be implemented through AI technologies • Change resilience muscle can be achieved through AI capabilities.

Table 4.6: AI factors influencing Change Management.

Findings pertaining to Proposition 1.3:

Artificial Intelligence technologies can add value to Change Management activities. Furthermore, using Artificial Intelligence while implementing digital Change Management processes can effectively measure and evaluate Change Management activities.

Themes	Sub-Themes
Artificial Intelligence Value-Add to Change Management	• Artificial Intelligence technologies can add value to Change Management activities.

Themes	Sub-Themes
	• Using AI, digital Change Management processes can effectively measure and evaluate Change Management activities. • AI can assist in eliminating biases in the measure and maintain objectivity in measuring Change Management activities.

Table 4.7: Artificial Intelligence technologies add value to Change Management activities.

4.6 Summary of findings

Participants' overall knowledge and experience were highly constructive and resulted in significant findings contributing to the study. These findings included the factors influencing Change Management, which focused on ensuring governance and planning of Change Management activities. Furthermore, how leadership can influence successful Change Management, plus stakeholder management through effective communication, effective training and ensuring the relevant culture that supports change implementation. Participants shared their knowledge of AI and what they believe to be the relationship, commonalities and similarities between AI and Change Management.

Participants articulated the AI factors that influence Change Management; they further detailed their experience and challenges in the manual process of implementing Change Management activities causing a lack of efficiency and data accuracy for the change initiatives implemented. Additionally, there was an inability to measure effectiveness to provide results with objectivity and demonstrate the true reflection of activities implemented. Participants believe AI

adds value in digitalising Change Management, improving agility, productivity, efficiency and data accuracy for the change implemented within the organisations. Moreover, AI can influence Organisational culture as the digital mindset influences employees' attitudes, which, over time, will inform their behaviours in regard to how people do things in the organisations.

CHAPTER 5 – DISCUSSION OF FINDINGS

5.1 Introduction

This chapter briefly discusses the findings shared in Chapter 4, relating them in detail and in line with research questions and the Chapter 2 literature review. The discussions will prove the proposition to answer research questions.

Research finding topics:

The research findings explored participants' experience in Change Management governance and planning, perception of leadership as an integral part of Change Management, understanding of Stakeholders' Management, plus knowledge and experience in stakeholders' management. Additionally, their knowledge and involvement in Communication management, experiences and perceptions of training were covered, as were participants' perceptions of culture.

The discussion included participants' perceptions of the relationship between Change Management and Artificial Intelligence and their understanding of the commonalities of Change Management and AI factors. Also covered was their knowledge of AI technologies that can influence Change Management, plus experience and knowledge of the manual Change Management process and its impact.

Participants' perceptions of AI's positive effect on Change Management, and their experience in evaluating the effectiveness of Change Management activities, were discussed. Their perception and knowledge of using AI and implementing how digital Change Management processes can effectively measure and evaluate Change Management activities are also considered in this chapter.

5.2 Discussions pertaining to Proposition 1

The following section covers the discussion on **Proposition 1:** AI has a role in Change Management:

The findings confirm that AI can allow the Change Management team to enhance its work to implement Change Management activities. AI can implement governance and planning, leadership alignment, stakeholder management, communication and change resilience – which is the Organisational culture. There are similarities and relationships between factors of Change Management and AI.

> *Change need[s] to be embedded. So, it would be best if you embedded that change in the organisation. Mm. So what people might say you are implementing, but yes. Um, um, so you need to have a Change Management strategy to ensure that there is a relevant methodology and approach to implement that change.* (EMI01)

> *Mm. Yes. Change Management works perfectly from the planning, conceptualisation and engagement side, from the Change Management point.* (SI01)

The technology will allow the Change Management team enough time to focus on strategic Change Management, leading and driving the change process, without having to manage the process of change. This will ensure that for change managers, the administration part of their work is appropriate for a Change Management team. AI technologies will assist the team to identify specific stakeholders' patterns, read their mindset and, based on that, identify interventions required to ensure successful implementation of Change Management activities. This shows the relationship between Change Management and AI.

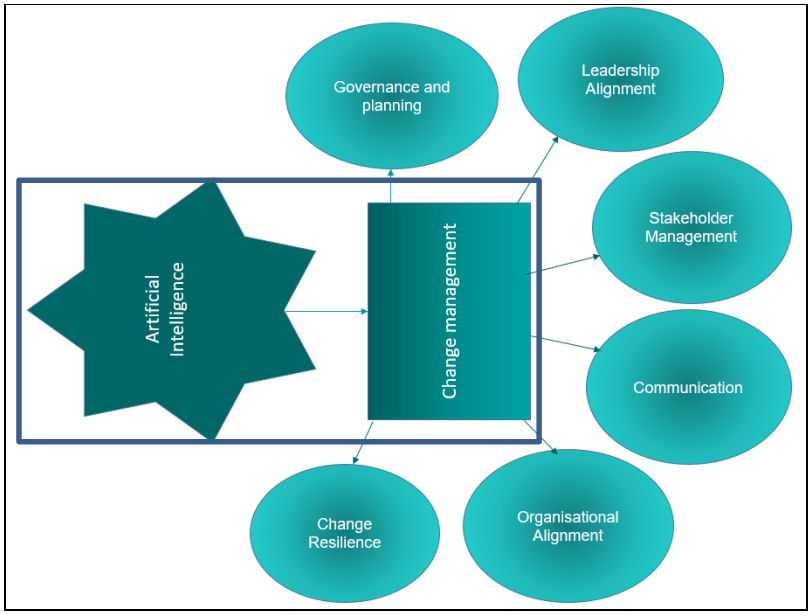


Figure 5.1: Relationship between AI and Change Management.

5.2.1 Factors influencing Change Management.

This section discusses factors influencing Change Management to ensure a clear understanding of the context.

5.2.1.1 Participants' experience in Change Management governance and planning.

Governance and planning ensure that change initiatives have the relevant frameworks and methodologies that govern the Change Management activities. Furthermore, developing a Change Management statement of work and scope will inform the Change Management plans for implementation. Additionally, governance committees' structures are established, and the terms of reference to govern Change Management committees' and implementation resources are made available to ensure the successful implementation of change initiatives. These include financial resources and human resources (Too et al., 2017).

Spotswood and Warren (2017) agreed that a lack of planning has a negative impact, leading to unrealistic goals. Additionally, lack of planning leads to the unavailability of data flows to predict and mitigate the risk of failure in

implementing change initiatives. Another ill effect is the underestimation of required human and financial resources.

The finding demonstrated that governance and planning are the first factors influencing Change Management. The strategy of how Change Management will be implemented needs to be developed, and this will ensure that Change Management is governed.

Badham et al. (2015) and Spotswood and Warren (2017) agreed with the following statements quoted by the participants.

> *Mm. Yes. Change Management works perfectly from the planning, Conceptualisation, and engagement side, from the Change Management point. (SI01)*

> *Governance and planning help to know what, how, and when activities will happen, and it helps to plan better as a change manager. (MI01)*

> *Change Management: We need to look at the whole of our processes. We look at the value chain from planning to ensuring proper governance and planning until reinforcement. Uh, but then in terms of the process, how effective, most likely in my experience, we are good at planning and executing.* (FG01-P2)

Change Management approaches and frameworks must be made available to ensure the successful implementation of a change initiative. Change Management activities must be planned with a timeline, monitored, and evaluated.

5.2.1.2 Participants' perception of leadership as an integral part of Change Management.

Leadership's level of commitment and influence impact the success of Change Management activities. They must be aligned with the change initiatives being implemented within the organisations. Chaturvedi et al. (2019) agreed that leadership can influence and unleash the best from their employees who will

influence the successful change implementation. Leadership plays an essential role as the leader, driver and advocate of change at the leadership level (Ford et al., 2021). When leadership shows commitment, employees are encouraged to buy into the change that has been implemented.

The finding shows how leadership is essential in ensuring that change is implemented without disruption. An active sponsor assists in driving the change at the leadership level. This will further solicit buy-in, as employees will follow their leaders' actions or beliefs.

> *Uh, in all the theories you will find that are on change, you will know that, uh, people listen to their immediate supervisors, uh, the person they are reporting to, as well as the most senior person in the organisation. (SI01)*

Chaturvedi et al. (2019) agree with the following statements by participants:

> *Understanding change by the leadership is critical in every organisation because the leadership must walk the talk. If the leadership does not understand the effect, the impact, and the efficiency of change within the organisation, how will they cascade the message down to the employees to adopt change*. (MI01)

> *The first step is leadership engagement. Moreover, I am thinking about things like your executive sponsor. It would drop down to your accountable executive and the product owner.* (FG02-P1)

Therefore, leadership needs to take ownership of the implemented change and show support and commitment. This will encourage implementation of Change Management activities. Furthermore, leadership has to play a role in advocating the change initiatives: this will ensure employee buy-in. When employees see that their leaders are committed and have taken ownership of the change initiative, they will also follow in taking part in the change initiative implemented within organisations.

5.2.1.3 Participants' experience and knowledge of Stakeholders' Management.

It is imperative to solicit buy-in and encourage the stakeholder's commitment and ownership of the change initiative. The lack of stakeholder support and buy-in has a negative impact on the success of the implementation. Stakeholders' lacking understanding of the change, its purpose and the benefits, including the change impact and how they are impacted, will not support the change initiatives and determine the success or failure of the implementation (Chan, 2021).

Effective stakeholder management encourages stakeholders to clearly understand their roles and responsibilities during the implementation of the change initiative and manage their expectations. It is crucial to ensure stakeholders are part of the implementation as this will lead to the desired level of commitment and advocacy. Additionally, stakeholders' roles and responsibilities to be identified are informed by the stakeholder's level of impact and influence (Schito et al., 2019).

The finding demonstrates how stakeholder management is an essential part of change implementation. Organisations might implement the best change initiatives; however, without effective stakeholder management, there will be no buy-in. Stakeholders must be involved to ensure full adoption of the change initiative.

Schito et al. (2019) confirm the statements below made by participants.

> *Stakeholder management and ensuring that they have a common vision they are working towards and, you know, delivering on the vision and strategy we need to deliver.* (SMI03)

> *Um, engaging with various stakeholders is quite key. Ensuring that change does become a success. Stakeholder management, really to engage with stakeholders, and, um, make the stakeholders say, I want to change. The level of awareness ensures that the person is well-engaged. To ensure that the person has got full information.* (SMI02)

> *One of a very big factor. They players in terms of the mind space that the team occupies in your various stakeholders, yeah. How you manage them to ensure success of Change Management activities.* (FG02-P5)

Stakeholders must understand why their organisations are changing direction, the purpose of the change, and how they are impacted by the change and will benefit from the change initiative. Stakeholders must be aligned with the change that has been implemented, the purpose of the change, its impact, and how it will benefit the organisations and them as employees in order for them to adopt change.

5.2.1.4 Participants' knowledge and involvement in Communication management.

Communication plays a significant role in ensuring stakeholders are informed and have the desire to support the change. Transparency is required; stakeholders should have relevant information about the change that has been implemented, and the timelines and how the change will impact them need to be shared with them through real-time and authentic communication (Appelbaum et al., 2017).

Successful change implementation is dependent on effective communication; inadequate and irrelevant communication leads to unsuccessful change initiative implementation. Communication and reliable information build trust between the employer and employees. Moreover, it encourages commitment and ownership, which keep the stakeholders interested and sustains momentum for a change process. If stakeholders are not well-informed, they tend not to believe they are part of the change process and will lose interest in the change initiatives (Hye et al., 2020).

People need to be aware of the change; findings alluded to communication as being essential to Change Management. When stakeholders need more information regarding the change, they resist accepting it. Stakeholders need to understand their role in change implementation, so effective communication is required to ensure the successful implementation of the change initiative.

Stakeholders need to be supported through change implementation to ensure they are comfortable with the change initiative.

> *Change Management is applied when people are moved from the old, uh, to the new, and therefore people have emotions. They have needs, they have life circumstances, they have expectations, and therefore, adequate communication, providing the necessary insights into the change and uplifting the relevance and the agency of the change, as well as the role that the respective role players ought to play, then becomes a, a crucial, uh, requirement.* (SI01)

Appelbaum et al. (2017) concur with the following statement made by a participant:

> *Yeah, it is communication. Communication is an excellent aspect of it is one of the core aspects of Change Management. There are all the different mediums that we rely on to make sure that communication is effective and that we get value out of it*. (FG02-P1)

Lack of communication leads to stakeholders not being well-informed about the change initiative, which leads to incorrect assumptions and criticism of the change, which may further lead to a high rate of resistance to change that may not be manageable. Communication requirements need to be identified, and a communication plan needs to be developed based on the stakeholders' requirements, which may include what needs to be communicated, who the target stakeholders are, when to communicate to the audience, and which preferred communication method to use for the targeted audience.

5.2.1.5 Participants' experiences and perceptions of training.

Dikert et al. (2016) agree that organisations must ensure stakeholder readiness to change by providing adequate and sufficient employee training. Dikert et al. (2016) further affirm that relevant and role-based training, which is practical, prepares employees and encourages readiness for change; when stakeholders need reassurance that after training they will be able to perform their tasks and be productive in their new way of working.

According to Manamela et al. (2016) employees should be trained on how to respond to change, why the organisation is changing its way of working, and be given lessons on how to proceed in order for them to support the change initiative. Mbaka and Mugambi (2014) noted that training is critical to successful implementation and is an integral part of Change Management. The authors further assert that organisations should ensure that skills and knowledge are imparted to employees during the change process. Additionally, Nastase et al. (2012) agree that if employees are well-trained, this gives them confidence that they are ready for the change.

Participants confirmed that training is one of the critical success factors for every change implementation. Lack of training leads to people not being ready to change and returning to the old ways of working.

Mbaka and Mugambi (2014) agree with the following statements by participants.

> *I mean, you know, this is for change. A lot of factors influence management. There is also the training component that the change manager can sometimes do themselves by putting together. If it is a simple one, easy guides ensure the solution's adoption and utilisation.* (SMI01)

> *There is also an important part where people need an idea of what Change Management is because most things change comes, and change is training. So there needs to be a real crisp of the strategic importance of people Change Management and why it is important in our work. Going back to advance said there are pockets within the business.* (FG02-P3)

People-readiness is required to ensure that people adapt to change and utilise the solution implemented within the organisation. Training is an integral part of the change. People should be trained in the new way of working. Without training, people will be unable to perform their duties, increasing the resistance rate. People's readiness can be achieved through training.

5.2.1.6 Participants' perception of Organisational culture.

Belias and Koustelios (2014) concur that Organisational culture plays a significant role in the success of the implemented change initiative; culture Change Management and change initiative are inseparable. The organisation's culture is influenced by the employees' mindset, which significantly impacts the attitude toward change and informs employees' behaviour within the organisation.

The Organisational continuous learning culture drives modernisation within the organisation; motivated employees encourage positive behavioural patterns. The type of Organisational culture influences the success of the implemented change initiatives. Organisations must entrench a culture of empowering their staff members by ensuring that they are involved in the planning of change initiatives and that they are part of making strategic and operational decisions. That instils a culture of employees' accountability, commitment and taking ownership of the change (Li et al., 2017).

Participants comment that Organisational culture is a critical success factor in implementing change initiatives. Change Management initiatives need to include culture change initiatives to ensure the transformation of culture, which will influence a successful implementation within the organisations.

Li et al. (2017) agree with the following statements by participants:

> *Change Management and mm-hmm. And the culture of the organisation. We are a traditional organisation which never, you know, um, explore the new ways of working on the new technologies in, of, of working. You know, our culture will also be that one-off, you know, us is not growing, us not having agile, uh, employees.* (MI01)

> *The culture of an organisation transforms based on the people. What the people want, what the people need an organisation to give them, what is the staying power in that organisation, what the leadership is like, and all of these things are people. It is all people-centred. Change Management is*

one of the key factors. It could be a key enabler for an organisation to transform its culture. (FG02-P1)

Organisational Culture influences how people do things within the organisation. This includes the mindset, attitude towards change, and how they behave during and after the change has been implemented. The organisation requires a continuous learning culture that will influence how people respond to change. People tend to return to the old way of working instead of focusing on the new ways of working.

The similarities and relationships between factors of Change Management and AI are discussed below.

5.2.2 Relationship between Change Management and Artificial Intelligence.

The literature review and findings have proven the assumption that AI has a relationship with Change Management. AI is the technology to be instituted to implement Change Management activities. The technology will ensure the Change Management activities' visibility, monitoring and evaluation.

5.2.2.1 Participants' perception of the relationship between Change Management and Artificial Intelligence.

Participants and literature reviews demonstrate that AI technologies cover each component of Change Management. AI technology can be used for planning and governance, identifying and managing stakeholders, communicating with stakeholders without fail, providing a 24 hours' conversation with stakeholders, training users, assessing change readiness, plus monitoring and evaluating the success of Change Management activities without human intervention. The technology can identify risks and successfully mitigate them, document the Change Management activities, and track and create reports for visibility of Change Management activities.

There is a need for organisations to implement AI. Findings have shown the relationship between AI to be used to enhance Change Management processes.

AI can be used to interpret the change implemented and ensure proper activities are suggested to implement the change initiative successfully. AI technologies can influence things in an organisation. AI engines can analyse all the data, make some interpretations of what it means, and then suggest the relevant approach and methodologies.

> *Technology can be used then to provide the b answer without human intervention. Moreover, therefore, the more advanced Artificial Intelligence technology is, the more it can cater to a broader range of information. Alternatively, questions that people may have around a given subject matter. Uh, understanding those trends, uh, to the point of them making that predictive capability more. And more accurate.* (SI01)

> *My understanding of Artificial Intelligence is that it is not a little bit deeper, so I understand that It is machine learning that happens in the background. It is when we build into a system around behaviour algorithms. When I hear Artificial Intelligence, the first thing that comes to mind for me is the technology and what a large part technology plays in Artificial Intelligence, and there is machine learning. However, remember that many observing feeds their data into those machines for them to react a certain way.* (FG02-P1)

> *I think we find that the change manager spent a lot of time doing admin. Which is quite sad because change managers are generally recruited for their personalities. And that's the way I put change managers. You see, you know, I recruit for people that have a voice that want to speak, that want to speak to other people because that's, you know, that's biggest.* (FG02-P1)

The findings indicated that the Change Management team's current focus is administration, not what they are passionate about doing, which is to lead and drive change initiatives. AI will ensure that Change Management activities are implanted with speed and that informed Change Management decisions are made. Additionally, AI technologies can be utilised to identify patterns and analyse them in line with the stakeholders' thought processes. These prove the relationship between Change Management and Artificial Intelligence.

5.2.2.2 Participants on the perception of commonalities of Change Management and Artificial Intelligence factors.

The findings demonstrated that AI could assess the trend of the change implemented and predict the change's impact. This can assist change managers in selecting the relevant strategies and methodologies to ensure governance and planning, and will further assist with managing stakeholders and enhancing communication. Additionally, participants consider the commonalities between AI's ability to evaluate stakeholder thinking, identify the gap, perform training needs assessment, and ensure the relevant data is available to plan and deliver effective training.

> *Yeah. Well, Artificial Intelligence can play a role in Analysing stakeholders. You know, it can assist in Analysing stakeholders. It can assist in communicating and evaluating them throughout the change implementation through machines without human interaction. Wow. That is what, you know, Artificial Intelligence can do as a role in Change Management*. (EMI02)

> *Artificial Intelligence would then assist them to apply the change by identifying patterns, um, and what people are doing without actually seeing or physically being their face to face to identify or see those.* (EMI03)

AI technologies can promote a digital mindset within organisations. How people do things within the organisation, their attitudes and behaviours influence the Organisational culture. The above-mentioned are factors that influence Change Management, which shows that there are some commonalities between AI and Change Management.

> *We leverage technology to come up with solutions towards or solutions for effective Change Management. I would say, Umm, I foresee a few a situation where we can engage with all of our stakeholders at any given time in real-time. Moreover, that can help us provide insight into our work without waiting to know how people are feeling or experiencing it throughout the change journey. We can use social listening. In using technology to get to that feedback in real-time quicker.* (FG01-P2)

People’s ways of thinking have an impact on change implementation. These include encouraging change in people’s thoughts, attitudes and behaviours. These are proven to be factors influencing Change Management, confirming some commonalities between AI and Change Management.

5.3 Discussions pertaining to Proposition 1.2:

AI technologies have factors that influence Change Management within organisations.

5.3.1 Artificial Intelligence factors influencing Change Management.

The AI factors influencing Change Management are demonstrated below. It has been proven that AI technologies can influence all the Change Management components, from pre-planning, planning, execution, monitoring and evaluation, throughout the change implementation.

5.3.1.1 Participants’ experience and knowledge of AI technologies influencing Change Management.

Tong, Hussain, Bo and Maharjan (2019) agree that AI technology can digitalise the governance and planning for Change Management. This technology is further able to ensure the scheduling of Change Management activities. The AI uses its agents’ sequence of actions to achieve planned goals and objectives. This will ensure effective planning, with the task implemented on time using the machine with no human intervention. It is a digitalised process using AI technology.

The findings elaborated perceptions of how AI technologies may influence Change Management. They further demonstrate the capabilities and functions of AI that can be utilised to enhance implementation of Change Management activities to ensure speed and agility.

The present researcher agrees with the following statement made by a participant:

> *We have the same touch points but are not away because we do not always align. Right? Yeah. Um, and so, themes in our projects that we can cluster together and have a more impactful impact, uh, a change impact activity or a change activity that we can do to the same impacted group as opposed to going, the next person is going, but we really get people so fatigued. Yeah, so it would be nice to have that. Yeah. That, that, that. A tool that can automate all of these and really give us a view to say, do not go to this team.* (MI02)

Most of the participants in the focus groups believe AI has tools that can assist with planning Change Management activities. They believe AI can assist in gathering the change initiatives' information and analysing it. Some participants believe that having voiceover tools within the AI can influence Change Management.

> *Exciting for me are tools that can help us with the actual change, not the planning of the change but the gathering of information and Analysing information and decision making, and those things that would be exciting, more exciting for me then.* (FG01-P1)

> *You know, it would be nice in the future if, you know, you had something, I guess, using more Artificial Intelligence so that people can learn by doing and perhaps this, you know, some AI involved that, you know, with maybe voiceover's, etcetera, saying: OK, no, that has come on. Do not press that, this is what you need to do, and this is how you need to do it, and you know that would be great from a training and tutorial perspective.* (FG04-P4)

Kumar and Garg (2018) agree that predictive analytics technology enables organisations to identify stakeholders' patterns in the form of data. The collected data can be used to predict different results that might impact the change initiative implemented within the organisation. The data is also used to predict future change implementation and assess the success rate. These components are a combination of stakeholders' interests, knowledge and skills that can be used to

benefit the change initiative that will be implemented within organisations, as Ogunleye (2014) also agrees.

> *I would not go to the particular articulation of what technologies, but I would rather talk about the perfect and applicable functionalities in Change Management projects. My summary response says that the proper understanding of the intricacies of a project and the anticipation of all the users' needs. Mm, which means forming very sound, strong foundations of the data. Mm. That is relevant to the users. Then, the level of the users and the environment of the users become important.* (SI01)

AI can assist in managing Change Management to avoid scope creep. AI can improve the change managers' work pace to ensure Change Management activities are implemented with agility, quality and on time within the budget. AI technology uses the flow of data to predict what is likely to happen and which action the stakeholder will take, based on patterns observed by the technology. This will ensure the technology proceeds with some solutions behind the scenes without human intervention.

> *See, it can assist in scheduling, uh, meetings. Furthermore, it can also assist in ensuring that, like scheduling, scheduling assistance, like I said, Natural Language Processing, speech recognition and machine vision. Wow. You know, it can recognise the speech. Yeah. Wow. It can communicate to us like human beings*. (EMI02)

Artificial Intelligence can collect data for stakeholders requiring training and perform the training needs assessment and analysis using this gathered data. It can further predict the stakeholders' knowledge and skills and use the data to ensure relevant courses are proposed for appropriate stakeholders through intelligence. The information is then shared with learning and development. The technology also improves the learning platform by digitalising training to effectively respond to the training needs of the stakeholders and adapt intelligently to their requests, as Janiesch et al. (2021) confirmed.

In this regard, the machines are trained on specific functions to predict the users' training needs and suggest relevant courses in line with the users' training requirements. AI technology further plans and ensures that the relevant content is available to ensure that for-purpose training is delivered to the end users. These technologies ensure effective input measurement and use intelligent agents to predict the output, while the information forms a true reflection without human interactions.

Joseph et al. (2016) agree that technology can collect information and knowledge regarding how human beings or people talk and think using AI technology. This includes the ability to assess multiple languages and emotions and further interpret and analyse people's emotions. Additionally, through its understanding of the use of intelligence, it can deploy natural language to perform tasks.

> *Umm. The program runs to create or pick up themes, but it is brilliant because it also picks up the emotion that comes through in the people's vocals. So, it does not only look at the words, but it looks at, yeah, it manages to pick up on the emotions, tones and everything. It is really phenomenal.* (FG03-P1)

Alhawiti (2015) agrees that Speech Recognition is a subset of Natural Language Processing that allows people to speak, and the AI technology can take the recorded voice, translate the speech, and develop a document that stakeholders can refer to when they require any information regarding the change initiative.

The Change Management team does not need to manually type as the stakeholder speaks; instead the AI automatically captures the wording as people speak. AI can pick up the patterns during change implementation and suggest a solution that will automatically inform changes as well as predict risks before they become issues. The Change Management team is then always informed of the issues and has a relevant action plan rather than executing the same plan for every change initiative implemented within the organisation.

5.4 Discussions pertaining to Proposition 1.3

The discussion pertaining to Proposition 1.3 is presented below.

Artificial Intelligence technologies can add value to Change Management activities. Furthermore, using AI to implement digital Change Management processes can effectively measure and evaluate Change Management activities.

Artificial Intelligence has been affirmed to add value to Change Management activities. It is imperative to digitalise Change Management processes as the manual way of implementing Change Management activities is affecting the productivity and morale of Change Management teams. With AI Change Management, team performances can improve, and both effectiveness and the Change Management activities' successes can be evaluated without human intervention. Technologies have been affirmed to add value to Change Management activities, so it is imperative to digitalise Change Management processes as the manual way of implementing Change Management activities is affecting both productivity and the morale of Change Management teams.

5.4.1.1 Participants' experience and knowledge of the manual Change Management process and its impact.

The study indicates that most organisations still use manual implementation of Change Management activities. This frustrates the Change Management team as it takes much time to implement those activities, and the focus becomes more on administration than driving and leading change.

> *Um like I have indicated before, the processes mostly are still manually. Sure, obviously, it come[s] with a lot of changes being implemented to be aligned with the Fourth Industrial Revolution. The manual processing really has an impact on productivity accuracy due to the lack of agility and human errors. Wow. Play a part. Mm-hmm., you know. As long as there is human intervention, obviously there are a lot of errors that, you know, you can find or get.* (EMI02)

> *Ahh, Change Management is manually implemented, there's nothing digital. Because the certain functions that really, I mean, you need [to] do administration, you need to do record-keeping. You need to engage; you need to so there's too much admin that goes with the work. This takes time and it really affects productivity, for instance, and efficiency in that regard. I wish I had a little robot that works with me.* (FG01-P2)

Manual Change Management processes have a negative impact on a Change Management team's performance. The findings suggest that the manual process also impacts the accuracy and reliability of data about change implemented within organisations. This proves that where there is human interaction, there will be human errors which cannot be avoided.

5.4.1.2 Participants' perception of AI's positive effect on Change Management.

The study demonstrated AI's positive influence on Change Management; this shows the level at which AI can add value to digitalise Change Management processes. It was further elaborated how AI will allow the Change Management team to be productive and effective in performing its duties, and how AI can be used as a risk management tool and be mitigated before these negatively impact on the change initiative being implemented.

AI technologies can plan and govern Change Management processes by predicting the size and impact of change, and can further gather data regarding what stakeholders are required, assess expectations, and enable the change team to be proactive in managing stakeholders' needs. Communication may be improved through technologies and Organisational alignment. Moreover, change resilience muscle can be increased as the technology can assess the behaviours and patterns, then predict what will happen next.

These factors will improve the relationship requirements and buy-in commitment and encourage ownership of the change that has been implemented, which will in turn lead to full adoption and utilisation, which can achieve a return on investment.

Governance and Planning

Shih (2021) concurs that AI possesses the scheduling technology that automatically sends emails back and forth to stakeholders, checking their availability. The AI Virtual Scheduling assistant is an intelligent agent that the Change Management team can use to schedule Change Management workshops. Furthermore, the technology can set reminders and email such reminders a few days before the workshops.

Wajcman (2019) agrees that a virtual scheduling assistant can even share the schedule with stakeholders in preparation for a session. The technology can assist the Change Management team in managing their diaries, sessions and activities.

The results show that AI technologies based on the predictions could identify what is required to plan and govern Change Management processes. The technology could utilise the data flow to predict prospects of the status quo and trends.

> *Mm-hmm, it is the same thing here. So, um, you know, it feeds that information. Gets that, you know, data and intelligence around, um, the data that has been, uh, gathered and intelligently analysed so that it gives us a better lens from a Change Management perspective so that there are areas that we know precisely how we can improve and how we can start engaging differently. These will ensure effective planning.* (SMI02)

> *Uh. Make it like they have one interface to input data and we have this pulled through into plans for them. It gives them more time to interact. Also, if change managers could create for themselves.* (FG02-P1)

These activities will provide the Change Management team with relevant information to develop strategies and plans using accurate data and predictions. Included are digital planning and governance of the Change Management activities and scheduling of information sessions without human interaction. It was further shown that AI technologies assess situations and may automatically

make changes to risks predicted by the AI to minimise the likelihood of change implementation failures.

Stakeholder Management

Wright and Schultz (2018) agree that AI has the technology to manage stakeholders; moreover, this stakeholder management tool can strengthen the change resilience muscle to ensure stakeholders' adoption of change. The AI technology can ensure that the Change Management team complies with stakeholder management frameworks built into the AI technology. Stakeholders must be managed accordingly, and their needs must be considered to ensure their buy-in to the change initiative, that they commit and take ownership.

The findings suggest that one of the positive effects of AI on Change Management is its effectiveness in managing stakeholders. The value-adds in Change Management come from ensuring that stakeholder needs are identified and categories based on the patterns without human intervention. This means that through the predictions, the technology may also identify a stakeholder's needs and the type of engagements required and propose a solution to be implemented to ensure stakeholder management effectiveness.

> *You should start saying, um, as we are getting feedback from the users and stakeholders, you put it into a learning machine, and it can start doing some analysis for you. And it can start predicting to say, because based on previous projects, yeah. Alternatively, in previous engagements that we have had, based on that, you must start engaging more. Wow, with this quadrant of stakeholders. Mm. Wow. Uh, so you almost like, start feeding it certain data based on feedback received.* (SMI02)

> *AI technologies background picks up what you have identified as something of interest to you, and then it starts personalising your page and the pop-ups in front of you. So, you start seeing a lot more of the things you showed interest in and would be interested in purchasing or reading about. And that is an excellent example of explaining what AI does for people; this can help*

us [in] Change Management to manage and identify stakeholders' requirements and interests and manage them accordingly. (FG03-P1)

Communication

Alam et al. (2019) agree that AI technology could be used for stakeholder communication; this technology can have conversations with stakeholders, ask them questions and provide them with relevant answers. The technology is available 24 hours a day, benefiting the stakeholders. They do not need to wait until the following day or for office hours to get answers or clarity regarding the change initiative.

Nazareth et al. (2021) agree that this technology's role is the interaction partner that can be used to identify stakeholders, assess their level of commitment and understanding and predict how a stakeholder will react to change initiatives. The technology can also be used on any device, including mobile phones.

Within the finding, there was a strong belief that AI has the ability and functionalities to communicate with stakeholders continuously. This emphasised the technologies to keep stakeholders informed of the change that will be implemented and allows them to ask the machine the question and be provided with the relevant answers.

Artificial Intelligence can then have some form of a conversation with the users by getting all the algorithms right, saying: If, uh, the, if, if an answer to the first question is, is A, then the conclusion is this. If the answer is B, then you move the user to C, or you move the user to F because the algorithm then understands that if you ask this kind of a question, it means that what is further relevant will be this, will be that, so that it then saves the day in that maybe a full staff compliment of 60 people attending 6 000 people can be saved. (SI01)

So, if we were to video clips, or robot speaking enhancing that knowledge and enhancing that information, we wanted to go out there. It could be better read and take even the feedback; maybe some of the communication could

be interactive, and that communication and that interactive communication could be loaded into their various algorithms. We could use that instantly, you know, and we could have real-time information is just my view. (FG03-P4)

AI technologies can have a conversation with different stakeholders at the same time and be relevant to stakeholder needs, and this further shows that AI algorithms could be used to improve communication within organisations. The technology could assess stakeholder's emotions and channel the conversation in line with the stakeholders. This means 24-hour communication with stakeholders and the ability to communicate with them anywhere, at any time.

Training

Yueh and Chiang (2020) concur that AI technology uses robots to provide appropriate training to stakeholders via online learning platforms. The technology inspires users' critical thinking, conveys interactive expertise, and ensures stakeholders are well-prepared for the future state. The human-computer collaboration model within AI ensures that users have access to personalised training content aligned with the stakeholder's training needs.

Mirchi et al. (2020) agree that AI technology can validate that stakeholders have acquired relevant skills and expertise during training. The technology provides users with unpacked and analysed learning material that is user-friendly and easy to understand. After the training delivery, AI ensures that what has been learned by the users is assessed through the simulated tasks to meet the training requirements.

According to Siddiqui et al. (2019) is true that AI in cloud computing enables the Change Management team to deliver stakeholder training and ensures that both the training content and the assessments are saved on the cloud. This provides effectiveness for the analysis and reporting. It also gives the organisation a massive space to seamlessly integrate with other systems.

The results suggest that AI has the technology that can be trained to, in turn, train the users. It demonstrates how much training can be enhanced through the technology by making the change impact based on the results and data flow prediction, then performing a training needs assessment, ensuring that training is personalised and aligned to the stakeholders' training needs. This emphasises the use of machines through AI to train people. Furthermore, it ensures that relevant training is implemented faster than human beings can do this.

> *Mm-hmm. Um, and as well as create desire and, and that sense of affinity with the change, can be used to train on simple subjects and handle, uh, q and or troubleshooting. On, um, the specific topics and if I am talking about ability whereby people can say: I have been trained to do ABC. Further alluded that: during the knowledge, uh, the case stage, but now I need to figure out how to do this. I am getting stuck. Let me go to the PC and ask the question. And that is why Artificial Intelligence comes in without necessarily staging a session or going through a handhold of a human being.* (SMI01)

> *Some of the initiatives we can, you know, improve using AI is some of the initiatives like training as an example. You know, if that data is fed into a machine, that machine can then train, you know, the things you need to, such as the training initiatives.* (FG02-P2)

> *And it will. It will take you through the steps like it will simulate it for you. It's more like a simulation, a training kind of, yeah, but it's context-based like, yeah.* (FG01-02)

Both the findings and the literature review confirm the assumption that AI technology can use machines to train stakeholders on the new way of working. The machine will be trained to ensure that the training need assessment is done accordingly, stakeholders are trained on relevant material, and their training is personalised. AI has the technology to facilitate training and organisations must consider the cloud to save the training content, assessments and reports for record-keeping and data protection.

Change Resilience – Organisational Culture

This refers to the behaviours of the stakeholders to influence and inform a positive Organisational culture. Brandon et al. (2020) agree that AI has the capability and functionality to identify behavioural patterns based on stakeholders' moods and answers to change initiative questions and then predict the possible next move that the stakeholder will take and, based on that, what interventions are required to change the attitude. Moreover, it can mimic human behaviours and predict a solution. Yueh and Chiang (2020) agree that AI can assist organisations in transforming the Organisational culture by instilling creativity and collaboration and imparting digital knowledge, allowing stakeholders to have a digital mindset.

Organisations can benefit from AI, including in the improvement of the Organisational culture. The context of the study illustrated how AI could change the stakeholder mindset, which will influence attitudes and further influence how people do things within the organisation. Artificial Intelligence is perceived to have the ability to influence the digital mindset.

> *Once the people in the organisation understand the value and the benefit of AI, it can help improve the culture. Um, and I, I do think there could be that. The big shift in how things are done, you know, ways of work. Right. Because that is what it does, you know, it improves on ways of work.* (MI02)

Furthermore, the finding indicates that adopting AI could assist in embedding knowledge, ensuring the resilience muscle is strong enough to handle any change being implemented within the organisation, and people will therefore not go back to the old way of working.

5.4.1.3 Participants' perception and knowledge in using Artificial Intelligence and implementing digital Change Management processes can effectively measure and evaluate Change Management activities.

Xiao et al. (2020) agree that human-computer interaction (HCI) research, which the Change Management team can use for surveys, can measure change readiness by creating relevant questions in line with the change initiative and personalising them according to stakeholders. The team can use this technology

for Change Readiness Assessment. Furthermore, the technology can collect feedback from open-ended questions, assess and analyse the information, provide relevant information, and propose a solution to address the gaps. The technology will assist organisations in evaluating the stakeholders' readiness to embrace the change.

> *It comes to when a benefits realisation, which, more often than not, is not even. The perceived benefits are being defined at the beginning of a change initiative, but I have yet to see them. The tracking of the results once a project is transitioned into.* (SMI03)

> *Uh, machines can. I can ensure that the adoption is taking place so that the AI component assists with tracking adoption. So, to make sure that people are using the new way instead of reverting back to the old one, that could be one.* (MI02)

Suen et al. (2019) agree that organisations can use asynchronous video interview (AVI) software, an AI technology that can automatically interview people at a given time. This technology allows an interviewer to vet and assess the audio-visual records and, based on that, develop a report. The technology will ensure that leadership readiness to drive, and stakeholders' readiness levels to embrace the change initiative, are well-assessed based on their patterns and predicting results, then analyse and propose a relevant solution.

> *The one I think could be a source for it can be utilised for data-gathering and monitoring of a change. So, when change is executed. Artificial Intelligence in the background can monitor whether it is some form of technology change, right? Let us say it is a technology change or executed.* (FG02-P1)

AI has the technology the Change Management team can use to assess stakeholders' or users' experience throughout the change implementation, including the level of communication, plus whether the users are using the solution and if they are experiencing issues. The issues experienced can then be resolved well within time. Moreover, the technology asks questions and follow-up

questions depending on the stakeholders' answers. The intelligence machine gathers that and presents the report and recommendations (Sidaoui et al., 2020). The Change Management team can also use the technology for post-implementation assessment.

The results show the level at which participants believe AI has the technologies that may assist in digitalising Change Management processes, which will lead to an adequate measure of the success rate for Change Management activities implemented within the organisation.

> *On a certain stakeholder type, uh, we were able to do that penetration. I do not know right now if there is a proper measure of success. That we are using. However, uh, on the one project that I am aware of, there is also the qualitative analysis we use because we are getting, you know, detailed answers, but on the qualitative, quantitative side.* (SMI02)

> *Uh, machines can. I can ensure that the adoption is taking place so that the AI component assists with tracking adoption. So, to make sure that people are using the new way instead of reverting back to the old one, that could be one.* (MI02)

> *The one I think could be a source for it can be utilised for data-gathering and monitoring of a change. So, when change is executed, Artificial Intelligence in the background can monitor whether it is some form of technology change, right? Let us say it is a technology change or executed.* (FG02-P1)

Digitalising Change Management processes can assist in ensuring the change initiatives that have been implemented and the Change Management activities are monitored and evaluated. This will ensure that Change Management effectiveness is measured and where necessary. corrective measures are implemented. Change Management and manual measurement lead to subjectivity and biases. This is a call for action to ensure that relevant AI technologies are available to track the adoption and utilisation of change initiatives. These will lead to a return on investment.

AI technologies have the capability to gather Change Management information, using the flow of information to assess and evaluate Change Management successes. This will ensure the accuracy and reliability of data by providing a true reflection. Furthermore, it suggests corrective measures or solutions to improve Change Management performance and productivity.

5.5 Unexpected findings

The findings indicate that Change Management team members believe AI may take their jobs as machines will replace them. They see AI as threatening their careers. Some participants believe AI can never take over the human element; face-to-face interventions will still be required. This means there needs to be more trust in AI technology to entirely digitalise Change Management.

> *Umm yeah. I think we should if they are those tools, but if it is at the Organisational level or we have to convince someone, I think it is OK. We are doing OK without it, even though it could help.* (FG01-P2)

> *Come to think of it, after implementing AI, and we will not have jobs. I am not comfortable being replaced by the machine.* (FG01-P3)

5.6 Summary

The primary findings answered the research questions for the study. Primary and secondary findings show that AI has a role in Change Management. The study demonstrates the relationship and commonalities between Change Management and AI, further showing the AI factors that influence Change Management. The study demonstrates the frustration and negative impact caused by manual Change Management processes. Moreover, using AI to digitalise Change Management processes will add value and enhance the agility, accuracy and reliability of data for the change implementation. The study will also assist leadership within the organisation to realise that AI is the technology to be

implemented to digitalise Change Management processes and their benefits. Additionally, AI can improve Change Management governance and planning, stakeholder management, communication and Organisational culture by instilling a digital mindset.

CHAPTER 6 – CONCLUSIONS, LIMITATIONS & RECOMMENDATIONS

6.1 Introduction

This chapter integrates and concludes the study findings. These include the indicators of the main contribution to the research problem and the literature review about Change Management and Artificial Intelligence (AI). Furthermore, the chapter provides a findings summary relating to the research questions.

Additionally, this chapter explores relevant recommendations for solving the research problem and question and provides suggestions for further research to support the study.

The research questions for this study were as follows:

1. Main Question: To what extent does Artificial Intelligence have a role in Change Management?

1.1 What are the factors that influence Change Management?

1.2 What are the Artificial Intelligence factors that influence Change in Management?

1.3 How can Artificial Intelligence technologies add value to Change Management activities?

As part of the process of seeking to answer the research questions, the study involved conducting one-on-one interviews with nine participants and three focus groups, comprising executive management, senior management, change managers and Change Management specialists.

6.2 Conclusions for each Research Question

6.2.1 Conclusion regarding research on the main Question 1: To what extent does Artificial Intelligence have a role in Change Management?

The research question aimed to explore Change Management and understand the extent to which Artificial Intelligence has a role in Change Management in organisations, and whether the adoption of AI is the technology that can assist in implementing Change Management effectively.

Based on the literature review and participants' findings, assumptions have been confirmed that AI can enhance the Change Management implementation approach to its activities. Artificial Intelligence can assess the history of change and how it was implemented, which will assist in predicting the change's impact in a relevant manner. Moreover, this will ensure that the Change Management team makes a relevant choice of strategies and methodologies to ensure effective governance and planning.

Artificial Intelligence technology's ability to predict the impact of the change will inform how the Change Management planning and governance will be completed by ensuring proper planning. This will further assist with managing stakeholders and enhancing communication management. This demonstrates that Change Management decisions will be improved through AI technology, which will also enhance the Change Management processes to be implemented quickly and conveniently within the organisation.

It further shows that stakeholders can be managed through the technology by identifying stakeholder needs through the AI algorithm and mapping communication requirements and channels, so enabling effective communication.

The technology can assess the training needs based on the impact and how stakeholders are impacted by the change initiative implemented within the organisation. Furthermore, it can provide a true reflection of training data, the input required to ensure effective training, and the expected output.

The fact that AI technologies can gather and analyse stakeholders' patterns also assists the team to gain information on the stakeholders' thought process and provide relevant and appropriate support to meet their needs by confirming the relationship. It is anticipated that this will motivate continuous learning and the adoption of digital culture. It will also encourage employees to use digital technologies such as AI and ensure that such employees are capable and adapt to using them. This will bring about leaders within the organisation identifying and acknowledging the significance of AI and its role in Change Management. The study proves clearly that there are commonalities between Change Management and AI, and that AI has a role in Change Management.

6.2.1.1 Conclusion regarding Research Question 1.1: What are the factors that influence Change Management?

The research question aims to investigate the factors that influence Change Management. The literature review and the finding from participants affirmed suggestions that it is crucial to ensure that governance and planning are in place to ensure the relevant frameworks and methodologies are selected to implement Change Management.

The Change Management team needs to develop Organisational Change Management strategies, including the frameworks to be used and all components with critical success factors, to ensure that Change Management is well-governed.

Change Management activities need to be planned, which means Change Management plans need to be developed, with the inclusion of phased implementation of Change Management activities. Timelines are included to ensure the adequate monitoring and evaluation of Change Management implementation.

The findings from one-on-one interviews with participants and focus groups, plus the literature review, show that leadership alignment is a significant initiative for the successful implementation of change initiatives. This shows the need for sponsorship, ensures the leadership's buy-in to the change, and takes ownership of the change initiative.

It has been proven that leadership commitment leads to employees' buy-in to change, mainly because employees believe in their leadership and follow what their leaders do, making it easy to solicit buy-in.

Stakeholder management has been shown to be one of the critical success factors in Change Management implementation. This study suggests that stakeholders are an integral part of such change. Stakeholders need to understand the change that has been implemented and buy into it. These stakeholders need to be managed, including their requirements and expectations. Alignment needs to be reached between stakeholders and the change initiative being implemented. An organisation can develop creative solutions with successful implementation, which involves full adoption and utilisation; leading to a return on investment for the stakeholders.

Communication plays a significant role in Change Management. Effective communication is required as stakeholders must be informed of the change initiative, its benefits, and how it will impact them. Participants further alluded to the fact that when stakeholders are well-informed, they feel they are part of a change initiative and this will assist in managing the rate of resistance to change.

Lack of communication will cut the flow of information to a stakeholder regarding the change. Stakeholders need to be informed about their role in implementing the change initiative and how they will be supported throughout the change process. Communication gives stakeholders a clear understanding of their contribution towards the change implementation and will comfort them when they know more about the change being implemented.

Training was identified as a significant component, with stakeholders needing to be ready for the change being implemented. The relevant knowledge must be imparted to stakeholders to enable them to perform their day-to-day tasks. This includes how to adopt change, coaching them on new ways of working, up-skilling and re-skilling them …all of which will assist in ensuring the adoption and full utilisation of the change being implemented.

Organisational Culture, as suggested by people's mindsets, has an influence and will inform attitudes during a change process and also influence behaviours.

Change need to stick in the mind of stakeholders to ensure it is reinforced and sustained. This study further confirms that if the organisation has a learning culture, it can assist in ensuring a mindset favouring innovative and continuous change, thus helping to manage resistance and sustain change.

6.2.1.2 Conclusion regarding Research Question 1.2: What are the Artificial Intelligence factors that influence Change in Management?

The research question aimed to investigate the AI factors influencing Change Management. The literature review includes findings that AI has real-time factors influencing Change Management. Artificial Intelligence functionalities and technologies can also be used to improve how Change Management implements its activities.

These findings confirm the assumptions that AI possesses the technology to identify stakeholders' patterns and collect the necessary data to predict different results from a change initiative being implemented within an organisation and its overall impact. They further showed how stakeholders' impact, influence, interest, knowledge and competencies could be identified through AI technologies to benefit the implementation of change initiatives.

An organisation can use the collected data to predict future change requirements, which will inform the governance and planning of Change Management activities. This will ensure that the Change Management statement detailing the work and its scope is well-prepared and that the planning and implementation standards are of a high quality and implemented timeously within the planned budget. The technology ensures that the identified issues, predicated through the flow of data, include the solutions to be implemented at the back end without human intervention. AI technology can deal automatically with a stakeholder's next move or thought process based on observed stakeholder patterns.

The study further indicated that AI has the technology to communicate with stakeholders and provide them with 24-hour support. This technology can predict possible questions that might be asked by the stakeholder and can add a follow-up question to gain detailed, comprehensive answers. This technology enables

a conversation with stakeholders, allows stakeholders to ask questions, and provides them with relevant answers regarding the change initiative being implemented within the organisation.

Change Management can leverage AI intelligence, which can be used for training users. The functional team can train the machines on a critical function in line with the change initiative or solution. This technology further has the ability to identify training needs and propose what to train users in, according to their requirements predicted by the AI technology. This AI technology ensures that the relevant training is delivered, and that the training material is available for the user. The technology automatically reviews the delivery of training, measures the success of the training, then provides an accurate reflection report and the proposed plan of action, all without human interaction.

It has been shown that AI can gather data on how stakeholders talk and their thought processes. This can further be used to assess various languages used, and use the intelligence to interpret and analyse stakeholders' emotions.

Based on those patterns, AI is able to analyse stakeholders' patterns and propose solutions throughout the change implementation process. This technology is able to identify risks and mitigate them without human interaction.

The findings indicate that AI can record stakeholders as they speak, recognise stakeholders' voices, translate their speech, and use the information to create documentation or reports. This will assist in cutting Change Management time otherwise involved in manually typing in stakeholder information.

The research findings further showed that AI technology can observe stakeholders' patterns, assess these patterns, and then use that information to predict the type of Organisational culture. It is further indicated that AI can change the mindsets of people within the organisation, although this depends on how the technology is introduced and embedded within an organisation. If there is a need for an Organisational change initiative, it can propose an initiative that could improve Organisational culture.

6.2.1.3 Conclusion regarding Research Question 1.3: How can Artificial Intelligence technologies add value to Change Management activities?

This research question aims to assess whether AI can add value and influence Change Management. Furthermore, it seeks to investigate how AI can digitise Change Management processes to improve its activities.

Organisations currently implement Change Management manually. This manual process negatively impacts Change Management performance as it delays the team doing what it is supposed to do, which is to lead and drive the change initiatives. It discourages the Change Management team because it takes too much time and causes change managers to focus on administration, so impacting the quality of Change Management activities being implemented.

The use of manual implementation of Change Management processes leads to data not being accurate and reliable in regard to change being implemented within organisations. Manual implementation further affects the efficiency and effectiveness of Change Management.

The positive influence of AI on Change Management was shown in the study, while further showing how AI can digitalise Change Management processes. This issue was explored further and indicated the positivity of using AI as a technology, so allowing the Change Management team to be both effective and efficient. AI tools can manage Change Management risks and ensure these are mitigated before they can cause damage to the change initiative being implemented. Using AI technology to implement Change Management will improve performance.

AI technologies ensure proper Change Management governance and planning by utilising intelligence to predict the impact caused by the implementation of change initiatives. Through technology, stakeholder information can be gathered about needs and expectations. The AI technology will assist Change Management to be proactive, rather than reactive, in managing stakeholders.

The study further elaborated on how AI can ensure communication effectiveness by effectively ensuring that the relevant information is available for the stakeholders when required. When stakeholders are well-informed and aligned with the change initiatives, this will trigger their interest in the change, increasing the opportunities for buy-in and managing resistance to change. Furthermore, AI can build change resilience by evaluating patterns in the behaviours of stakeholders and forecasting the probability of a stakeholder reacting in a certain way, thus easing the monitoring and proposal of relevant activities.

When stakeholders realise the support they are getting throughout the change process and their requirements are being met, they will commit to supporting the change initiative, so allowing them to take ownership of the change initiatives. A return on investment can be achieved through the technology, which will encourage change adoption and utilisation.

Artificial Intelligence is a great technology, the Change Management team will perform well, and the benefits from Change Management will be realised. As shown by the research study, Change Management success can be measured using AI technologies. Furthermore, digitalising how Change Management is measured will lead to accurate reporting of Change Management implementation. Through AI technologies, information on Change Management activities can be collected. Using that flow of data will enable the adequate assessment and evaluation of Change Management successes. This will eliminate subjectivity and ensure the data is accurate and reliable. It will assist in proposing relevant solutions to mitigate issues identified during the evaluation of Change Management activities.

6.3 Limitations

No previous study on the role of AI in Change Management had been conducted, so gathering information from the relevant literature took more time than anticipated. More searching had to be carried out to ensure the relevant information was acquired. Some participants needed to be more honest with

regard to the information they provided. Some of these limitations were countered through reflexivity. Certain participants failed to honour their interview invitations, but sessions were conducted in their absence as there was still a quorum. Some participants withdrew from the study because of personal and work commitments. In certain cases, participants were replaced with other available candidates who matched the study's requirements.

Interviews took longer than expected as some participants were passionate about the topic and wanted to provide more details, and there were some challenges related to time constraints. Participants were managed to ensure time limits were maintained. Additionally, the planned two focus groups left some gaps, leading to the third focus group session being conducted in such a way as to enable more information to be gathered to ensure the study's validity.

Focus group timings had to be changed owing to issues of participant availability. Some such times were changed to after normal hours and others to different times during set working hours. Some participants were uncomfortable talking in a group setting, which limited the opportunity to collect more data from those participants. It was imperative to reassure participants about confidentiality and that the study findings would not be traced back to them. Some participants were unable to be effective in a focus group owing to distractions during focus group sessions. Sessions had to be redirected accordingly.

6.4 Recommendations

Artificial Intelligence has a significant role in digitalising Change Management processes to ensure agility, reliability and accuracy of data for the change initiatives implemented within organisations. The following figure illustrates the AI technologies that can be utilised to digitalise Change Management.

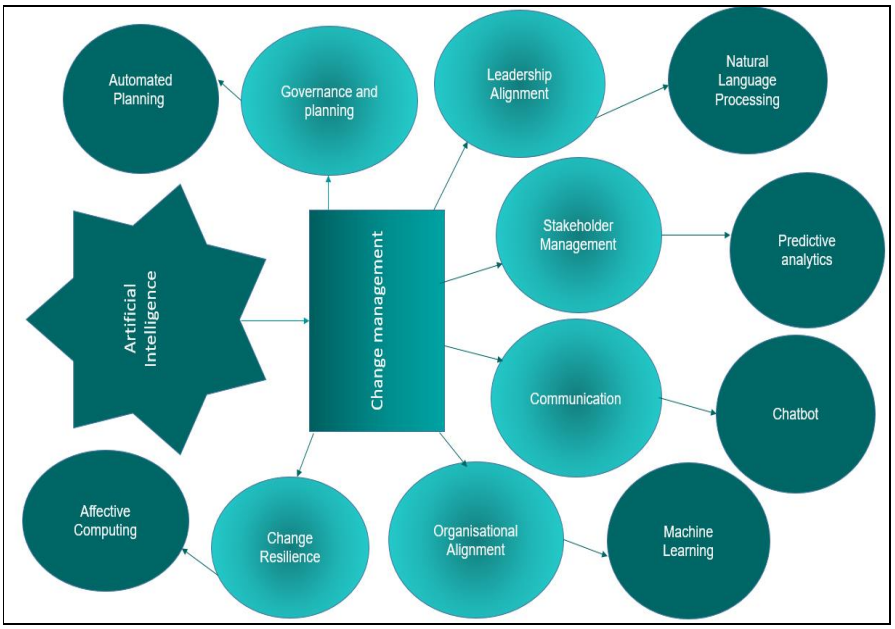


Figure 6.1: AI Change Management (researcher's own construct).

Artificial Intelligence Technologies that can digitalise Change Management processes:

Governance and Planning – Automated planning

Technology can improve Change Management governance and planning by automating the Change Management frameworks, planning and scheduling Change Management activities to ensure effective implementation. Furthermore, the technology will ensure that Change Management objectives and goals are achieved on time, within budget, and that quality is high.

Leadership Alignment – Natural Language Processing

Natural Language Processing can improve leadership alignment. Leadership alignment requires a technology that can identify leadership speech and record the relevant words spoken or put in writing by the Organisational leaders as part of driving and leading the change initiative. It is imperative to understand the leadership's temperature, interpret it, give it meaning and conceptualise it to ensure relevant communication is shared with the leadership to ensure commitment and ownership.

Stakeholder Management – Predictive analytics

Stakeholder management can be improved by using predictive analytics technology, and it can assess the stakeholder patterns and predict possible action that the stakeholder may take. The history of change initiatives implemented is also crucial as this might contribute to the success rate. Predictive analytics can provide historical data that can guide the change team by providing stakeholders' desires, knowledge acquired, skills and competencies required to implement change initiatives successfully.

Communication – ChatBot

Communication can be improved by using a ChatBot to communicate with stakeholders effectively: The ChatBot is software that delivers apparently live conversation via chat. This provides stakeholders with 24-hour support as it provides one-on-one conversations that appear as if they are with humans. A ChatBot can give stakeholders immediate answers to their questions regarding the change initiatives and prompt follow-up questions where necessary. The technology can be used on smartphones, laptops, or any device. ChatBot interventions can encourage a positive attitude towards change introduced.

Organisational Alignment – Machine Learning

Organisational alignment requires an impact assessment to be conducted to ensure the level of change caused by the change initiatives is analysed. This is to assess the level of change readiness for the stakeholders to embrace the change. Additionally, stakeholders' or learners' data is gathered and an assessment must be conducted to understand the level of knowledge, competencies and skill. Machine learning can improve Organisational alignment by ensuring the impact is well-assessed and analysed. Furthermore, the change readiness can be assessed using machine-learning algorithms so that the relevant courses are selected for stakeholders and that the technology responds to learners' needs by intelligently adapting to stakeholders' requests.

Change Resilience – Affective computing

The organisation must ensure that the strength required for change resilience muscle is increased to sustain the change implementation. Affective computing has been found to assist in identifying contributing factors to the types of relationships, including emotions and decisions around matters within organisations.

The technology can also be used to assess the Organisational culture, which is one of the significant factors in the successful implementation of change initiatives. It can improve the Organisational culture by assessing the stakeholder response to change during the post-implementation period using an Affective computing algorithm focusing on characteristics and attitudes based on emotions, human behaviours and relationship management with stakeholders, and how they make decisions regarding the change initiatives within the organisation.

AI has a role in Change Management, however, implementation requires organisations to perform the following activities to ensure the successful actualisation of AI so that the benefits can be realised.

6.4.1 Technology readiness assessment.

An organisation needs to perform an environmental assessment to decide on the readiness of technology to implement AI technologies. These include the infrastructure, as organisations need to ensure the flexibility, accessibility and reliability of their infrastructure. It is recommended that part of the assessment should include whether the organisation has available hybrid cloud technologies with enough capacity to cater to AI implementation. Hybrid cloud solutions are one of the critical success factors as their workloads are compatible with technology demand, this being the requirement to sustain AI.

Organisations should consider the following as part of the technology readiness assessment:

- Size of the computing capacity

Implementing AI technologies requires that organisations have high-capacity and high-performance computing resources. Implementing AI requires a large storage capacity and speedy network performance. The environment needs to be able to handle AI workloads, as these involve various data sets and the deployment of scalable neural network algorithms, which cannot be accommodated by a standard central processing unit (CPU).

- Sufficient Storage Capacity

The organisation must note that AI takes up much space. There is therefore a need for the infrastructure to have available a large amount of storage owing to the size of data volumes. Requirements gathering for the level of AI technologies available within the organisation must be done in advance as this will advise the amount of storage required. In this case, AI technology to digitalise Change Management will require large-scale storage. The technology will also require real-time communication, solution implementation and decision-making. These will also need to be monitored and evaluated to ensure their effectiveness and the return on investment (ROI).

- Effective Network Infrastructure

Networking is a crucial part of AI infrastructure. Organisations need to assess their IT applications, storage and current databases in terms of the required databases and their networking capacity. The AI algorithms strongly depend on communications and networks must align with the speed of the AI technology demand.

- Data Security

Data security is critical as AI technology includes handling the Organisational data. This data includes employees and stakeholders, and some information/data might be sensitive. Security systems must include authentication processes to avoid data breaches and cyber-attacks. The organisation needs to ensure that

zero-trust communication programs are implemented for their technologies, which will ensure that nothing is trusted until it is authenticated.

6.4.2 Artificial Intelligence Awareness.

It is highly critical for the organisation to create awareness and understanding of AI intelligence technologies. The adoption of AI technology is heavily dependent on awareness. Communication regarding AI technologies needs to be well managed. Organisations need to ensure that a communication campaign is implemented to ensure robust stakeholders are informed about AI technologies.

A communication plan needs to be developed. Such a plan includes the target audience, messaging, the message objective and its impact. It is recommended that employees be informed about the nature of AI technology, the various types of AI technologies, their benefits, how these technologies are implemented, the journey map, and employees' role in implementing AI technologies as users. They need also to learn what is expected of employees to ensure successful implementation of AI technologies.

Information regarding AI technology must be communicated to the Change Management team and employees. Effective stakeholder engagement sets the tone and will provide stakeholders with a clear understanding of AI, what it will take to implement AI, the risk of not implementing AI, and the timelines. AI awareness will eliminate confusion and ambiguity in sharing information regarding the AI change initiative.

6.4.3 Leadership Commitment.

Leadership needs to drive AI adoption at the top. Leadership needs to identify the AI technology relevant to Change Management and the Change Management team so that they clearly understand the technologies and can articulate them to staff members. Leadership will ensure the information regarding the technologies flows downwards to ensure employee buy-in to AI technologies. If there are issues, leadership will identify them at that level to ensure there is no information gap. Leadership will create structures, such as AI change champions for their

business units, to ensure they can assist employees if they require more AI information. Feedback mechanisms have to be in place for the successful implementation of AI technologies.

6.4.4 AI Technologies Training.

Training will play an important role in ensuring success in implementing AI technologies. Organisations are required to train stakeholders during the implementation of AI, deciding how stakeholders will be supported, and ensuring they support each other through the AI change implementation process. The training should include available AI technologies and how AI can benefit them as stakeholders while implementing change initiatives within organisations. Training and Learning Briefing ensures the readiness of leadership and employees for AI adoption. Additionally, it is crucial to train stakeholders on AI technologies.

Training encourages readiness for change, and employees' knowledge and competencies will be improved. Stakeholders will be encouraged to attend the AI technology-related courses, training quality should be considered, and sufficient time allocated for training, making it easy for stakeholders to embrace AI technologies.

6.4.5 Organisational Culture.

An organisation's culture also plays an essential role in implementing any technology. The organisation needs to ensure that employees have a digital mindset. Employees who consider technology to be the future and the way of working within the organisation will contribute to the successful implementation of AI technologies. Organisational culture is influenced by people's thought processes, which influence their attitudes towards AI technologies implementation and affect how they receive or accept AI technologies. This is the make-or-break element, as it significantly impacts the AI adoption rate. AI implementation is highly dependent on the speed at which stakeholders accept or respond to technologies, Organisational digital maturity and the employees' mindset, which influence the Organisational culture and will ensure the successful implementation of AI.

6.4.6 Learning Organisation.

Organisations should create a culture of continuous learning that includes the new way of working, with initiatives that become relevant in technology-driven organisations. Organisations should therefore start introducing technology days, during which technology partners are called on to come and display technologies, including AI technologies, and allow employees to interact with them to learn the different technologies now at their disposal. When employees are used to technologies, this will contribute positively to the implementation of AI technologies. Organisations must start investing in changing their employees' mindset into a digital mindset. Stakeholder attitudes affect the Organisational culture, which will yield a positive result in implementing AI technologies.

6.5 Areas for future research

There is a need for this topic to be taken further, with the following areas recommended for further research:

- How to ensure that Change Management will be capacitated and trained, and on which technologies to be trained. The Change Management team must have the competencies and skills to train the AI machines to ensure compatibility with Change Management activities while providing comfort that employees will not lose their jobs, instead seeing AI technologies as the solution for implementing and digitalising Change Management activities.
- Leadership must have the relevant competencies that provide comfort regarding the utilisation of AI technology to digitalise Change Management. Members will have to lead and drive this change initiative, ensuring that leadership takes accountability for employees and coaches them during the implementation of AI technologies.
- Organisational culture research should be conducted in the form of AI culture alignment research to ensure the successful implementation of AI technologies.

6.6 Conclusion

The primary findings answered the study's research questions. Primary and secondary findings showed how AI has a role in Change Management within organisations. The study indicates that manual Change Management processes cause inefficiencies and have a negative impact on the agility, accuracy and reliability of data for change initiatives implemented within organisations. The findings further showed that AI factors could influence Change Management. In addition, it was articulated how AI adds value to Change Management. Recommendations were included on the requirements for AI implementation and what organisations need to do to ensure successful implementation of AI technologies.

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APPENDIX A (One-on-One Interview participant information sheet)

Research Title: The Role of Artificial Intelligence in Change Management within organisations in Johannesburg.

Researcher: Mrs. Meriam Manamela MMDB (Master in Digital Business) – University of the Witwatersrand, Johannesburg

Dear research participant,

You are invited to participate in the focus group that forms part of my formal MMDB (Master in Digital Business) studies.

The purpose of this assessment is to determine the role of AI in Change Management. By participating in the focus group interview, you will be communicating your valuable knowledge about the role of AI on Change Management, why it is important, the value-add in implementing Change Management activities digitally, and if AI can be able to monitor and evaluate Change Management activities within organisations in Johannesburg to collectively contribute to the study. Therefore, your participation in this assessment is critical to ensure the validity of the research findings and the ultimate effective and successful implementation of Change Management within organisations.

You are therefore invited to participate in this research. Kindly note that your participation in this study is voluntary and you are free to withdraw your participation from this study at any time. This will not impact you negatively or be used against you. The interview is only for the purpose of the study and your responses will be analysed as part of the broader sample which means that your responses cannot be traced back or be attributed to you. The interview will take an hour of your time.

For further questions, please contact the primary researcher, Mrs. Meriam Manamela, on her cellphone 079 610 5569. Should you have an ethical question regarding the study you are welcome to contact the University Human Research Ethics Committee (Non-Medical), telephone +27(0)11 717 1408, email hrecnon-medical@wits.ac.za

Your participation in this regard is greatly appreciated.

Researcher:

Mamaphala Meriam Manamela, 2286934@wits.ac.za, 079 610 5569

Supervisor: Dr Jenika Gobind

Dr Jenika Gobind, jenika.gobind@wits.ac.za, +27 11 717 3761

APPENDIX B (One-on-One Interview Participant agreement form)

Title of project: The Role of Artificial Intelligence in Change Management within organisations in Johannesburg.

Name of researcher Meriam Manamela

I, ……, agree to participate in this research project. The study has been clearly explained to me, and I understand my involvement and will participate in the research. I agree to the following:

(Please circle the appropriate options below).

I agree that my participation and involvement will remain anonymous.	YES	NO
I agree that the researcher may use anonymous quotes in his / her research report.	YES	NO
I agree that the interview may be recoded on Microsoft Teams / Voice recorder.	YES	NO
I agree that the information I provide may be used anonymously after the research process ends for academic purposes by other researchers, own ethics clearance is obtained.	YES	NO

…… (signature)

…… (name of participant)

…… (date)

…… (signature)

…… (name of person seeking consent)

…… (date)

APPENDIX C (Focus Group Interview participant information sheet)

Research Title: The Role of Artificial Intelligence in Change Management within organisations in Johannesburg.

Researcher: Mrs. Meriam Manamela MMDB (Master in Digital Business) – University of the Witwatersrand, Johannesburg

Dear research participant,

You are invited to participate in the focus group that forms part of my formal MMDB (Master in Digital Business) studies.

The purpose of this assessment is to determine the role of AI in Change Management. By participating in the focus group interview, you will be communicating your valuable knowledge about the role of AI in Change Management, why is it important, the value-add in implementing Change Management activities digitally, and if AI can be able to monitor and evaluate Change Management activities within organisations in Johannesburg to contribute to the study collectively. Therefore, your participation in this assessment is critical to ensure the validity of the research findings and the ultimate effective and successful implementation of Change Management within organisations.

You are therefore invited to participate in the focus group interview and discussion for this research. Kindly note that your participation in this study is voluntary, and you are free to withdraw your participation from this study at any time; this will not impact you negatively or be used against you. The rules of the focus group form part of the consent form, the results of the focus group interview are only for the study, and your responses will be analysed as a group and part of the broader sample, which means that your responses cannot be traced back or be attributed to you. The interview will take an hour of your time.

For further questions, please get in touch with the primary researcher, Mrs. Meriam Manamela, on her cell phone no 079 610 5569. Should you have an ethical question regarding the study, you are welcome to contact the University Human Research Ethics Committee (Non-Medical), telephone +27(0) 11 717 1408 or email hrecnon-medical@wits.ac.za

Your participation in this regard is greatly appreciated.

Researcher:

Mamaphala Meriam Manamela, 2286934@wits.ac.za, 0796105569

Supervisor: Dr Jenika Gobind

Dr Jenika Gobind, jenika.gobind@wits.ac.za, +27 11 717 3761

APPENDIX D (Focus Group Interview Participant agreement form)

Title of project: The Role of Artificial Intelligence in Change Management within organisations in Johannesburg.

Name of researcher: Meriam Manamela

I, ……, agree to participate in this research project. The study has been clearly explained to me, and I understand my involvement and will participate in the research. I agree to the following:

(Please circle the appropriate options below).

I agree that I will uphold the respectful behaviour and principles of respecting other participants.	YES NO
I agree that my participation and involvement will remain in the focus group.	YES NO
I agree that what is discussed during the focus group discussion will not be disclosed out of the discussion.	YES NO
I agree that the researcher may use anonymous quotes in his / her research report.	YES NO
I agree that the interview may be recorded on Microsoft Teams / Voice recorder.	YES NO
I agree that the information I provide may be used anonymously after the research process	YES NO

ends for academic purposes by other
researchers, once ethics clearance is obtained.

…… (signature)

…… (name of participant)

…… (date)

…… (signature)

…… (name of person seeking consent)

…… (date)

APPENDIX E (Interview Guide)

1. What do you believe to be the factors that influence Change Management?
2. What is your understanding of Artificial Intelligence?
3. Based on your understanding of AI, what is its role in Change Management?
4. What are the AI factors that influence Change Management?
5. Is Change Management efficient within your organisation, and provide the reason?
6. Are Change Management processes digital or manual within your organisation?
7. What is the impact of the manual/digital Change Management processes on your way of work as you experience them in your day-to-day life?
8. How do you measure Change Management activities currently, and what is the impact on productivity?
9. Do you believe AI can improve Change Management? Provide a reason?
10. Do you believe in using Artificial Intelligence to implement Change Management to improve agility, accuracy, and reliability of data for change initiatives implemented within the organisations? Provide a reason?
11. What are effective Artificial Intelligence factors that influence Change Management?
12. Do you believe AI can influence the culture within your organisation? Why?
13. Do you think your organisation needs to adopt AI for digitalising Change Management processes? Why?

APPENDIX F (Ethics Clearance Certificate)

Graduate School of Business Administration
University of the Witwatersrand, Johannesburg

Wits Business School Ethics Committee
Constituted under the University Human Research Ethics Committee (Non-Medical)

Ethics Clearance Certificate

Ethics protocol number: WBS/DB2286934/369
This certificate is only valid with a legitimate ethics protocol number and signed by the Researcher (below).

Project title	The role of artificial Intelligence in change management within organisations in Johannesburg
Investigator / Researcher	Mrs Mamaphala Manamela
Nature of Project	MM (Digital Business)
Decision of the Committee	Approved, provided stakeholders and participants are advised that anonymity and confidentiality cannot be guaranteed.
Issue Date of Certificate	2022-09-02
Expiry date	Date of submission of the project / research report
Chairperson	Prof Anthony Stacey ☎ +27 11 717 3587 +27 82 880 4531 anthony.stacey@wits.ac.za

Declaration by Researcher

One copy must be signed by the Researcher and returned to the Chairperson of the Wits Business School Ethics Committee.

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

Signature

03.09.2022
Date: