

Factors Facilitating Conversational Artificial Intelligence at an insurance organisation in Johannesburg

Setebatebe B. Tshifularo

Supervised by: Dr Manamela Matshabaphala

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Management, University of the Witwatersrand, in partial fulfilment of the
requirements for the degree of Master of Management in the field of
Digital Business**

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DECLARATION

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

Name: Setebatebe Tshifularo

Signature: *SB Tshifularo*

Signed at: Johannesburg

On the 28th. day of February 2022

Gratitude & Acknowledgement

Firstly, I thank God.

This work is not mine alone, there are so many people who made sure this work was a success and for that I am sincerely grateful.

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To all young Africans, with dreams and ambition; rise above the tumult. Always remember that you are enough, while work in progress, you are still enough.

KEYWORDS

Artificial Intelligence

Conversational Artificial intelligence

Insurance Industry

Chatbots

Virtual Assistants

Conversational Agents

AI Implementation

Insurance Customers

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LIST OF ACRONYMS

AI – Artificial Intelligence

CAI- Conversational Artificial Intelligence

SA – South Africa

Robo - Robotic

NLP - Natural Language Processing

RPA – Robotic Process Automation

CHAPTER 1. INTRODUCTION

Globally the insurance industry is changing significantly due to new technological advances, data growth asymmetry and more recently the Covid-19 related disruptions (Balasubramanian, Libarikian, & McElhaney, 2021). Further to these changes, are consumer tastes and preferences fuelled by availability of information and accessibility of platforms such as social media. Consumers have become more price and product sensitive due to the many options available from competing products and companies. To keep up with these changes which present both risks and opportunities, insurers have been long exploring with technologies such as Artificial Intelligence, Internet of Things, Cloud computing to name a few (Santenac, Majkowski, Manchester, & Peters, 2019).

Artificial Intelligence is a buzzword in the insurance industry as most insurers are looking at ways to drive effective distribution channels, be cost effective and exceed customer expectations (Accenture, 2018). Conversational AI is a subset of AI which this study seeks to explore in depth.

The aim is to consider global, continental, regional and local insurers' implementations of conversational AI and derive insights on factors that led to successful CAIs implementations.

1.1 Purpose of the study

The purpose of the study was to understand key factors that contribute to effective conversational AI implementations in the insurance industry in South Africa. As insurance companies are implementing various conversational AI solutions, the key factors which contribute to successful implementations, which result in better distribution channels, improved customer experience and improved claims processes are not accurately defined, while these are the main drivers of CAI implementations.

The study further sought to bring together the different conversational AI implementations learnings, industry expertise experience, setbacks and recommendations from the insurance industry in general. The study would further contribute the findings from local insurers to the existing pool of global research on CAI implementations in the insurance industry and particularly focus on Johannesburg, South Africa.

Anticipated benefit of this study was that South African insurers would have an improved implementation framework, and insights into how to makes own CAI implementations a success.

This qualitative study focused on understanding how successful conversational AI implementations were carried out, what were the common benefits for selected use cases and how stakeholders were impacted by the said implementations.

1.2 Background of the study

Globally, implementations of AI solutions in the insurance industry is a common practice. AXA S.A is one of the international insurers with operations in 57 countries and over 108 million clients; AXA S.A prides itself in making AI and Machine learning core to their strategy. In AI implementations, AXA S.A has successfully implemented risk evaluation AI which analyses language in contract documents, events tracking through images, text and sound as one of the use cases. AXA S.A is known for responsible AI which takes into consideration AI governance (Detyniecki, 2021). AXA S.A.'s other AI deployments include automation of its customer service function to service customers around the clock, across multiple channels using different languages.

Global Implementations

Company name	Country	CAIs implemented	Area of implementation
UnitedHealth Group Incorporated	United States	IBM Watson Health	Distribution channel;
Ping An Insurance (Group) Company of China Ltd	China	WeChat	Text based policy queries
AXA S.A	France	Microsoft AI	Service Automation; Risk evaluation
Allianz SE	Germany	IBM Watson Assistant	Fraud detection, Claims and customer service

Table 1 Global use case implementations of CAI (Kessler, et al., 2018)

An insurance company in Taipei Taiwan, Allianz is using conversational AI to enhance customer experience through a virtual assistant “Allie” built with cognitive capabilities. “Allie is fluent in Mandarin and handles 80 percent of the inbound customer requests to call centres for Allianz”, (Frey, 2019). A challenge encountered in this implementation is that customers often start their conversation with small talks such as comments about weather, to make the interactions more natural, the organisation is focusing on improving the human aspect (Frey, 2019).

African continent implementations

Africa is a diverse continent comprised of 56 countries with an estimated population of 1.3 Billion. Insurance penetration is considered to be lagging behind compared to the rest of the globe. The African continent has potential to grow the insurance sector through relevant product strategies and accessible channels. (Ndoro, Johnston, & Seymour, 2021)

Country	Insurance penetration level
Sub-Saharan – excl. SA Kenya	2.9%
North Africa - Egypt/Morocco	4%
South Africa	11%

Table 2 Insurance adoption in Africa (Cherry, 2017)

Table two highlights that in Africa, South Africa has the highest adoption of insurance and is ahead of other markets significantly. The gap creates a growth opportunity, through technologies such as AI, IOT and cloud computing, with which the African continent can become a new market to investors. Adoption of technologies such as CAIs in Africa is predominantly at piloting stage, however some organisations have implemented simple chatbots solutions.

South African implementations

South Africa has the highest insurance penetration in the continent, with a reported 11% in 2017 (Cherry, 2017). Cherry further explains that the customer is the key driver of market changes in SA.

Some of the key challenges faced by insurance companies is that the traditional sales, marketing and distribution methods do not appeal to the emerging younger generation and the industry faces a need to innovate in order to incentivise people to buy insurance. The current common activities in the insurance industry are the implementation of direct marketing, the use of technology to leverage off the data assets through data strategies and experimenting with AI. There is also a challenge of tele marketing where customers are being called from insurance companies offering them products through one way communications. The effectiveness of which is largely questioned.

Companies	2019	2019 turnover in		2018 turnover	2018-
	turnover	USD	2018 turnover	in USD	2019
	In ZAR (1)	In USD	In ZAR (1)	In USD	
Sanlam	87 931 000	6 253 653	67 246 000	4 655 440	30.76%
Old Mutual Life	55 324 000	3 934 643	53 920 000	3 732 882	2.60%
Liberty Group	38 820 000	2 760 878	37 494 000	2 595 710	3.54%
MML Group					
Limited (3)	27 510 000	1 956 511	21 355 000	1 478 407	28.82%
Hollard Life					
Assurance (3)	7 447 620	529 675	6 497 835	449 845	14.62%

Table 3 South African Incumbent Insurers (Cherry, 2017)

Sanlam and Old Mutual are among the biggest insurance companies in Africa by turnover. A number of SA insurers such as Sanlam, Old Mutual and Momentum Metropolitan have started to automate personalised conversations with their consumers (Kloos, 2020).

The South African insurance market had been on a growth trajectory before the Covid-19 disruptions happened in March 2020. The life insurance sector has been particularly impacted by lapsed policies as customers are unable to keep up with premium payments due to job losses caused by the pandemic (Ndoro, Johnston, & Seymour, 2021). Increasing claims and increasing customer needs for a better service put more pressure in this industry. Further to this; there has been an increasing competition within the SA insurance market which has seen some new entrants who are digital natives with business models that pose a

threat to the traditional ways of insurance, these include Naked insurance and Pineapple.

Traditional distribution channels for insurance have been significantly disrupted by Covid-19 as most call centres were closed to allow call centre agents to work from home. This is a disruption as call centres thrive on having the agents in a large office space to motivate them through visible gamification, have assistance and monitoring nearby; (Kloos, 2020) and create visible urgency.

The SA insurance industry is also known for its broker model for sales and distribution. Brokers have previously thrived on face-to-face and tele marketing interactions with potential customers.

Key players in this sector are looking to keep up with the changes and factors impacting their business models by piloting and exploring with multiple innovative solutions such as implementation of artificial intelligence solutions.

The South African context provides a good basis as the country leads the life insurance market in the African region, accounting for 85% of the market share. South Africa is one of the top economies in the region and has the most developed financial market in the Continent (Signe & Johnson, 2020). The study can thus be used as a base to expand the research on the wider African region.

South African top players in the insurance sector have been piloting Conversational Artificial Intelligence (Kloos, 2020).

Current literature has limited coverage on how the South African insurance industry is using conversation AI, what use cases are thriving and how are businesses approaching CAI implementations. Hence this exploratory qualitative study focused on the implementation approaches, factors of success and sought to uncover implementation benefits realised across the insurance value chain if any.

1.3 Research problem

The South African insurance industry has been a subject of various analytical reports by research bodies who sought to gather insights of financial performance and growth opportunities. The focus has been on how the sector is performing, by looking at the dominant players in the market and what they are doing differently to grow (Linchpin, 2021). There has also been research in the sector on how technological disruption is reshaping this industry (Accenture, 2018). Artificial Intelligence as a subject has been looked at and there is still an enormous interest in terms of how AI is being implemented and how it will change the traditional models in the industry. The subject of chatbots, virtual assistants and AI agents has been a hot topic in the industry. There is a lack in understanding how conversational AI implementations are carried out and the rate of success for these implementations are unclear. Further to this, there is limited literature expanding on how CAI implementations are impacting the insurance value chain, especially marketing, sales & distribution channels; customer service and claims processes. While companies seek to increase sales,

reduce costs by becoming more effective, relevant to customers through personalisation, accurate in claims judgement; it is not clear as to what specific implementation elements are key to incorporate into conversational AI implementations to create value for companies and their customers. The industry seeks to optimise the use of AI to be more relevant to grow their market shares. (Cherry, 2017)

With the work from home culture, there is now more than ever a need to ensure the new distribution channels are effective. A top SA life insurance company indicated that in 2019, 75% of business in their life business was sold via brokers and physical branches. This has been disrupted as consumers are avoiding contact based channels and looking for the same experience in digital interactions, due to the Covid-19 pandemic.

It remains unclear as to the specific factors that guided implementations of CAIs to greater success, how were the attributes which are key to transform the insurance value chain components were defined, to exceed customer expectations and cut operational costs (Ndoro, Johnston, & Seymour, 2021).

The conversational AI market is large, changes frequently and it can be diverse which makes it challenging for organisations to select use cases, prioritise and get the implementations right. The estimated number of vendors was more than two thousand in numbers by 2020 (Revang, Elliot, & Mullen, 2020). It remains clear that failure for incumbents to act swiftly might result in lack of growth as Insuretechs are fast disrupting the market.

There is glaring gap in CAI implementation information in the South Africa insurance industry (Seymour, Johnston, & Ndoro, 2020).

1.4 Research questions

The current AI research in the South African insurance industry is application focused as guided by the specialised interest of the researchers. There is emerging literature into data driven decision making, fraud detection through data patterns, use of data to decide on settlement for claims etc.

There is also a dominance of use case based trials on AI proof of concepts which are used to determine if there is a case for investment and scaling up. The focus is leaned towards trials and sharing of lessons on trial than on full implementation journeys with lessons to learn from (Ndoro, Johnston, & Seymour, 2021).

The literature has shown gaps when it pertains to end to end implementation approaches, success rate of actual implementation, what resulted in successful implementations, benefits realised after implementations and voice of customer regarding CAI and experiences on CAI.

Therefor this paper tried to fill some of the mentioned gaps and contribute to body of knowledge through ex exploratory research. The South African context, specifically, a Johannesburg context is because Johannesburg is the main economic hub of South Africa in terms of the insurance industry.

1.4.1 *Main research question*

What are the factors that contribute to successful conversational artificial intelligence implementations in the South African Insurance Industry; the benefits across the insurance value chain; the learnings from implementations and the impact on customers.

The main research question is broken down into three sub-research questions.

1.4.2 *Research sub question one (1)*

How do insurers prioritise and select CAI use cases to improve distribution channels, provide relevant products to customers at the right time?

1.4.3 *Research sub question two (2)*

How are customers impacted by insurers' CAI implementations, including but not limited to customer based interactions, cognitive attributes expectations and customer experience?

1.4.4 *Research sub question three (3)*

How are CAI implementations carried out from a human capital, investment, value definition and measurement; and implementation methodology approach?

1.5 *Delimitations of the study*

The study has the following limitations which have been identified:

- Limited AI experts in the insurance industry with end to end CAI implementation as per the identified gaps in limited literature on Johannesburg based CAI implementations in the insurance industry
- Basic understanding of CAI by insurance customers often detected in interviews posed a risk of resulting in out of context conversations
- Another limitation is that the scope of the study was limited to the Johannesburg based insurance players to make the data gathering and comparison of research data easy. This study can be expanded to include the entire South African insurance industry in the studies to precede.
- The CAI companies who participated in the study are both SMEs and their contribution was based on an SME's perspective. In the

future can inclusion of larger CAI companies can provide a wider view

- The study was conducted during a Covid-19 pandemic and most respondents referred to the pandemic, often providing a gloomy view.
- The various definitions of CAIs and clarifying these before at the beginning of the interview took some time away from the interviews

1.6 Assumptions

- The first assumption is that participants are always willing to disclose end-to-end projects experiences of CAI implementations.
- Another assumption is that there are CAI implementations in the insurance industry in Johannesburg which were successful and realised benefits
- AI experts have experience in CAI implementations
- The South African insurance industry has implemented various CAIs successfully
- CAIs use cases have been well experimented with in the SA insurance industry

1.7 Definition of terms

1.7.1 *Artificial intelligence*

Artificial intelligence can be defined as the simulation of human intelligence in machines, through programming tools to make machines think like humans and mimic human actions (AIMultiple, 2021).

1.7.2 *Conversational artificial intelligence*

Conversational AI is defined as a set of technologies that enable automated conversations and messaging between humans and machines. The key differentiating attribute of conversational AI is that CAI programs communicate like humans by recognising and understanding text and speech. (AIMultiple, 2021). Conversational AI is programmed to understand intent and mimic human conversations.

1.7.3 *Natural Language Processing*

The application of computational techniques help computers analyse and synthesis natural language and speech (AIMultiple, 2021).

1.7.4 *Virtual Assistants*

Virtual assistant is defined as an application that can process and understand natural language voice commands and complete required tasks (AIMultiple, 2021).

1.7.5 *Chatbots*

Chatbots are also types of conversational AI. In definition, a chatbots is an artificial intelligence software that simulates a conversation with a human using Natural Language, through text messaging and voice (AIMultiple, 2021).

CHAPTER 2. LITERATURE REVIEW

2.1 Introduction

The conversational AI platforms market has grown significantly globally, with diverse vendors building solutions rapidly. The challenge faced by organisational leaders is to evaluate and make better decisions on where to invest, what are customers looking for and how to build competence to maintain business growth (Revang, Elliot, & Mullen, 2020).

There is a wide variety of use cases, language considerations, cognitive considerations and competing insurance value chain challenges. To filter through these wide set of information, different areas of literature provide core elements which are brought together in the analytical framework on CAIs effective, fit for purpose implementations.

2.2 Theory of business models and organization design

In simple terms, a business model is a specification that describes how an organisation fulfils its purpose (Ovans, 2015). The business model literature can be predominantly traced to the foundational work laid by Peter Drucker, in defining what a business will and won't do (Drucker, 1954), followed by a considerable contribution by Forrester, (Forrester, 1958). As per Drucker, the following elements are essential for a business model: "customers, value

propositions, product/service offerings, and mechanisms of value creation and appropriation” (Drucker, 1954)

Business model is also described as a guiding framework to maintain focus and ensure that activities flow coherently to maximise value creation (Chesbrough & Rosenbloom, 2002). The theory of scale, scope and transaction costs is mentioned in literature , as it informs choices about which combination of activities to prioritise and how to govern business transactions (Fjeldstad & Snow, 2018)..

The two discourses across the business model literature can be segmented into two as:

2.2.1 *Business Operations*

The operational dimension looks at how a firm conducts its operations. Every firm is tasked with making decisions of what products//services to sell, who to target and sell to, how the products will be produced or procured etc. These activities have to be coordinated in a way that sustains the business while satisfying customers. To expand scope and scale, the theory of industry transformation and disruption come into play. These theories conclude that the business model theory ought to be looked at from an ecosystem level. This will guide how a firm collectively changes and adapts over time. (Fjeldstad & Snow, 2018)

Although this literature is correct in the convergence to an ecosystem approach, it applies better to big corporates as they are better placed to invest easily in new business and service offerings. In the South African context where many SMEs are emerging and the economic landscape is tough, an ecosystem approach to business model might be under a challenge.

2.2.2 *Business Dynamics*

The dimension of dynamics of a business model addresses how an organisation changes and adapts over time. Forrester's view is that organizations need to be continuously redesigned and review its policies to succeed (Forrester, 1958). In the current technological era of fourth industrial revolution, this dimension is more relevant as most firms are forced to either innovate or be disrupted. Firms therefore need to choose the opportunities they will pursue, how and who to work with in order to adapt to the fast paced changes on both macro and micro economic levels (Fjeldstad & Snow, 2018).

A combination of business operations and business dynamics result in business model innovation. This literature is key for this study as it lays the foundational block of why the insurance industry is faced with the need to innovate and improve their business models amid the many changes such as technological revolutions. The conclusion of this theory can best be summed as "The global economy is increasingly digital, networked, and knowledge-based, which

requires firms to constantly reconsider their chosen business models and to modify them if necessary to adapt to changing conditions” (Fjeldstad & Snow, 2018).

2.3 Insurance industry innovation theory

Insurance is defined as a mechanism to transfer a certain risk of financial loss to the insurer, in exchange of an agreed amount payment from the insured party (Outreville, 2016). The three main categories of insurance are:

1. Life Insurance is the contract between insurer and policyholder where the insure undertakes to pay the policyholder's chosen beneficiary a certain amount of money upon the death of the insured person.
2. Non-life insurance is an umbrella term for all other types of insurance excluding life insurance, examples include: Health, Motor, home, travel etc.
3. Reinsurance is insurance for insurance companies, where the insurance company protects itself from risk
(Cappiello, 2018)

The insurance industry is subject to changing economic and social factors which are making the known baseline scenarios to change, asking companies to change in order to remain competitive. The pace of technological innovation is also accelerating the disruption to the financial sector. These disruptions are

challenging traditional business models which are no longer effective and further perpetuated by current Covid-19 pandemic (Cappiello, 2018).

There is also an element of changing customer expectation and behaviour fuelled by the evolution of the digital economy. The regulatory landscape is under pressure to keep up with the changes.

To address these challenges, the insurance industry is turning to innovative business models. The positive side of the technological revolution is that through technology, more geographic areas can be reached easily, customer needs can be better understood and operational limitations can be resolved through technology.

It can be argued that it is not only technological innovation that has disrupted the insurance industry, there are many other competing factors which the literature has not covered as it is leaned towards a technological innovation.

2.3.1 Marketing, Sales & Distribution

Marketing Strategies in the insurance industry were defined by the popular 4Ps, Products, Price, Place and Promotion. Insurance products offered by the incumbent insurers have been similar for a long time, making product choice more brand driven than product driven, this is changing in the current 4IR revolution with entrants of Insuretechs creating unique product offering (Balasubramanian, Libarikian, & McElhaney, 2021).

Insurance pricing is now more than ever under customer scrutiny. With the availability of resources to easily compare product/service prices from competitors, insurance pricing is facing a disruption, which most incumbents have not started responding to. This is a threat to incumbents. Literature argues that

Advertising through print media is diminishing while a more relevant approach, driven by data and providing more personalised is the new requirement by customers.

Distribution channels have a great influence on insurance demand. Traditional distribution channels involve a broker between the insurance and the insurer, to facilitate the sale of an insurance products/services. The broker model is part of the indirect channel. Other distributions are more direct and involve the insurer developing strategies to build a relationship with the customer.

2.3.2 Customer Service

Literature on customer service in the insurance industry can be categorised into two as service quality and customer satisfaction. Service quality measurement is summarized as the gap between customer's expectations and performance perceptions of the customer (Kumar, Srivastava, & Bisht, 2019) .

Customers preferences are being shaped by the new digital trends, with exposure to information through social media platforms. Community influence and brand shaming through social media platforms put organisations at risk. Further to this, customers are more aware of Omni channel capabilities, and they expect insurers

to offer Omni channel capabilities. If a customer initiates a conversation on the insurer's website, when they log into their mobile application, they expect to find the same transaction and conclude it (Accenture, 2018). The third element mentioned in literature is about uninterrupted service, a 24/7 operation is a new norm. South African insurers are lagging behind global trends in South Africa, most insurers will only interact with customers during business hours.

2.4 Artificial Intelligence in the Insurance Industry

The insurance industry is known to have the lowest customer interaction points. This is due to multiple reasons, reliance on broker model and unchanging products and service offering (Kumar, Srivastava, & Bisht, 2019). Kumar mentions six identified major industry challenges: 1. Lost opportunities and their cost, resulting from failure to reach out to customers and prospective customers at the right time. 2) Right advice which identifies failure to provide the right products that suit the customer's requirements, time consuming claims processes 4. High cost claims, 5 Increasing fraud and bulky operations failing to process vast amount of data efficiently. (Kumar, Srivastava, & Bisht, 2019).

A glaring omission in the presented literature is that of changing customer preferences and needs. This is covered by other researchers and placed at the top of the challenges. Technological advances, macroeconomic factors and the young market are also highlighted in literature as some of the identified challenges.

To tackle some of these challenges, the topic on Artificial Intelligence is elevated, as global leaders in the insurance industry have already started implementing AI solutions to address the challenges.

Artificial intelligence is defined as the simulation of human intelligence in machines, through programming tools to make machines think like humans and mimic human actions (AIMultiple, 2021).

The history of Artificial intelligence is shown in the below figure, showing that AI dates as far back as 1950.

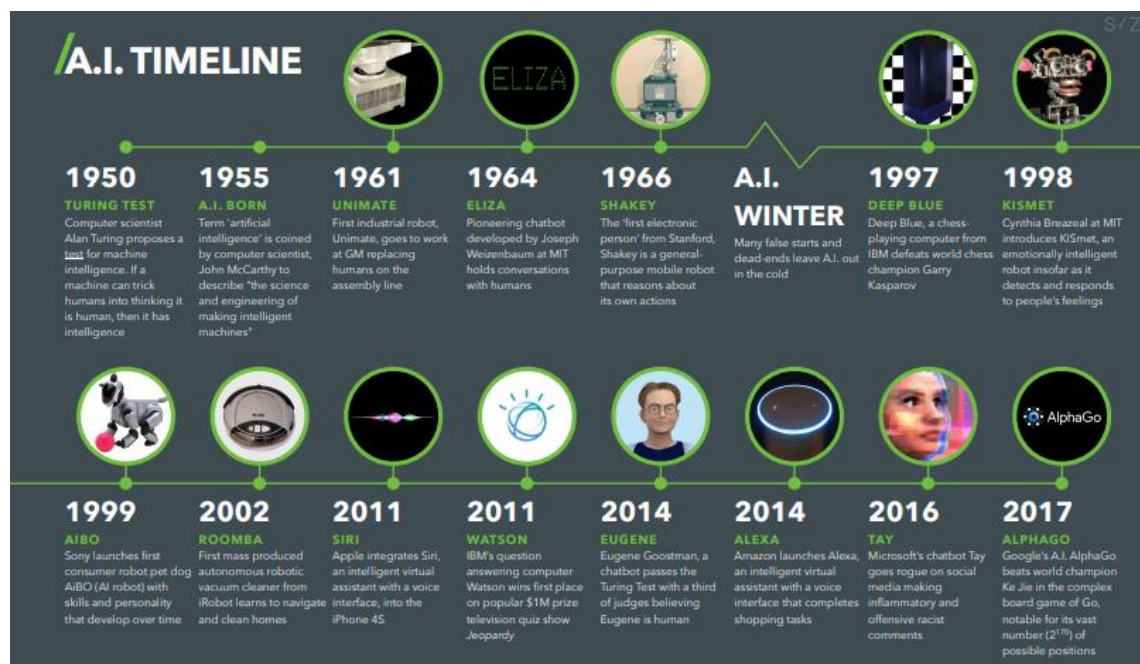


Figure 1 History of AI (Marsden, 2017)

The artificial intelligence timeline shows that AI is not a new technology, the Turing test in 1950 shows how long ago AI has been at play. The AI timeline highlights that in 2011 Apple introduced Siri, an intelligent virtual assistant with a

voice interface, at the same year IBM Watson won a TV quiz by answering quiz questions (Marsden, 2017).

For the purpose of this study, only a select few AI applications literature was reviewed, related to conversational and NLP capabilities.

Capgemini's research institute surveyed 5300 consumers across twelve countries, looking at the benefits of AI from a customer's perspective (Capgemini, 2020). Below table shows the reported benefits from respondents. Availability, privacy and trustworthy interactions came top.

24/7 availability	56%
More personalised product recommendations and relevant offers	49%
Better privacy and security of personal data	49%
More trustworthy interactions	48%
Reduction in customer effort	36%
Faster resolution of support issues	36%

Table 4 Benefits of using AI interactions for global banking and insurance customers (Capgemini, 2020).

AI implementation benefits in the insurance industry can further be stated as the following:

1. Customer Experience and satisfaction transformation
 - a. Relevant, intent driven and humanized experience that exceeds customer expectations
 - b. Context-aware AI - delivering effortless, empowering and personalized experience
2. Ethical AI – to ensure transparency, fairness, data security and privacy (Capgemini, 2020)

The benefits of AI solution implementations in the insurance industry are consistent across the literature, summarised in Figure 2 by Accenture (2018). The highlighted green boxed use cases are categorised as conversational artificial intelligence in literature and will be explored throughout this study.

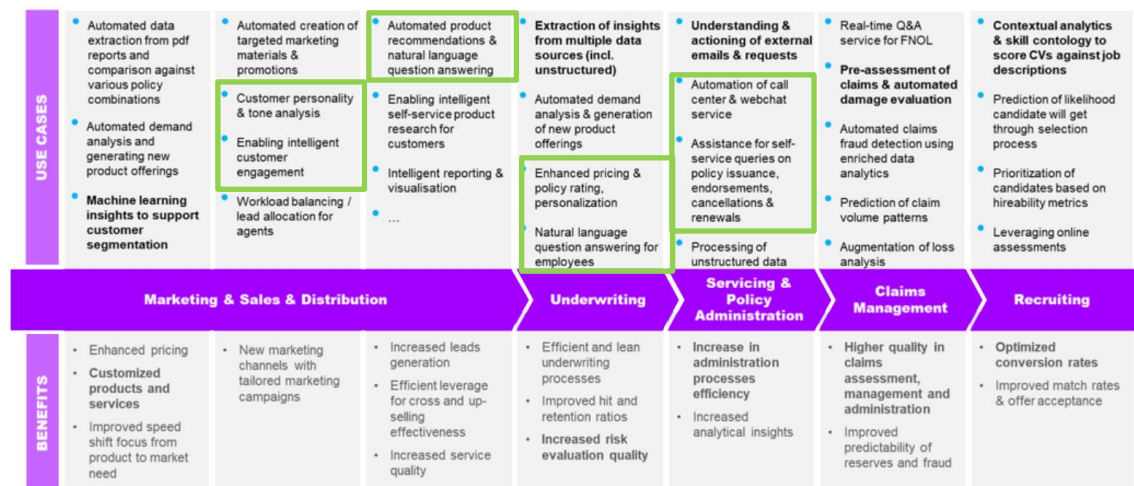


Figure 2 Use cases and benefits of artificial intelligence in the insurance industry (Accenture, 2018)

Although existing literature outlines the different benefits of AI across the industry value chain, there is not enough studies on what organisations need to do to realise these benefits in their implementations. Further to this gap, the statistics of real implementations are not detailed.

2.5 Conversational Artificial Intelligence

A subset of Artificial Intelligence, Conversation artificial intelligence (CAI) is defined as a form of Artificial Intelligence that facilitates human like conversations between a human and a computer, in real time using. Further, “CAI platforms enable computers to understand process and respond to voice or text input in a natural way” (Kore.AI, 2021).

Existing literature highlights that the conversational AI is effective for supporting sales, service and other business operations in multiple industries (Talla, 2021). A trend in the literature also refers to the ability of CAIs to handle higher volumes faster thus increasing lead conversation rates in sales and marketing (Reddy, 2019).

This study is interested in intuitive conversational AI. Global implementations have shown that conversational AI in a form of virtual assistants applied in sales and marketing can convert leads to sales at 20-30% more than human teams (Reddy, 2019).

Literature also refers to the challenges of multi-languages in conversational intelligence. The English language is an easy language which is already well

established in AI platforms, however there are more than 7000 spoken languages worldwide (Ethnologue, 2021) .For the full benefit of conversational AI, platforms need to expand languages used in AI.

In South Africa, there's 11 official languages which creates a challenge for conversational agent and chatbots but presents many opportunities should more languages be included in the CAIs agents.

In literature, CAIs applications include but not limited to the following; Chatbots, virtual assistants, Robo Advisors, live text chats and NLP agents. The three applications chosen for this study are discussed below.

2.5.1 *Virtual assistant / AI Assistant*

Virtual assistant and AI Assistant as terms are used interchangeably in different studies. Virtual assistant is defined as an application that can process and understand natural language voice commands and complete required tasks (AIMultiple, 2021). Virtual Assistants are powered by big amounts of data ingested into the AI platforms. The platform has multiple components which work together, these include Machine Learning, Natural language processing (NLP), speech recognition and other algorithms that are defined to learn from data and get better at defined subjects such as life insurance (AIMultiple, 2021).

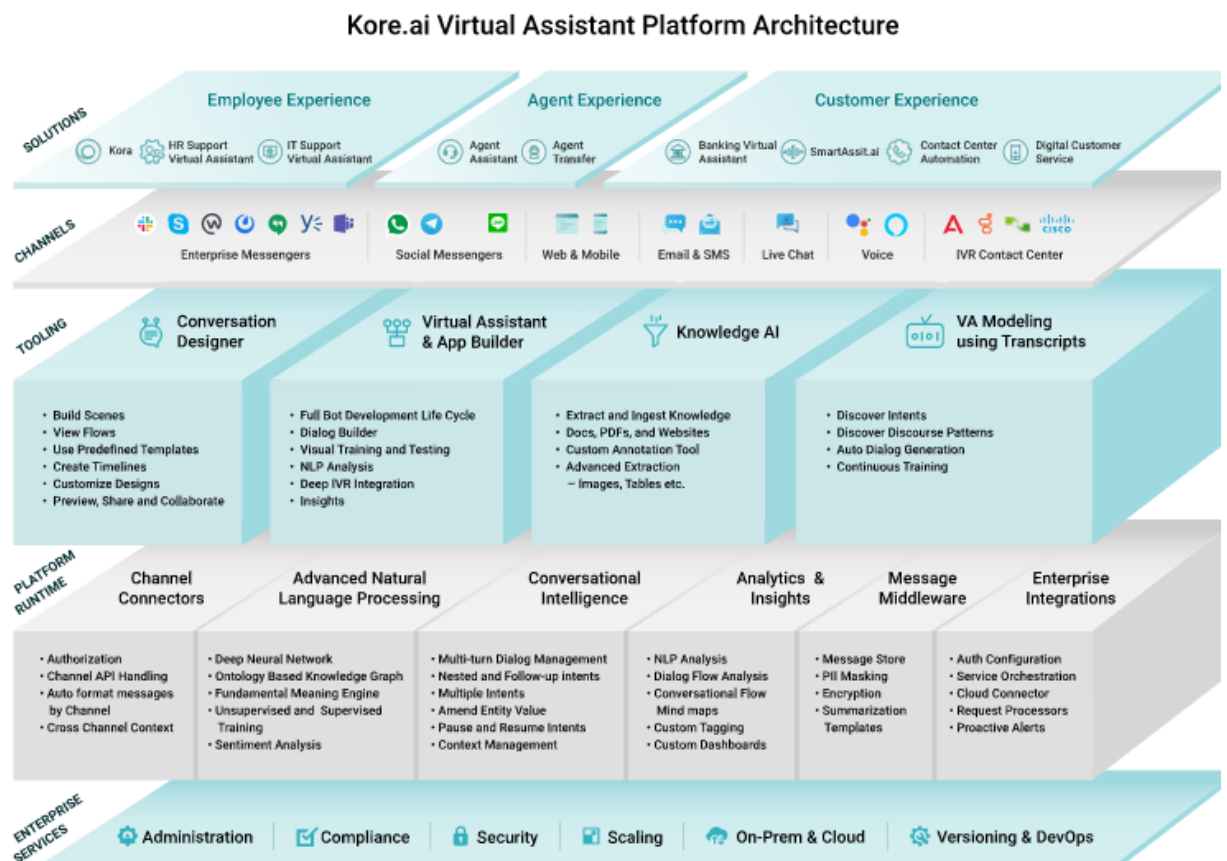


Figure 3 Virtual Assistant platform by Kore.AI (Kore.AI, 2021)

Figure three illustrates the different layers and components working together on a VA platform, to make available more than ten channels for users to engage the platform. This raises an interest of what does it take to build such successful platform? The last part of the literature looks at the learning from implementations, focusing on the elements that ensure success.

2.5.1 Chatbots

Chatbots are also types of conversational AI. In definition, a chatbots is an artificial intelligence software that simulates a conversation with a human using

Natural Language, through text messaging and voice (AIMultiple, 2021). AIMultiple further suggest that the insurance industry is the second highest industry to benefit from using chatbots.

A new trend in consumer preference suggests that consumers no longer have the patience to wait on a phone call, they should rather communicate via a text. This trend, if proven correct, creates an opportunity for the chatbots market to grow further.

A contrasting literature suggests that chatbots are more lacking in human cognitive capabilities, such as detection of moods, behaviour and tone (Balasubramanian, Libarikian, & McElhaney, 2021).

2.6 CAIs Implementation considerations

Implementing CAIs solutions requires an implementation plan which is aligned to the organisation's direction. Mckinsey recommends a multi layered strategic plan, touching on operations, talent and technology (Balasubramanian, Libarikian, & McElhaney, 2021).

The literature on operations focused on a concept of dynamism, which says organisations must continuously review operational processes and seek to re-invent business models (Forrester, 1958). Talent is key to ensure the right people are available to deliver the plan. Studies in South Africa have indicated a gap in talent for Artificial intelligence but also suggests that re-skilling is a glaring opportunity. AI implementations across the world are driven from a vendor

perspective, the challenge is in selecting a fit for purpose vendor (Erk, Patiath, Pedde, & van Ouwerkerk, 2020).

Other key considerations for successful implementations are a focus on customer impact and what cognitive characteristics have been defined for effective solutions. Data privacy and security are also mentioned extensively in the literature and are key to ensure trustworthiness of the CAIs implemented (Rhee & Choi, 2020).

2.6.1 *CAIs Implementation use cases*

AI is being used for interactions with customers using automated virtual assistants such as chatbots and virtual assistants. In the same breadth, AI is also being used to reach potential customers at scale, through automated and customised engagements for both current and potential customers (Ndoro, Johnston, & Seymour, 2021)

AI is also commonly used in the backend to automate manual and repetitive tasks, for tasks such as credit assessments and anti-fraud. These applications of AI are not conversational and thus will not be pursued in detail in this study.

The drivers for AI implementations range from reducing cost of operations, enhancing customer engagements and innovating existing operating models just to name a few, It is not clear in literature as to what drives organisations to choose one use case over another, when it comes to CAIs.

2.6.2 CAIs Implementation lessons learnt

CAI implementations are approached differently by differing companies and teams. This part of literature looked at comments made by CAI implementation teams and CAI experts to summarise lessons, comments, challenges, benefits etc.

CAI implementations often start as experiments and proof of concepts and grow into full scale after being reviewed for value add.

2.7 Conclusion of Literature Review

The existing literature on conversational artificial intelligence implementations in the insurance industry emphasised the following themes:

Business models and their flexibility to adapt to disruptions is the starting point for considering technological advances such as AI and how to respond to these changes. Insurance value chain components are used to segments different application and use cases, this study focused on two value chain functions Marketing, Sales & Distribution and Customer Service. Distribution channel disruption by emerging technologies, Covi-19 pandemic and changing customer preferences emerged from literature (Bavaresco, et al., 2020).

The literature lacks on African focus as it is predominantly focuses on developed countries. In South Africa, there is little literature on detailed implementations, success factor and success statistics on conversational artificial intelligence.

There is a theme on skills gap when it comes to AI however the literature does not detail the how of addressing these gaps. A vast amount of literature still used terms such as chatbots and virtual Agent interchangeably, which shows inconsistencies and a lack of depth when it comes to literature.

The presented literature, in alignment to the research problem were used to derive the below research propositions. Each proposition is related to a research question. The researcher explored these research propositions to bring depth to the study and to develop a stance to guide the phenomena groupings.

2.7.1 *Proposition1*

Implementation of CAIs ought to be aligned to the strategic direction of the organisation

2.7.2 *Proposition2*

Insurance value chain functions need to be assed in detail to identify use cases for CAI implementation in a priorities order to ensure maximum value is derived from the implementation

2.7.3 *Proposition3*

Insurance customer are seeking convenience, privacy and humanised experienced when interacting with CAI agents.

RQ #	State Research Question	Prop #	Proposition
1	How do insurers prioritise and select CAI use cases to improve distribution channels, provide relevant products to customers at the right time?	1	Implementation of CAIs ought to be aligned to the strategic direction of the organisation. Insurance value chain functions need to be assessed in detail to identify use cases for CAI implementation in a priorities order to ensure maximum value is derived from the implementation
2	What are the attributes customers are looking for in CAIs based interactions for enhance customer experience?	2	Insurance customer are seeking convenience, privacy and humanised experienced when interacting with CAI agents
3	How to deliver CAIs implementations which maximise value for the	3	Implementation strategy including, vendor selection, value definition and investment are key in effective CAI implementations

RQ #	State Research Question	Prop #	Proposition
	insurance organisation and customers? (Mejia, 2020)		

Table 5 Consistency Table Research questions and propositions

2.8 THEORETICAL FRAMEWORK

A Theoretical framework “lays out the key factors, constructs, or variables, and presumes relationships among them” (Grant & Osanloo, 2014).

This section provides an integrated overview of the themes in literature regarding CAIs implementations, applications and use cases. The framework is based on South African context as guided by the literature.

Conversational artificial intelligence implementations in the insurance industry are categorised into value chain components. Value chain components create a focus and refine implementation scope. Literature highlight multiple CAI use cases, which are prioritised according to defined value sought.

Insurance value chain understanding is key; as it directs value definition. This study focuses on two value chain areas:

2.8.1 *Marketing, Sales & Distribution*

Marketing Sales and Distribution are key to ensure market share growth by getting to customers before competitors do. The current industry landscape is highly competitive and further disrupted by Insuretechs (Balasubramanian, Libarikian, & McElhaney, 2021). The use cases identified in literature and carefully selected based on current implementation lags include; personalised advertising through harnessing customer data and digital behaviour. Insurance leaders in the more advanced markets are personalising product offering, further these leaders are providing customers with fully digitised touch points. This is offering speed and convenience to customers and potential customers. Personalisation presents an opportunity for cross and upselling to customers. This in turn helps insurers to realise their ecosystem value (Capgemini, 2020).

2.8.2 *Customer Service*

Customer service play a critical role in customer retention. The [literature highlights an emerging technological disruption from new market entrants, who are digital natives, these new players pose a threat of substitution to the current insurance market. CAI is providing potential to save incumbents from this emerging threat. Many studies have described benefits in customer service, these include uninterrupted operations through 24/7 virtual assistants. These fully automated virtual agents, are able to read through training manuals and build an extensive knowledge base to be able to provide customers with quick customer service. Enhanced customer experience has been reported

significantly in literature (**Kessler, et al., 2018**). It is noted that there is still work to be done in building more multilingual platforms to further enhance customer experience.

2.8.3 *Financial, social and implementation process*

Overarching the value chain categories is a financial pillar. This pillar speaks to organisation's willingness to invest in AI experiments and scale up if necessary. This theme also speaks to business model and organisational design dynamics. Literature suggest that the more successful implementations result from organisations willing to experiment with new technologies and redefining their business models to innovate (Fjeldstad & Snow, 2018).

2.8.4 *Conceptual Framework*

The conceptual framework provides a visual display of how ideas relate in the theoretical framework The conceptual framework brings together the key factors identified to drive successful CAIs implementations, as directed by the theoretical themes.

Insurance Value chain	CAI Use cases	AI Platforms
Marketing, Sales & Distribution	Product personalization Personalised ads Digital distribution channels Cross and upselling	Robo advisers, Virtual agents & Chatbots
Customer Service	Omni channel 24/7 real time service Enhanced customer experience	Natural Language Processing Agents
Financial: AI investments; Business model & organisation design; Technology & Innovation		
Implementation Process: Culture of Exploration; Skills development; Defined Value; Vendors		
Social Considerations: Consumer impact, Security & privacy, cognitive capabilities		

Figure 4 Conversational artificial intelligence implementation – conceptual framework

The above conceptual framework is a blueprint put together using variables which emerged from the literature. The horizontal variables are to show that the themes cut across all the verticals. Financial considerations, implementation process and social considerations cut across all implementations and should be noted.

The vertical streams have emerged significantly in literature as compelling factors of conversational Artificial Intelligence. It has been noted in literature that CAI applications cut across the insurance value chain either directly or indirectly. Thus a value chain component and a use case selection are also linked, which together are enabled by AI platforms in the front end.

CHAPTER 3. RESEARCH DESIGN & METHODOLOGY

3.1 Research Philosophy

Research philosophy is defined as a collective belief about how data about a specific phenomenon should be gathered, analysed and used (Thornhill, Lewis, & Saunders, 2009).

There are many types of research philosophies and the below descriptions looks at least three and justifies the philosophy which was applied for this study.

3.1.1 *Positivism*

This philosophy is looks at variables and how they relate to each other, seeking to describe the causal nature of how the variables relate. It requires large samples to represent the population, and is typically quantitative in its approach. This philosophy was found to be not suitable for this research as this research did not seek to prove any causal relations and nor based on any scientific methods.

3.1.1 *Critical Realism*

The critical realism philosophy is rooted in historical causal explanations when using the epistemology method.

It also requires an in-depth historical based analysis of pre-existing structures. This philosophy also uses a range of methodologies and data analysis types

based on the subject matter. This philosophy was found not suitable for this study (Thornhill, Lewis, & Saunders, 2009),

mainly because the researcher's intention was not to focus on historically focused analysis nor to uncover any historical causal relationships. (Thornhill, Lewis, & Saunders, 2009),

3.1.2 *Interpretivism*

The interpretivism philosophy emphasises that humans are not the same as physical phenomena because they create meaning. This philosophy serves a purpose to create a richer understanding and interpretations of social worlds and contexts. The researcher took an interpretivist view for this study, as it allowed the researcher to look at different perspectives of different groups (Thornhill, Lewis, & Saunders, 2009).

This study further focused on collecting data which is meaningful to research participants. From a phenomenologist's view, based on participants' lived experiences in CAI implementations, their recollections of the experience and interpretations of those experiences were investigated (Thornhill, Lewis, & Saunders, 2009).

Due to seeking to understand the complex but get the richness of the participants' recollections, the researcher adopted an emphatic stance. One of the challenges experienced was availability of participants and the researcher patiently worked with the participants to get a suitable time.

The topic of CAI was assumed to be too complex for some group of participants and the researcher ensured these participants freely shared their experiences without feeling inadequate.

The philosophy also allows the researcher to see things from the participant's point of view, this was appropriate to deep dive into the different businesses employees view, explanations and descriptions. To further understand their interpretations of those event which edified the data collection.

Customers are unique, have different expectations and preferences, the researcher was able to empathetically capture each of their narrations, experiences and understanding.

3.2 Research Methodology

Research methodologies are known be categorised into three types, namely Qualitative, Quantitative and mixed methods which is a combination of Qualitative and Qualitative methods.

For this study, an interview based qualitative methodology was used to deep dive into different stakeholders' points of view, to provide information on CAI implementations in the South African Insurance industry.

Understanding the meaning of events for participants – How participants make sense of the events and understanding of the influence on their behaviours. For participants who have ideated, implemented or researched CAI implementations, this study needed to understand their account of these events.

A qualitative study was chosen as it provisioned for smaller sample size which allowed the researcher the opportunity to get in depth with interviews. To further understand the phenomena from a researcher's perspective.

Another strength of a qualitative research is that of identifying unanticipated phenomena, generating new grounded theories. This study aimed to explore the CAI implementations to understand benefits, challenges, success factors and other new concepts (Yousaf, 2021),

Further to the above mentioned benefits, a qualitative approach was taken to understand the process by which events and actions took place. This is a strength of interview based qualitative method.

Further justification of the interview based qualitative approach is that, this methodology is flexible and allowed for uncovering of unanticipated insights. Since the literature has shown that local context of CAI implementations is lacking in documentation, this approach would allow for multiple themes to explore.

Due to the limited time frame of this study, the inconclusiveness characteristic of this methodology leaves room for future explorations and further research of this subject.

To answer the posed research question, an exploratory qualitative study was considered a good choice.

Qualitative study allows for an in-depth exploration of the study at hand, also an opportunity for quality responses exist with this type of study (Denzin & Lincoln,

2011). The research study was aimed to look at natural settings and consider multiple sources of data, directing the study in the qualitative direction.

A linguistic data was required instead of numerical generalisation data. This is one of the contributing factors to choosing a qualitative study.

Benefits of exploratory study are listed below:

- Looks previously researched topic, to add to the knowledge base
- Brings new issues to light and create an opportunity for further research
- Helps refine future research questions
- The method allowed the researcher the flexibility to probe participants' responses where necessary

This chapter discusses the research approach and design, data collection and sampling methods. A detailed account of the data collection process, research instrument and analysis is provided.

3.3 Research design

Research design can be considered as a blueprint of the research study; it aims to address the research questions and the chosen analysis unit. This exploratory approach was aimed at understanding the existing challenges in conversational AI implementations, winnings, limitations of conversational AI and uncover any customer impact to ensure improved future implementations. An inductive thematic analysis approach used to analyse the data in this study to allow for

flexibility and accessibility of data. The coding and clustering of data according to themes and codes allowed for a better understanding of the data (Baskarada, 2018). This inductive approach to data coding and analysis is an approach that starts at the bottom and winds up to reduce the themes to a manageable size, by grouping similar themes. Further to this, the approach is data driven and is driven by what is *in* the data. This means that the codes and themes were derived from the content of the data directly, and this is commonly known as Thematic Analysis (Braun & Clarke, 2012).

The study used participant interviews to analyse findings on conversational AI implementations and add to the growing research in the South African context. Customers' views were captured, probed and analysed to enrich the study findings. These also generated fresh perspectives which can be added to the literature for future research. (Yousaf, 2021).

Advantages	Disadvantages
Flexibility of sources e.g. secondary sources	Bias information
In depth understanding of subject	Non conclusive

Table 6 Advantages vs disadvantages of Thematic inductive analysis

As per the above table, the selected research design has both advantages and disadvantages. However, the design was suitable for getting to the answers of the research questions and addressing the research problem.

3.4 Population and sampling

3.4.1 Population

Population refers to people whom the study results apply to and sample is looking at members of the population from whom data is to be collected in representation of the population (Baskarada, 2018)

The study was conducted with different insurance industry stakeholders and insurance customers based in Johannesburg. The sample in this research study was taken from populations of insured customers, the insurance industry employees Lastly, employees from CAI companies who implemented for large corporates in South Africa. Often these CAI companies worked with insurance industry employees and in some rare cases fully outsource models were used to have the CAI companies implement.

Population 1	Population 2	Population 3
Insurance industry employees	Insurance customers	CAI Experts / CAI company employees

Table x: Populations where samples for data collection were derived from

The above table provides a summary of the three populations from which participating samples were taken from. These

3.4.1 Sample and sampling method

The purpose of a sampling method is to ensure that the researcher studies the phenomena in their natural setting. A purposive sampling strategy was applied for this study. The researcher used their judgement seeking to obtain the most suitable and representative sample. Due to time and resource constraint, the researcher used a combination of social media and direct communications to reach out to the possible sample. Further, to enrich the findings the researcher applied the heterogeneous approach to ensure there was a presence of maximum variability in the primary data.

The intended number of participants were capped at 25; 10 from a customer perspective; 10 from the insurance company and 5 will be from the CAI implementation experts.

Population 1	Population 2	Population 3
Insurance industry employees	Insurance customers	CAI Experts / CAI company employees

10	14	5
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Table y: Sample categories and number of participants

The customer sample was reached through social media platforms such as LinkedIn, Facebook, Instagram, WhatsApp Status & Twitter.

i. Insurance Customers –Participants

Participants	Gender	Age	Ethnicity	Job Level	Designation
Participant 1	Female	20-30	African	Manager	Actuary
Participant 2	Female	30-36	African	Manager	Accountant
Participant 3	Female	20-30	African	Specialist	Insurance consultant
Participant 4	Male	20-30	White	Specialist	Software Developer
Participant 5	Female	30-40	African	Specialist	Business Analyst
Participant 6	Female	30-40	African	Specialist	IT Support
Participant 7	Female	30-40	African	Specialist	Customer Service
Participant 8	Male	30-40	African	Senior Manager	Software Developer
Participant 9	Female	30-40	Indian	Admin	Home care giver
Participant 10	Female	20-30	African	Graduate	Law Graduate
Participant 11	Female	30-40	African	Senior Manager	Engineer
Participant 12	Male	30-40	African	Specialist	Software Tester
Participant 13	Female	50-60	African	Entrepreneur	Entrepreneur
Participant 14	Male	30-40	White	Specialist	Software Developer

Table 7 Insurance customers participants

Above table is a summary of insurance customers who participated in the study by being interviewed. They all consented to the interviews. The participants were a good heterogeneous combination from their jobs, age, race and gender. The more variability the better for enriching the study.

The customer participant table shows participant demographics which were recorded. Further to these details, below is a summarised view of the demographics. A majority of the customers were in the age group 30-40.

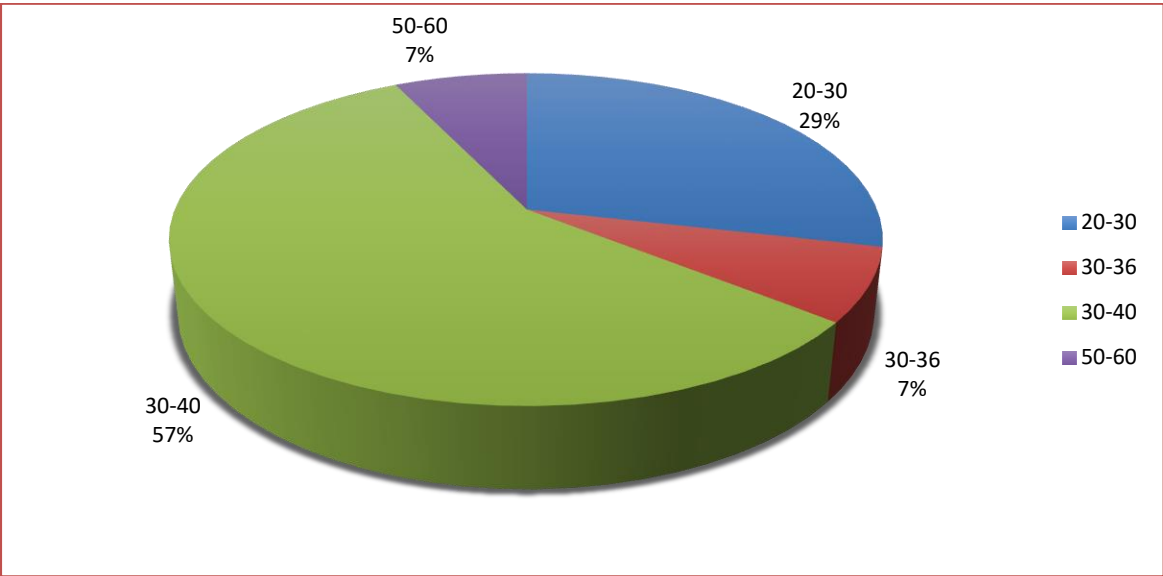


Figure 5 **Customer participants by age**

The majority of participants in this group were between 30-40 years of age.

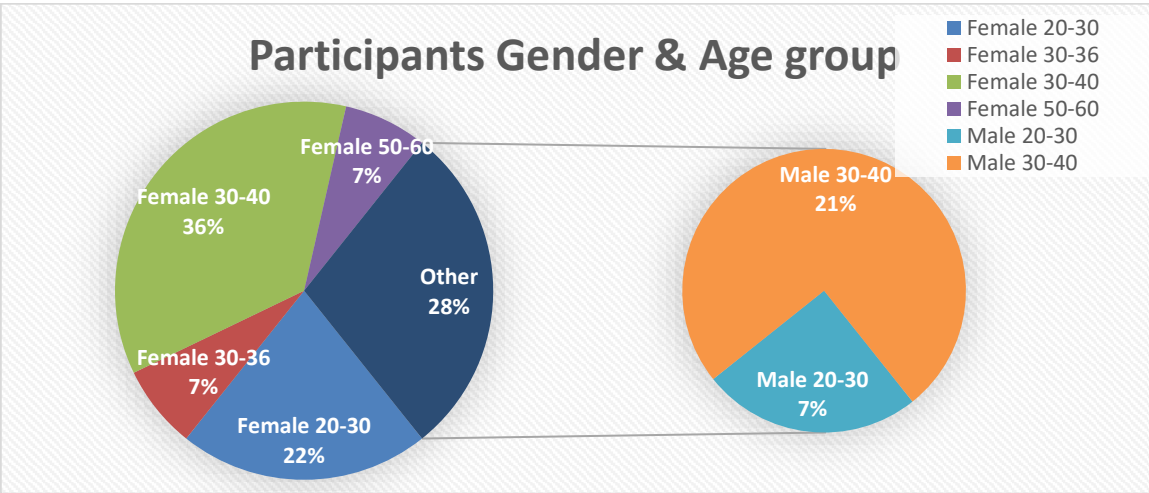


Figure 6 Customer Participants by gender and age group

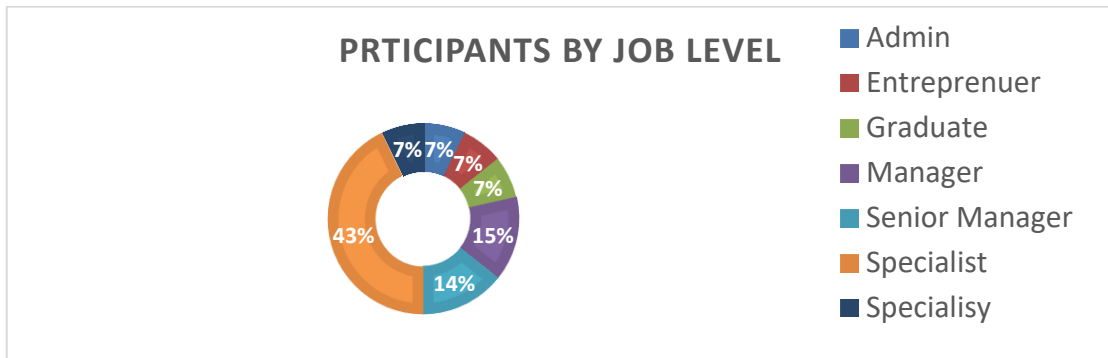
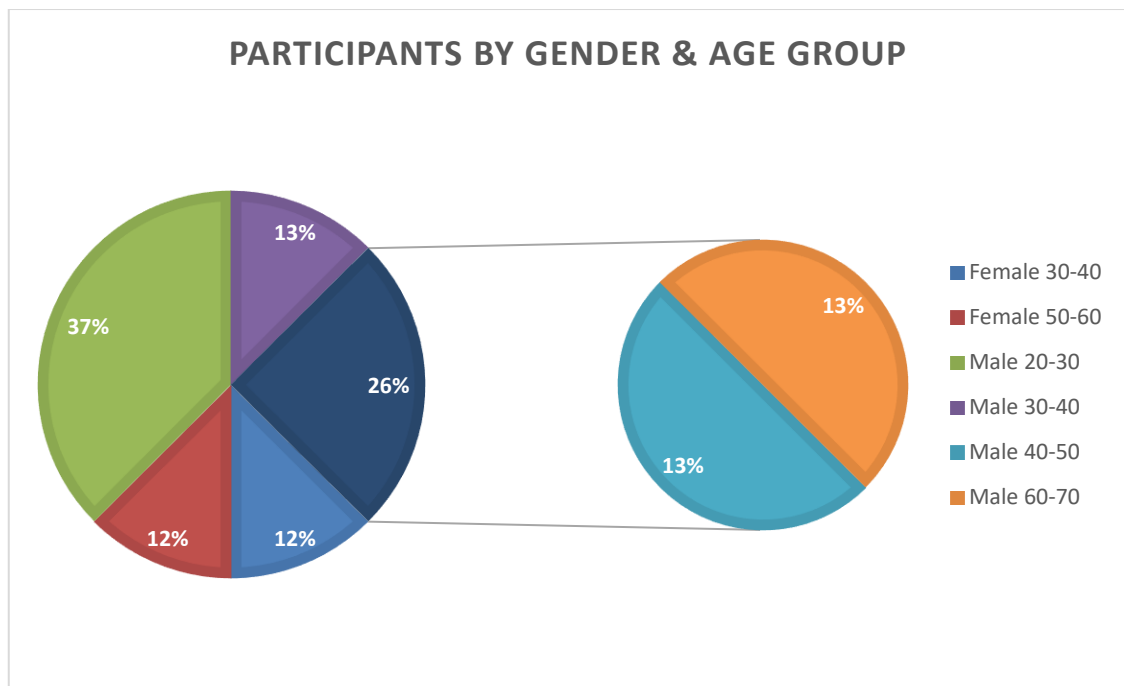


Figure 7 Customer Participants job level.

Participants with previous experience in involvement in planning, designing, implementations & review of Conversational AI projects in the insurance sector.

Name	Gender	Age Bracket	Job Level
Participant 1	Female	50-60	Senior Manager
Participant 2	Male	20-30	Specialist
Participant 3	Male	30-40	Specialist
Participant 4	Male	40-50	Senior Manager
Participant 5	Female	30-40	Specialist
Participant 6	Male	20-30	Specialist
Participant 7	Male	20-30	Manager
Participant 8	Male	60-70	Executive

Table 8 Insurance Professionals participants



Males accounted to 75% of respondents from the insurance companies.

Figure 8 **Insurance professionals participants by gender and age**

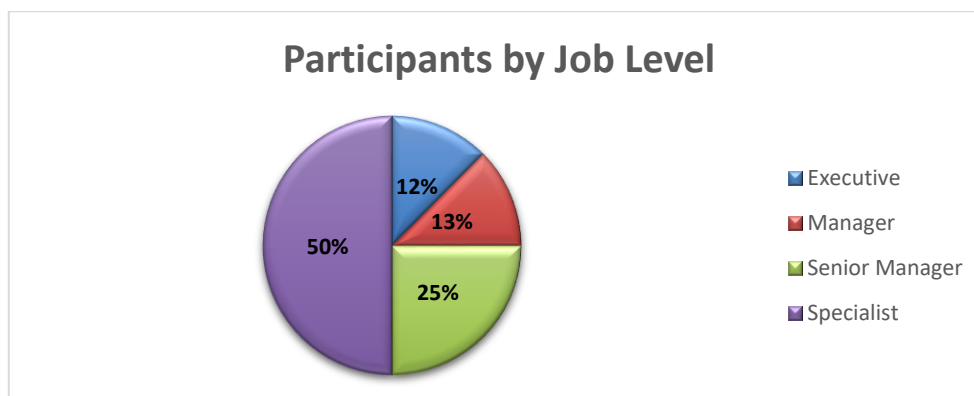


Figure 9 **Insurance professionals participants by job level**

There was a good mix of job levels from the participants and this gave good insights and different perspective of phenomena.

Below is a list of participants from AI service providers and Consultancies which worked on CAIs in the insurance industry

Participants	Gender	Age Bracket	Job Level
Participant 1	Female	30-40	Senior Manager
Participant 2	Male	30-40	Executive
Participant 3	Male	40-50	Executive
Participant 4	Male	20-30	Specialist

Table 9 AI experts Participants

The researcher posted invitation to participate specifically asking those who have participated in CAIs at Insurance companies in Johannesburg. Although many people showed interest, it was key for the researcher to ensure the participants understood the invitation and were willing to give their consent, be recorded anonymously.

3.5 Credibility, Transferability and Dependability of the study

3.5.1 *Transferability*

Transferability refers to the extent to which the research finding can be applied in similar contexts. It entails an in-depth descriptions and purposive sampling. The detailed descriptions of the study setting and focused sampling, inviting

participants from different organisations with broad experience in the insurance industry was used to maintain the transferability of the study, (Baskarada, 2018)

3.5.2 Credibility

Credibility can be summarised as a criterion by which the true value of the study can be evaluated. For a qualitative study to be credible, its results when presented in context need to be recognisable to people who share similar experience (Hammarberg, Kirkman, & de Lacey, 2016)

The following instruments are common practice in maintaining the credibility of the qualitative study:

- **Triangulation**

Answering of the research questions in several ways and getting to a similar answer

- **Reflexivity**

Reflecting on the influence of the researcher on the research

- **Description of the interpretation process**

(Hammarberg, Kirkman, & de Lacey, 2016)

Credibility is key as the study needs to be credible, true and believable. The interview process design was detailed, succinct and consistent. The researcher ensured there was no bias in interpretation of interviews and in transcribing by applying a consistent process (Baskarada, 2018). This study was credible and adhered to the approved rules of engagement to provide credible findings.

3.5.3 *Dependability*

The study protocol applied was consistent and a database was developed to ensure there is an audit trail of the data collection process. This was to ensure the findings of this study are likely to be repeatable under the same context.

3.6 *Data collection methods*

Data was collected from respondents using interviews. The interviews were conducted through online platforms, some with videos on to also capture the respondents' expressions. Interviews were recorded to allow researcher to revisit the conversations and easily transcribe into text for ease of use.

Due to the Covid-19 pandemic, physical face to face interviews were avoided to ensure that participants were not exposed to the virus.

The interviews were semi-structured to ensure the same set of questions were asked per participant category and still allowed the flexibility to capture additional information or new emerging novels. Interview questions were mostly open ended to allow for depth information generation and variability. Most of the questions were probing and designed to start with "How".

The data was securely archived, this include, interview transcripts, supporting evidence, investigator notes and any preliminary analyses. To ensure that the items are easily retrievable, the database was indexed and the data categorised accordingly. The database method is known to also enhance the reliability of the study (Baskarada, 2018).

Primary and secondary data informed the study. The researcher approached respondents of the invitation to participate by free will, as per the roles identified in Tables 7,8 & 9 above. The questions were shared upfront with the interviewees to avoid answers which were done in a hurried fashion. All questions were open-ended and exploratory in nature. Sessions were booked based on suitable times provided by participant. On a number of occasions, the sessions were rescheduled. Additional names for interviewees were provided based on network opportunities usually from participants who knew other people who had the experiences and were willing to share the information. To ensure a minimal non-response rate, a maximum two bi-weekly reminders followed by a telephone call were actioned by the researcher where required. Semi-structured interviews were held. Permission was granted up front to record the interviews. Participants were assured that their anonymity would be maintained.

All interviews were based on the instruments approved by the ethical committee. During the interviews there were some follow up questions to clarify for the researcher.

The process of collecting data included:

- Interviewing participants virtually, while recording the interviews
- Listening to the recorder interviews
- Decoding the data onto a spread sheet
- Organising the data spreadsheet data

- Interpreting the data using unambiguous language
- Identifying patterns in the data using principles of thematic analysis
- Forming the basis for informed and verifiable conclusions

3.7 Ethical considerations

Ethics is concerned with what is wrong or right and doing what is right, therefore the research followed the Wits University stipulated ethics and relevant recommendations of best ethics practices in research.

Ethics approval was obtained from the University prior to data collection. The research participants accepted participation in the study through written consent and all consent evidence was safely archived.

The research did not discriminate on gender, race nor age. All participants were respected, not influenced anyhow to participate and advised to only participate on their willingness to.

The ethics protocol to which this study adhered to included:

- Permission was first obtained from Wits Business School to proceed with the research
- The purpose of the study was clearly stated and understood by the researcher
- Respect the privacy and anonymity of the consented interviewees
- Ensured that all participants received the same treatment

An ethical clearance form was submitted and approved by the University of Witwatersrand Human Research Ethics Committee (non-medical) before the research was completed. Letters were sent to all interviewees to obtain their permission to conduct research. The letters stated that the research was voluntary and that they could opt out of the process at any time. It was also confirmed that the information provided would not be shared with third-party individuals and would only be used for the purposes of this research.

CHAPTER 4. PRESENTATION OF RESULTS / FINDINGS

4.1 Introduction

The purpose of this study was to investigate and get an understanding of factors that contribute to effective implementations of Conversational Artificial Intelligence in the insurance sector. The ambition was to look into an insurance company based in Johannesburg to bring the context of this study home. To achieve this, the study of participants was split into three groups.

Group1: Insurance industry based professionals who have been part of the Conversation AI planning, research and implementations.

Group 2 consists of insurance customers across South Africa. These participants were a sample to represent the voice of a customer in Conversational AI. From their understanding of CAI, to their desired interactions, expectations, views and experiences.

Group 3 was intended for participants who are working in the Technology space, building and offering Conversational AI solutions & products in South Africa. This group later changed to include different participants not only from the technology space but also from management consultancies who work with insurers in the digital transformation space.

The three groups were defined to ensure a holistic approach to the research, looking at all potential players in a typical CAI journey maps. Each group contributing to their intended view, to ensure a comprehensive view on the topic.

On the insurance customer group, 14 individuals were interviewed. Individuals were invited to participate in the interviews by a way of social media communication / invite to those who are interested and meeting a minimum criterion of being above 18 years old. After a number of responses, a selection was done to ensure there was a reasonable representation from different demographics.

The second group consists of professionals who have worked in different Insurance organisations and were willing to answer interview questions from their experiences, past and current.

The last group was made up of 4 professionals in the technology, digital and AI space who have done strategy, planning, project management and software development space who had insightful experiences to share. Members of this participant group have either been part of a large scale AI project implementations or have been involved in ideation, proof of concepts and implementing AI in the insurance industry.

The below table provides a view of all the participant summary details. The participants will be shown in three participant groups.

The study literature consists of

The aim of this chapter is to present findings from the three groups of qualitative structured interviews and outline them in relation to the literature review theories presented in the earlier chapter.

4.2 Results pertaining to Proposition OR Hypothesis 1

P1: Implementation of CAIs ought to be aligned to the strategic direction of the organisation. Insurance value chain functions need to be assessed in detail to identify use cases for CAI implementation in a priorities order to ensure maximum value is derived from the implementation.

Themes identified in relation to Research Question 1

- Strategic alignment
- Prioritisation approach
- Insufficient investment
- Outsourcing vs. Insourcing
- Value measurement
- Communication
- Leadership buy in
- Use case selection
- Industry trends
- Change Management
- Skills availability
- Skills development

- Efficiencies
- Cost cutting
- Customer Centricity
- Data Collection & Cleaning
- Data Security & Privacy
- AI algorithm accuracy
- Employee empowerment
- Proof of concept
- Agile
- Automation
- Value definition
- Governance committee
- Experimental

Based on the identified themes, a categorisation approach was applied to group the themes into closely related categories.

Category	Identified Themes
Strategic Alignment	Low hanging fruits Strategic roadmap Strategic Alignment Business Model disruption Investment
Data	Data Collection & Cleaning Data Security & Privacy AI algorithm accuracy
Human Capital	Skills availability Skills development Employee empowerment
Performance	Business Value improvement Return on Investment

	Customer retention
Change management	Communication Leadership Buy in Top down approach Culture
	Sales Marketing lead generation Claims admin Customer service Automation Drive Efficiencies Focus on pain points Industry trends
Delivery Approach	Governance process Experimental

	Outsourcing vs. Insourcing
	Agile & incremental
	Proof of concept

Table 10 Insurance professionals themes

Six categories were used to group the identified themes as the list was long and needed to be summarised. The categories are elaborated in detail in the interpretation section.

Voice of participants from Research Question 1 tabled and showing a selection of a few responses to the interview questions asked.

4.3 Results pertaining to Proposition OR Hypothesis 2

P2: Insurance customer are seeking convenience, privacy and humanised experienced when interacting with CAI agents. The following themes were identified and categorised as shown in the next table.

Cognitive Attributes	Accurate reasoning
	Listening
	Speedy response

	Personality Empathy Professionalism Intuition
Use of language and tone	Understanding of multiple accents Simple choice of English words Pace of speech
Trust, Data Privacy & Data Security	Trust Data Security Data Privacy
Intelligent Interactions	Two-way conversation
24/7 Available CAI agent	Convenient

	Accommodate those working strict hours
Company Communication	Keep customers in the loop Understand customer preferences
Preferred Use Cases	Claims Personalised marketing Contactless distribution Admin – Information changes Information enquiries
Sales	CAI flexibility on Sales Sales related questions
AI knowledge	What is AI Impact of CAI on call centre job How does it work? How do I know if it's legit

Table 11 Insurance customers themes and categories

In the below table, a random selection of voice of customers as participants is shown.

Gender	Female
Age	30-40
Ethnicity	African
Designation	Accountant
Would you buy an insurance product sold completely by a CAI agent? If not, please state your reasons....If you have already bought one please give provide details of your experience	Yes, I would buy if I can ascertain that the AI agent it legit. I would not conclude the sale on a call or a chat, as I would need to take time to read the Terms and conditions and ask more questions. Can a CAI agent handle the conversation?
What are the key cognitive attributes you look for when engaging with a CAI agent? e.g. Speed, logical reasoning, attention, perception and memory?	Understanding of questions and clear answering of questions. The CAI agent needs to also understand the SA accent of English as it is not our first language
Describe how your experience with a human customer service was different to that with a CAI? What made the difference for you?	When I interact with bots I don't always get a full clarity. The bot always has information gaps which no matter how much I probe, they don't go away and that's the difference. With a human they can easily put you on hold while they ask for assistance from their colleague.

Would you report an unpleasant user experience with a CAI on social media before engaging with your insurance Service Provider? Why?	Not really, the calls are often short. One knows that it is programmed.
What will make you trust the CAI agent similar to or more than a human agent? Why?	I have more trust concerns with a Bot than a human being because of being alert for scams that also come in a form of automated calls
Would you encourage Insurers to provide more CAIs for a 24/7	Might not be necessary to need a 24/7 service as at the end of the day one still needs to speak to a human being

Table 12 Sample customer responses

4.4 Results pertaining to Proposition OR Hypothesis 3

P3: Implementation strategy including, vendor selection, value definition and investment are key in effective CAI implementations.

Below is a summary of identified and categorised themes.

Delivery team skills	Outsourced Internal skills development Business understanding
Vendor selection	BBBEE

	Experience History of successful implementations
Leadership buy in	Executive involvement Strategic alignment
Delivery methodology	Agile Proof of concept Technology selection

Table 13 Insurance experts themes and categories

4.5 Summary of the results/findings

On Proposition one, the findings show that Strategic alignment and Leadership buy in are key as these came up quite often. In terms of use case selections, the focus should be on the simple but core to the business story. The story needs to be relatable from bottom up. Data, trust and change management were also mentioned often and these can be said to be compelling themes.

On Proposition two, insurance customers did not mince their words when they brought up the concerns on trust and data privacy. Another strong theme that emerged was on the expected cognitive attributes, from accuracy, speed, understanding of language to empathy. Convenience and efficiency emerged as another theme. The sales conversation often linked to cognitive attributes and the theme on trust. On use cases; administration, routine processes, claims, sales& marketing and distribution could not be ignored.

On Proposition three, a theme on a hybrid approach to sourcing the implementation team, a clear implementation plan and an Agile approach were dominating the conversations. The theme on internal business leaders as champions of implementations and leadership buy in also dominates.

The knowledge of CAI also reared its head as one of the questions that came up, indicating that there's is a gap to be addressed.

CHAPTER 5. DISCUSSION OF THE FINDINGS

5.1 Introduction

The purpose of the research was to study and understand factors that contribute to conversational AI implementation success within the Insurance sector, in Johannesburg. The researcher sought to take a holistic approach in delving into CAI implementations by grouping participants into three categories. The first category of insurance professionals who are involved in the planning, designing, execution and performance measurement of CAI implementations or roadmaps. This category answered interview questions and shared insights on what drives CAI implementations and further contribute to approaches which were taken and the results thereof. The second group was that of insurance customers who were interviewed to understand their CAI experience, CAI expectations and views on CAIs from their customer point of view. The last group was consisting of professionals from AI companies and consultants who worked on AI implementations at insurance clients. This group would also share from their standpoint, what contributes to CAI implementations success and further share learnings by answering the provided research interview questions.

The ambition was to take responses from the three group to analyse it in relation to the outlined literature including the under pinning conceptual framework.

Summary of the conceptual framework

Vertical components:

The vertical components of the conceptual framework consisted of

- Insurance value chain: The generic insurance value chain is made up of the following functions
 - Sales & Marketing
 - Distribution
 - Customer Service
 - Claims
- CAI Use Cases: The value chain components guide the following use cases
 - Product personalisation
 - Cross and upselling
 - Contactless distribution
 - 24/7 customer service
- AI Platforms: Based on each use case, a suitable CAI solution would be determined
 - NLP Agents
 - Text based chatbots
 - Virtual Assistants

Horizontal components:

The vertical components of the value conceptual framework would be underpinned by the following horizontal pillars, cutting across each vertical.

- Strategic alignment

- Implementation Process
- CAI capabilities
- Impact on customers

This chapter considers the findings presented in the preceding chapter four, analyses the findings in detail. The findings will be discussed by focusing at each research question and the related literature.

5.2 Discussion pertaining to Research Question 1

How do insurers prioritise and select CAI use cases to improve distribution channels, provide relevant products to customers at the right time?

The above research question was supported by a number of sub-questions which were asked to the insurance professionals who have been part of or exposed to CAI strategy, design and implementations. The first sub question looked at why they believe insurers deem it important to pursue CAI implementations. Most respondents reported that insurance organisations are always scanning the insurance environments, both internally and externally to understand changes, trends and evaluate business value. The business value evaluation is often done when business performance is measured and reported on, periodically. Thus respondents mentioned that when value is revised, one of the key things that is looked at is how to support value generation through use of emerging technologies such as AI. Participant 2 further mentioned that insurers have an ambition to prototype various AI use cases however they are often hindered by

limitations such as data. These findings take us back to the literature where the theme on Business model was introduced. In the literature, the emphasis is on value generation as a goal for business model, (Ovans, 2015). Further to the business model theme, a sub theme on the design of business operations to ensure that business activities are coherent with the goal of growing value and satisfying customers. Thus it is needed for insures to continually explore other avenues for value ad.

The set of questions further probed on how insures choose and prioritise use cases for CAI adoption. To this question, there were different answers. The first respondent mentioned that this process is not formalised, that leadership is often inspired by global players or look at what competitors are doing locally. Participant 3 who has worked in the insurance industry for all his career, mentioned that use case selections is linked to an assessment of pain points which the organisation look at solving using relevant digital solutions. Participant 5's experience is that the governing business strategy is used to inform decisions on what AI implementations to pursue. This is in line with literature on the theory of redefining business models to innovate, as strategy definition cannot happen in isolation to business models.

The theme on Data strategy was highlighted by 60% of the respondents, that data is a key enabler for CAI and AI applications. Respondents reported that in the absence of the relevant data, CAI implementations are likely to fail on prototype level. Most insures have the data in their archives, however due to data sources being in disparity, it is challenging to get the data centralised,

merged, cleaned and made ready to feed the AI engines. In addition to the data aspect, respondents emphasised the area of skills. AI skills have been highlighted in literature that to be a key enable if there are resources with skills or on the opposite site, a lack of it can therefore result in dismal failures (Roth, 2020). Data availability highlighted how data guides in Use Case selection...Participant 1:" If there is sufficient data to feed a CAI engine, we also look at what type of data is available in order to assess it can be used for one of the use cases. E.g. If we have enough data about customer behaviour, it becomes useful to use the data in an AI use case where we can use that data to do personalised marketing..." This response shows that every prioritised use case, needs to be supported by a set of data.

In organisation A, respondents outlined a data approach which contributed to a successful Proof of Concept. The data approach was used as a base for an AI opportunity in exploring chatbots. The researcher can summarise the feedback on data into the below:

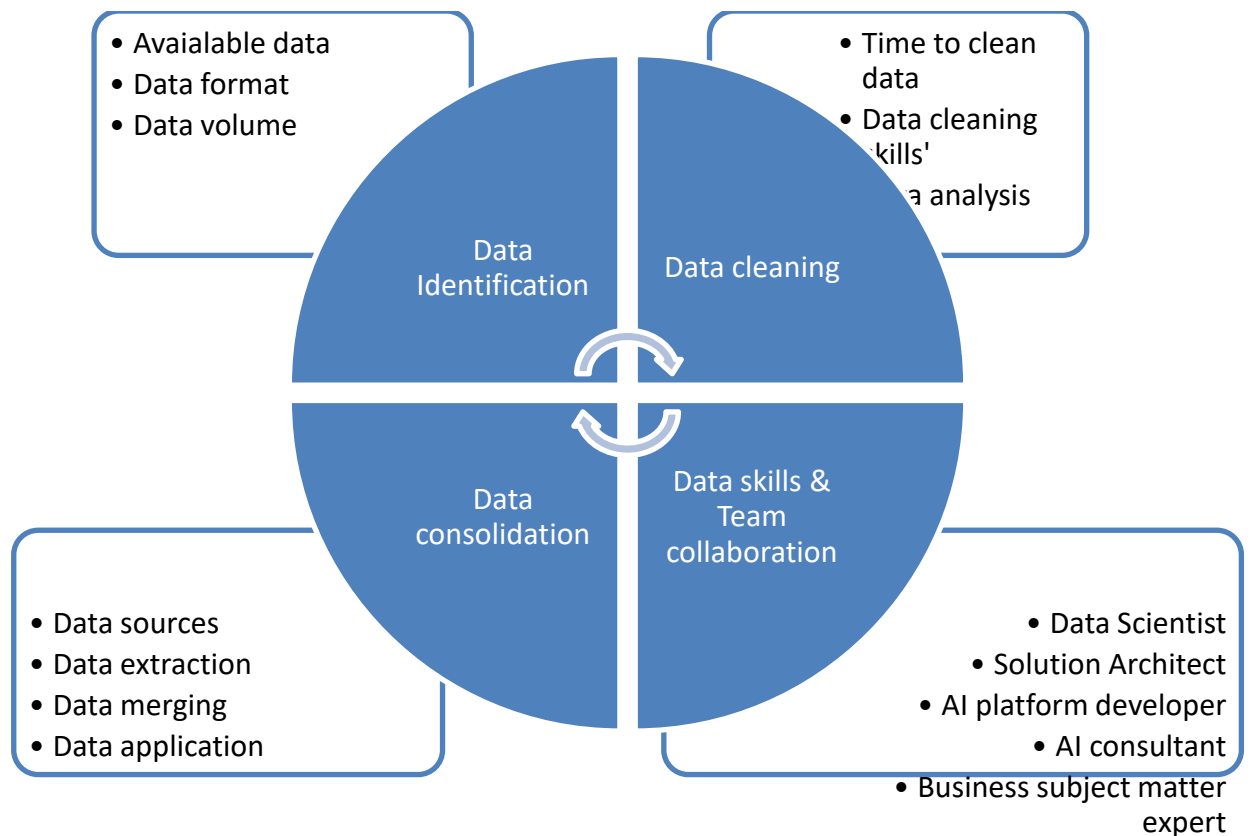


Figure 10 Findings on data approach

A substantial amount of literature has also emphasised data as a key element in enabling CAI. Participant 1 also mentioned the need for data privacy and security as it pertains to customer data protection.

The third theme from the participants' findings, still on Research Question 1 is that of Change Management and human capital involved. Respondent 6 and 7, based on experiences from different insurance companies, both shared insights on the importance of change management and intentional involvement of internal human capital.

Three take away on change management from participants:

- Top down approach to change management
- Leadership buy in is key
- Be intentional about innovation culture
- Clear communication across the organisation
- Make the change inclusive and attractive to all levels
- Communicate small wins, often

Human capital & skills

On Human capital, respondents reported that internal collaboration is key, the business knowledge is embedded in the day to day operations, in the people that have been operating the businesses. Some of the operational teams have been in the industry and the company for decades, which creates a wealth of undocumented knowledge. The literature also mentioned that AI skills alone do not mean successful AI implementations but AI skilled resources in collaboration with internal subject matter experts is what will drive CAI initiatives to a success (Fagella, 2020). Respondent 3 mentioned a scenario where internal team members were overlooked, while the entire implementation was outsourced to an AI platform organisation. The lack of internal voice and representation in the project showed a visible gap. Although the gap was attempted to be filled as the project was drawing to a close, the losses were big.

All respondents from insurance industry mentioned that Skills development has to be started prior to the kick off of the POC or scale up process. Literature has indicated that the first step in the preparation process for AI implementations has to include skills assessment. The assessment must consider both what is already in place, what is missing and try to fill those gaps. The initial step is to develop a learning program or enrolling internal teams on learning programs which are communicated and marketed company wide. Second learning approach works best when the platform company who will be leading the technical stream, has a knowledge and skills transfer plan. This according to respondent 3 is a popular way of being intentional about the skills development of the internal teams. This approach does not only benefit the team by skills transfer but it also encourages collaboration.

Use Case selection

On use case selection, respondents narrated their own experiences in different insurance organisations. The common thread is that organisations are driven by different agendas when it comes to use case selections. However, there are dominant themes that were mentioned. The mentioned themes resonated with literature on AI use case selections. There was also an identified contradiction as the global literature highlighted a broader AI and not necessarily conversational AI. Below is a list and description of reported Use cases. In some instances, these use cases were not fully implemented but merely prototyped.

- Claims Process

- Claims processes are deemed to be complex, broad in scope, admin heavy and time consuming (Roth 2020)
- Most respondents believe that it would be of great value add to introduce CAIs in the claims process however they were sceptical in terms of readiness of infrastructure on the insures' side
- Participant 4 reported that creating a solution where a CAI agent is trained to help customers with the initial part of a claims process such as information capturing, is more viable than a solution where a CAI can independently handle a claims process end-to-end
- Purchasing of policy
 - Purchasing of policies is considered reasonable from a use case perspective however it is key to understand how customers would react.
 - Participant 4 narrated that the current SA market is not open to telesales agents who use a list of instructions as a way of conversing with customers,
- Marketing
 - All respondents indicated that marketing of insurance products is a low hanging fruit as it would present an opportunity to cross sell products to customers. The notion of lead generation and lead conversion through the use of CAI is synonymous to what the literature has brought up.
- Customer tone sentiment

- Another use case which was experimented with in South Africa is the use of CAI agent to read customer's vocal tone in order to generate customer tone sentiment. Although this use case is possible, in South Africa and Africa in general, the NLP challenge is likely to interfere with this use cases. The multiple accents of the use of English language might make it hard for the CAI algorithm to differentiate between different tones.
- Answering of Frequently Asked questions
 - In organisations where knowledge is coded and stored, the use case of FAQs would work best and relieve the call centre off the pressure to explain and read to customers when necessary. This use case was not visible in the literature.
- Personalised customer experience
 - Customer service personalisation is what millennials are seeking (Kumar, Srivastava, & Bisht, 2019)
- Routine policy renewals
- Changes to customer policies

In literature, (Roth, 2020), emphasised that insurers need to pick their battles and not go for everything at the same time. The literature also mentioned that a quick win would often come from a use case where the company is leading and has strong capability on.

Use case selection need to be assisted by senior leadership to ensure top down buy-in is visible. Participant 1's point of departure when it relates to use cases is

that the Story must be clear and relatable from the top down. Leaders need to understand the story. “Connect the story to the core company values and the narrative of the business”.

Use Case prioritisation

From the feedback received through interviews, it can be deducted that when an insurer embarks on a journey to explore CAI solutions, they are ideating on multiple use cases to identify a solution that is fit for purpose. This is when the notion of prioritisation come into play. Literature has shown that to succeed in AI, one ought to carefully choose a use case which is related to the core of the business (Fagella, 2020). Participants shared their experiences with prioritisation of AI initiatives in their organisations. A common theme is that taking on an CAI initiative for CAI’s sake is a recipe for failure and will likely result in wasted resources.

Three insights deducted from the participant’s feedback can be summarized as, insurers need to assess if the CAI use case is:

1. Strategically aligned
2. Is of high value generation
3. It solves a fundamental business challenge which threatens the core of organisation

Delivery approach

On delivery approach, participants reported different approaches that have been explored in the insurance industry in South Africa.

1. Agile delivery
 - a. Incremental approach
 - b. Fail fast and forward
 - c. Team collaboration
2. Design thinking approach
 - a. Ideation
 - b. Prototype
 - c. Scale up
3. Skills transfer during the interactions

The above mentioned approaches are aligned to literature, (Roth, 2020)

Performance Management

Once CAI have been implemented, to measure success participant 1 reported that clear measure need to be defined. He further mentioned that in his insurance industry career, defining clear KPIs to measure performance after implementations is always clouded by generis KPIs.

In literature, there is a strong link between performance management and strategic goals of an organisation. Organisations need to keep track on strategic goals it is necessary to define clear metrics to measure if the operational design

in place is effective (Roth, 2020). In this study, this relationship can be confirmed to exist as it emerged from 40% of the participants.

Summary

“True innovation in the insurance industry will come from a top-down AI strategy that starts with AI champions on the leadership team. These leaders will steer their companies toward experimenting with AI projects, measuring their success, and learning from their failures. In doing so, they will build a more agile organization with a culture that encourages iterating with new technology to solve business problems and win market share.”

5.3 Discussion pertaining to Research Question 2

What are the attributes customers are looking for in CAIs based interactions for enhanced customer experience?

Customer preferences have changed over decades; organisations are facing a need to event themselves in order to remain relevant (Accenture, 2018).The insurance industry has not been spared either. In this section the researcher considered responses from 14 insurance customers to share their views,

Data Privacy & Security

The interviews confirmed that Data privacy and security plays a big role in the adoption of CAI solutions. In the conducted interviews, participants commented

on their concerns regarding data privacy and security. Participant 5's went further to say" in a case of personalised marketing, the insurance companies would need to gather enough data about me to make the personalisation relevant. This is a thin line between my privacy invasion and insurance company trying to be relevant."

Data Security as a theme was also dominant from the responses as customers are worried about their sensitive data landing in the wrong hands. An interesting observation was that some customers associated Conversational AI agents with data security gaps.

There is robust literature on the role that data security and privacy plays in AI platforms. The literature classified this theme with ethical AI, emphasising that AI solution providers need to be proactive and clear on the data privacy and security strategy (Capgemini, 2020). There more ethical customers believe a solution is from data security perspective, the more trusting they are likely to be which will in turn result in effective interactions with CAIs.

The alignment between customer expectations and literature on data security and privacy strong and proves that customers need an assurance and understanding of how their data will be protected in the implementations of new technologies.

Cognitive Attributes

A dominant theme which was reported during insurance customer interviews was on cognitive attributes. 80% of respondents mentioned cognitive related attributes. It is evident that customers expect to experience CAI agents in a seamless way without having to worry about how the CAI agents differ from human being and being stuck on the comparison instead of engaging.

Respondents mentioned different attributes ranging from empathy, speed of response, listening at the right time and having the right tone and understanding of spoken language.

Participant 8 & 9 further mentioned examples where a human based sales interaction would be started by small talk before going straight into the sale conversation, while their experience with CAI agents is that the agent would go straight into the sale conversation. This was mentioned as a short coming on the CAI agent side as customers believe that there is value to have the sales agent approach the conversation in a way that appeals to the customer.

Further sentiment that was obtained through the interviews is that customers find the flow of conversation with CAI agents inconsistent, with relatively weird pauses. There was also an emphasis on the current trend with bot telesales conversation that they are designed to be one way. This means that a voice agent would be talking through as the sales conversation uninterrupted while the customer is expected to listen through without interruption. This is not natural from a conversation perspective and can be un appealing to customers. Another respondent mentioned that the current design of Voice bots marketing insurance products to customers come through as irritating. The respondent

mentioned the issue of voice tone, speed of talking and accent as some of the elements that seem to be ignored.

In literature it was mentioned that cognitive attributes need to be woven in the design of CAIs as they play a crucial role of keeping the customer on the other end of the conversation interested (Rhee & Choi, 2020) .

It was emphasised that CAIs algorithms need to be designed in a manner that they are able to detect customer moods, voice tones and be able to adjust the conversation accordingly, (Balasubramanian, Libarikian, & McElhaney, 2021). It is worth reporting that most respondents when asked if they would judge and report CAIs agent in cases of distasteful engagements, most respondents did not give convincing answers that they would hold CAIs agent to the same high standard they hold human professionals doing the same job.

Below is a list of mentioned attributes that customers expect to see improvement on when it comes to AI in general and especially CAIs.

- Empathy
- Reasoning
- Speed of responses
- Pauses in the conversation at the right time
- Accuracy of response

Natural Language processing, voice Tones and Accents

The researcher noted that more than 60% of respondents had comments on the voice tones, accents and a general use of the English language embedded in most CAIs. Further to these comments, participants light-heartedly asked why the CAIs are only using one language while in South Africa majority of people speak African languages. In support of the recorded literature (AIMultiple, 2021), multi-language usage will remain a challenge for most CAI implementations as there are at least 11 languages in South African alone.

This theme is important and needs to be built on in future researches as language barriers could hinder progress on CAIs adoptions.

On the issue of voice tones and accent, respondents called out the misalignment in tones that are used by CAIs to be out of the South African context.

The issue of accent is a tricky one as different ethnic groups in South African have different accents of English and some are easy to understand while others are not. Respondents' concerns are, will a CAI agent hear me clearly and not make incorrect judgements based on language challenges.

On the issue of language, some respondents asked about the intelligence a CAI agent would require to have embedded in them in order to understand grammatical errors made by customers. An example which was given by respondent 2, was:

"Here in South African there is a mutual understanding between customers and professional customer facing staff when it comes to the usage of English language. I could say something like "I need insurance for my entire family, but

my budget is not allowing me” This is a classic example of the complexity in language as the customer simply means that they cannot afford but in their usage of language they chose the words” budget not allow”. Respondents elevated this theme by concluding that use of language, tones and accents will remain a challenge and affect adoption of CAIs.

Use cases

When asked about CAI use cases, respondents had different views and preferences based on their experiences and expectations.

A key theme that was present in all interviews with participants under the age of 40 is that they were more open minded to Sales, Claims and Customer Experience, as the dominating use cases.

- Marketing
 - Participants were particular concerned about the random calls they receive from tele marketing and associated CAIs with their unpleasant experiences with Telesales
 - On personalised marketing most participants expressed an interest and a dominant thread was that personalised marketing will
- Sales

- On sales, a common thread from participants was that an end to end process and purchasing of policies based on CAI interactions sounds a bit ambitious. One participant emphasised even if the Sales process is kicked off with a CAI, it would need to be concluded with a human Sales person. It can be deducted that customers are not completely closed to the idea of CAIs facilitating the sales process, however it would need to take understating of how it works for customers. Equally, the associated risks would need to be addressed. In literature it was argued that even developed markets are not fully open to end to end CAI based sales processes. This shows an alignment between the finding and literature.
- Claims
 - Participants indicated that an automated claims process through the use of CAIs would mean convenience. For simple claims processes CAIs would add value however more complex claims would require the guidance and judgement of a human being.
 - Literature is future looking on claims use cases, from CAIs assisting with the claims process to fully automating the claims process, assessing of claims data, incorporating IOT data and making accurate judgements (Roth, 2020).
- Customer Service

- On customer service, all participants reported that there is a vast opportunity to offer convenience such as 24/7 customer service support.

AI knowledge

Last but not least, a strong theme coupled with the researcher's observation, emerged through the interviews with insurance customers. Knowledge about AI as a phenomenon is lacking among customers and this poses a threat of AI adoption from a customer perspective. There were numerous assumptions and incorrect theories on how AI works.

Participant 7 was quoted "Does a Conversational AI agent interfere with my insurance policies and uses my information in the background, how does it work? It sounds invasive"

Another participant was of the view that CAIs are meant to take over human jobs and in the long term be controlling over human beings.

Literature has also warned on, lack of AI knowledge as it might be counterproductive and limit the acceptance of CAIs by customer, (Fagella, 2020).

There is a need for AI knowledge among customers in order to address the stereotypes and improve customer acceptance.

5.4 Discussion pertaining to Research Question 3

How to deliver CAIs implementations which maximise value for the insurance organisation and customers?

CAI capabilities

Respondents who are involved in CAIs have all emphasised that for CAI implementations to success, a clear set of AI and CAI capabilities need to be defined and be sourced in advance. The CAI capabilities are not limited to AI technical skills but also to AI infrastructure, as Natural Language Processing applications require to be fed with vast amount of data.

Vendor Selection

Vendor selection process has to be directed by top leadership with a clear understanding of business needs. The selection process need to be consultative and adhere to internal governance.

Participant 2 of this group emphasised that this process cannot be a cast and stone as in some cases it takes more than table discussions and requires a practical exercise where the shortlisted vendors are invited to participate in an exercise. “It is then during these exercises that a suitable vendor can be identified. Observing their organisational culture, how they collaborate and solve problems enhance the selection process.

In terms of contractual agreements with vendors. Participants advised that incumbents should avoid long term inflexible arrangements. If possible, it was

mentioned that a shared value model is recommended if viable, this means that if the implemented solution yields results, then the financial gains may be shared among the service provider and the incumbents and if there are losses both teams are affected and not just the incumbent.

Summary of Findings

The findings as reported in the above section have been summarised using the below tables:

	What lead to good CAI implementations
Insurance Professionals	Visibility of leadership buy-in Strategic alignment of initiatives Use case selection related to core business and burning challenges
Insurance Customers	Transparency on Data privacy Embedded cognitive attributes Seamless transition from CAI to human agent

Insurance-CAI implementation experts	Horizontal teams Agile approach Assessment of CAI capabilities
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Table 14 **What lead to good CAI implementations**

	What led to unsuccessful CAI implementations
Insurance Professionals	Incomplete data infrastructure Misaligned Use case prioritisation Fully outsourced to CAI experts Lack of internal skills Unclear change management
Insurance Customers	Language, tone and accent Unclear expectations Lack of AI knowledge leading to CAI stereotypes No value add

Insurance-CAI implementation experts	Lack of investment Unclear strategic direction Lack of collaboration Lack of data capability
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Table 15 **What led to unsuccessful CAI implementations**

	Areas of implementation improvements
Insurance Professionals	CAI skills development Team collaboration with CAI vendors Strategically aligned Use case selection & prioritisation Change management
Insurance Customers	Embedding of cognitive attributes Relevant representation on language, accent and tone Communicated value add for customers

	Assurance on data security & privacy
Insurance-CAI implementation experts	Agile approach to implementation Algorithm Performance measurement – return on investment

Table 16 **Areas of implementation improvements**

CHAPTER 6. CONCLUSIONS & RECOMMENDATIONS

6.1 Introduction

The insurance industry is facing competing challenges among which are the emergence of 4IR technologies, changing customer preferences, Covid-19 pandemic and the emergence of Fintech and Insuretechs. Addressing these challenges require insurance organisations to be intentional, to have a clear understanding of the depth of the challenges at hand and address them strategically to yield desired results.

The aim of this study was to understand key factors that lead to successful conversational AI implementations in the insurance industry, focusing at insurance organisations in Johannesburg. As insurance companies are implementing various conversational AI solutions, the key factors which contribute to an effective insurance value chain functions such as; Sales & Marketing; distribution channels, customer experience and claims processes are not accurately defined, while these are the main drivers of CAI implementations. Customer expectations with regards to CAI adaption have not been documented in depth from a South African perspective.

To achieve the above mentioned aim, the study sought to bring together different conversational AI implementation learnings, setbacks and recommendations from the insurance industry. The study would further contribute the findings from

local insurance players to the existing pool of research on CAI implementations in the insurance industry and particularly focus on Johannesburg, South Africa.

The study would then document a recommended CAI implementation framework for local insurance organisations. The framework would highlight, CAI uses cases to be prioritised, cognitive and benefits sought by insurance customer and incorporate key learnings from local CAI implementation experts.

The purpose of this chapter is to present the conclusions of the findings and further provide recommendations based on the findings from the three research questions. To conclude the study, there are suggestions for further readings at the of the study.

6.2 Conclusions regarding research question 1

RQ1: How do insurers prioritise and select CAI use cases to improve distribution channels, provide relevant products to customers at the right time?

In the literature, the emphasis is on value generation as a goal for business model, (Ovans, 2015). Further to the business model theme, a sub theme on the design of business operations to ensure that business activities are coherent with the goal of growing value and satisfying customers. A strategic alignment is critical when organisations embark on CAI implementations (Roth, 2020). Earlier studies also emphasised that insurers need to pick their battles and not go for everything at the same time when it comes use case selections (Roth, 2020).

When it pertains to use case selection and prioritisation, one ought to carefully choose a use case which is related to the core of the business (Fagella, 2020).

Insurance industry innovation theory in literature provided compelling reasons as to why insurance organisations are compelled to disrupt if not to be disrupted.

When it pertains to CAI, studies have shown that global implementations have shown that conversational AI in a form of virtual assistants applied in sales and marketing can convert leads to sales at 20-30% more than human teams (Reddy, 2019).

A significant amount of literature has also explained why data is key in CAI success (Fagella, 2020). Data privacy and security are also mentioned extensively in the literature and are key to ensure trustworthiness of the CAIs implemented (Rhee & Choi, 2020)..

In relation to the above literature, the study has found that successful implementations within the South African insurance organisations, were closely afforded leadership buy-in. These implementations were aligned to strategic imperatives of the organisation.

On the other hand, CAI initiatives which failed were predominantly due to lack of data capabilities. It was also found that fully outsourced implementations lacked internal support from operational SMEs and resulted in failure.

The study further found that CAI skills development has to be included in the initiatives plan. This will in turn drive collaboration between CAI vendors and internal teams.

Proposition 1 stated that Implementation of CAIs ought to be aligned to the strategic direction of the organisation. Insurance value chain functions need to be assessed in detail to identify use cases for CAI implementation in a prioritised order to ensure maximum value is derived from the implementations.

Conclusion:

This research question was successfully answered through the findings presented in the preceding chapter. It can be concluded that for successful CAI implementations in the Johannesburg insurance companies, insurance companies need to consider the following with equal importance; Strategic alignment, prioritise use cases core to the business and with the most burning challenge, put a comprehensive data strategy in place and ensure internal skills development to build collaboration. Additional two themes of change management and focused investment were found.

6.3 Conclusions regarding research question 2

RQ2: What are the attributes customers are looking for in CAIs based interactions for enhanced customer experience?

Literature pertaining to research question 2 highlighted key considerations for successful implementations as a focus on customer impact and what cognitive

characteristics have been defined for effective solutions. Data privacy and security are also mentioned extensively in the literature and are key to ensure trustworthiness of the CAIs implemented (Rhee & Choi, 2020). In literature it was mentioned that cognitive attributes need to be woven in the design of CAIs as they play a crucial role of keeping the customer on the other end of the conversation interested (Rhee & Choi, 2020) .

Findings from insurance customer participants can be summarised that cognitive attributes are a determining factor in CAI adoption from customers' perspective. A CAI agent that lacks basic to moderate cognitive attributes will not be easily adaptable by customers.

Data privacy and security is also deemed important by customers and how organisations are addressing it should be transparent to customers.

It is the expectation of customers that CAI interactions should provide convenience and personalisation, which will in turn improve customer experience. There were concerns on effective use of language, tone and accent. This finding was a new theme.

The proposition for this research area is that; Insurance customers are seeking convenience, privacy and humanised experienced when interacting with CAI agents

It can therefore be concluded that the findings support the mentioned literature on the importance of cognitive attributes; data strategy transparency and general CAI education for customers. The research objective was achieved and an

additional theme which was omitted in literature emerged, that use of Language, voice tone and accent are important in the South African market in order to enhance customer experience.

6.4 Conclusions regarding research question 3

RQ3: How to deliver CAIs implementations which maximise value for the insurance organisation and customers?

Literature has shown that Implementing CAIs solutions requires an implementation plan which is aligned to the organisation's direction. McKinsey recommends a multi layered strategic plan, touching on operations, talent and technology (Balasubramanian, Libarikian, & McElhaney, 2021).

Findings on research question 3 can be summarised as follow:

- Most organisations do not have the right level of data capabilities
- Use case prioritisation is done incorrectly if senior leadership is not involved
- When CAI implementations are fully outsourced to vendors, there is resistance from internal stakeholders, this changes for better when internal stakeholders are fully invested and involved
- An agile delivery approach yields results faster and if the initiative fails, it fails fast and forward, avowing huge cost wastage.

It can therefore be concluded that research question 3 was sufficiently addressed that the alignment between literature and the findings are compelling. A theme on technical architecture and infrastructure was mentioned. This theme is deemed out of scope for this study and provide an interest for the future.

6.5 Recommendations

In this section the researcher make recommendation in line to the overarching research problem which stated there is a glaring lack of clarity as to what specific implementation elements are key to incorporate into conversational AI implementations to create value for companies and their customers in the South African insurance industry. It was unclear as to what are the specific factors that guide implementations of CAIs to greater success, what the sought cognitive attributes are key to transform the insurance value chain components, to exceed customer expectations and cut operational costs (Ndoro, Johnston, & Seymour, 2021).

In this section there are five key recommendations for insurance organisations in South Africa when it pertains to implementations of Conversational Artificial Intelligence.

6.5.1 *Strategic alignment & Use case selection*

Strategic alignment of CAI implementations to strategic imperatives is the first step to successful implementations. Researcher provides below guidelines as recommendations to ensure strategic alignment is achieved.

- Pick initiatives that have leadership buy in because they are close to the core of the business
- Prioritise based on value add and alignment to strategic imperatives
- Leadership buy in transparency - walk the talk from Exco. members
- Connect the story to the core company values and the narrative of the business
- Communicate value
- Define investment and commit to it
- Clear value metrics defined to allow success measurement

6.5.2 *CAI cognitive attributes*

The following cognitive attributes are advised to be embedded in the CAI implementations:

- Speed of response
- Reasoning
- Accuracy
- Natural flow of speech
- South African accent of English language

- Natural speech tone
- Sentiment analysis
- Ability to pause when customer speaks

Cognitive attributes are recommended to drive customers' adoption. Implementations with limited cognitive considerations are likely to be frowned upon by customers and this may distract adoption.

6.5.3 CAI awareness and knowledge

The researcher recommends the below guideline for introducing a shared learning culture and skills transfer from CAI expert to internal teams while working collaboratively on the CAI implementation.

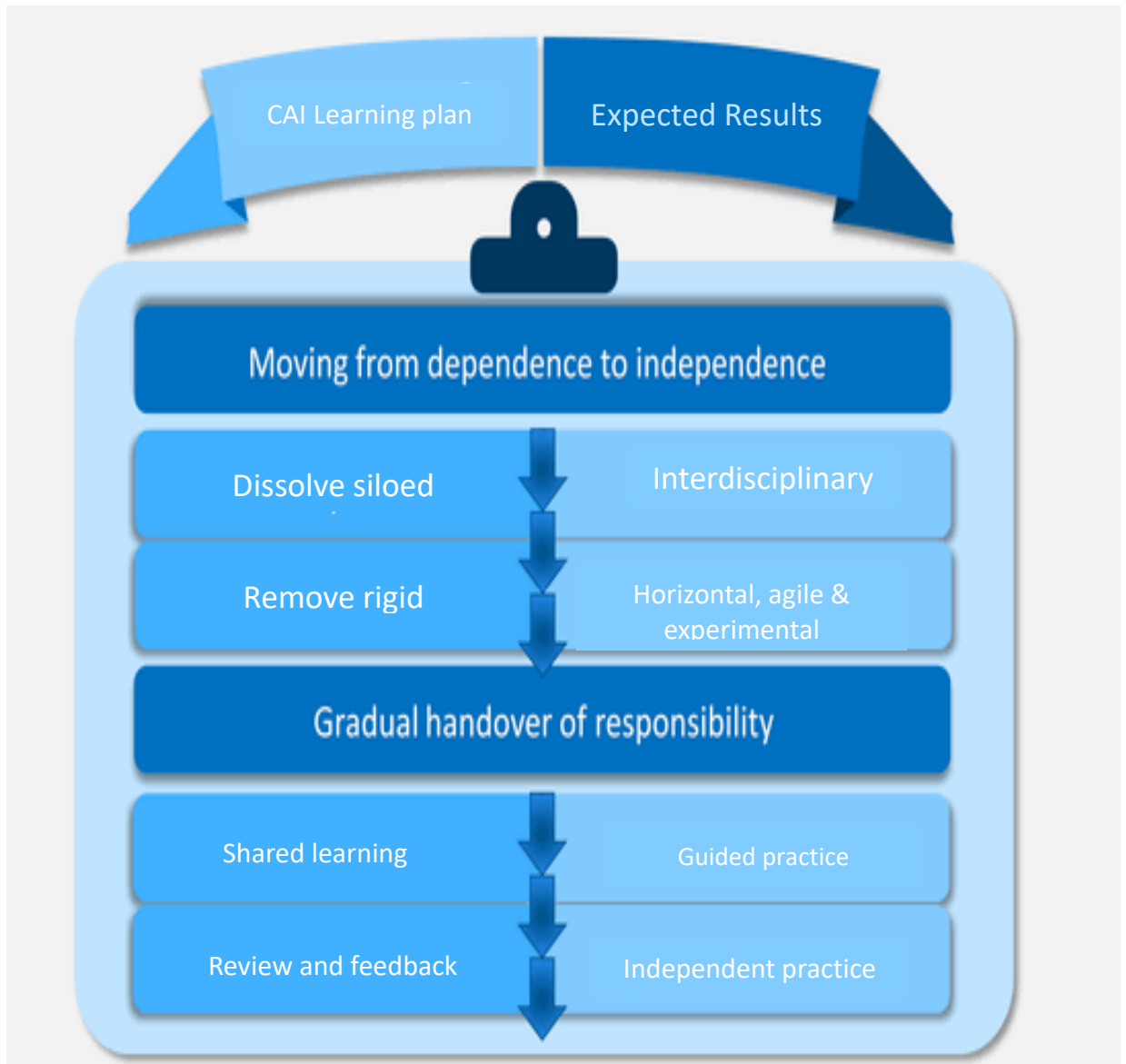


Figure 11 CAI awareness and knowledge

The above model aims to guide organisations to move away from 100% vendor dependence to a reasonable amount of internal independence.

A further guide of reference to assess if the CAI skills transfer within the organisation has been met is shown below:

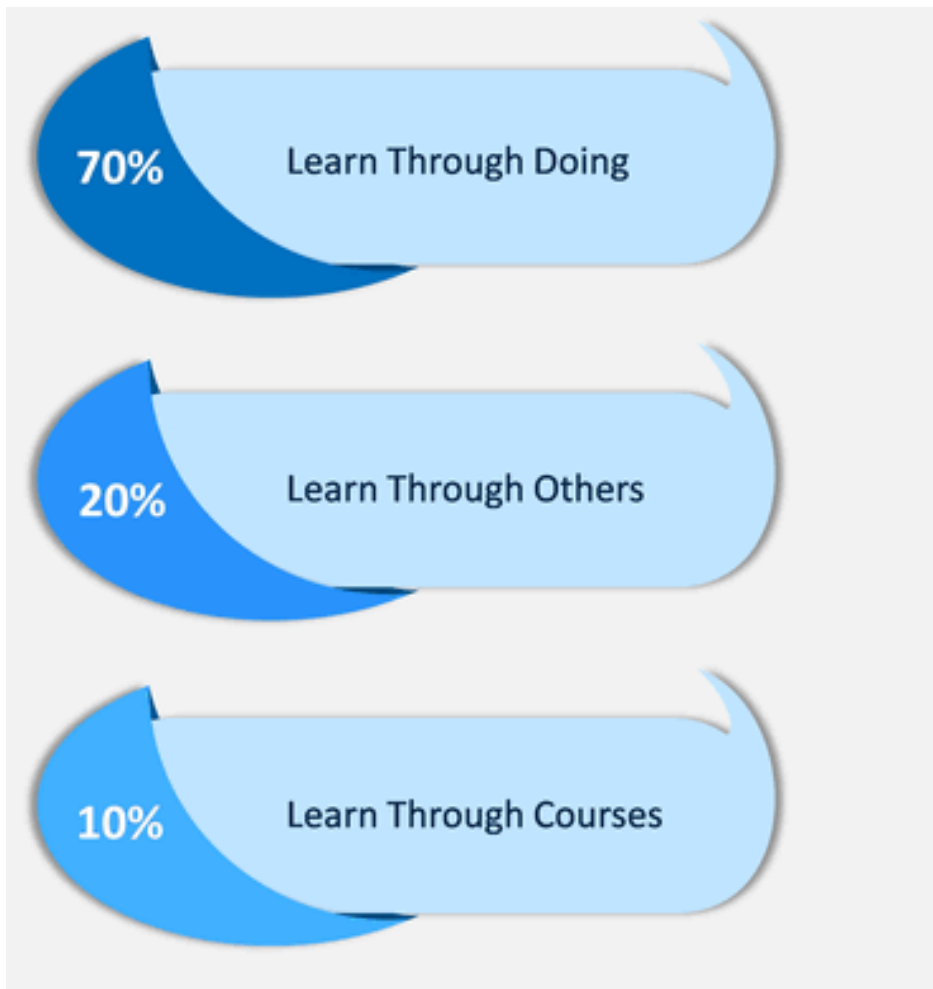


Figure 12 CAI awareness and knowledge measure

CAI learning for customers should incorporate the following activities:

- Social media promotion of CAI agent with clear names and purpose shared

- Online competitions for customers to interact with the new kid in town in order to look cool
- A strong theme or persona to make the CAI agent known and relatable

6.5.4 CAI delivery framework

The following delivery framework is recommended as a guideline for CAI implementations:

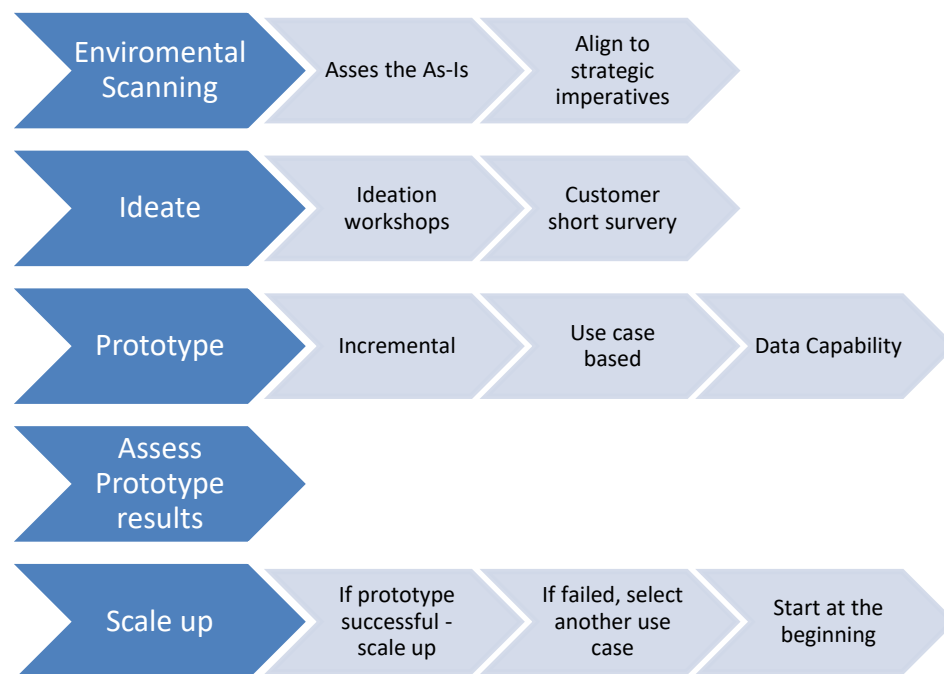


Figure 13 **Agile delivery guideline**

This guideline is a base for agile collaboration and if enhanced, could cultivate an agile culture and encourage collaboration

6.6 Suggestions for further research

The below suggestions are identified in the study as options for further research based on findings results.

- Technical capabilities required for CAI implementations
- CAI implementation project team roles and resourcing
- CAI platforms suitable for CAI use cases in South African organisations

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Appendix A:

Interview transcript:

Insurance consumers	Name: P1
Gender	Female
Age	20-30
Ethnicity	African
Designation	Actuary
Would you buy an insurance product sold completely by a CAI agent? If not, please state your reasons....If you have already bought one please give provide details of your experience	I can start the conversion however I'm not comfortable yet to get into a contract
What are the key cognitive attributes you look for when engaging with a CAI agent? e.g. Speed, logical reasoning, attention, perception and memory?	The CAI agent needs to offer me similar or more speed in responding to my questions
Describe how your experience with a human customer service was different to that with a CAI? What made the difference for you?	Opinion: Eskom VA - sorting issue (algorithm) 2nd: Bank - Good experience (faster than human being), more immediate

Would you report an unpleasant user experience with a CAI on social media before engaging with your insurance Service Provider? Why?	Perception is that CAIs are not on par as humans, thus not really
What will make you trust the CAI agent similar to or more than a human agent? Why?	Same level of trust; depends more on the entity than the CAI.
Would you encourage Insurers to provide more CAIs for a 24/7	Yes, I would for certain processes (i.e. Claims)
At what point in your interaction did you realise that you were engaging with a non-human? What was your reaction? Did your expectations change? Why or why not?	Not yet
How can insurers optimise CAIs for better experience?	Different languages implementations & Routine processes such as renewals etc.; be able to schedule a call
Would you require a notification from your insurer about CAIs	Not really, has name and a persona. An introduction would help
Area of concern with large scale CAI implementations	No strong concerns; there's more to gain than to lose.

Appendix B: Permission letter



University of the Witwatersrand,
Graduate School of Business Administration
11/November/2021

Dear Sir,

Re: Permission to interview participants at your organisation for an academic research on anonymized basis

My name is Setebatebe Maphutha, I am currently studying for a Master's Degree in Digital Business in the Graduate School of Business Administration, at the University of the Witwatersrand.

For my final project, I am conducting research on **Factors Facilitating Conversational Artificial Intelligence (CAI) at an insurance organisation in Johannesburg**. CAI is an umbrella term used in the research to include (chatbots, virtual assistants, voice assistants, mobile assistants etc). The purpose of the research is to understand the models and approaches insurers use to design, prioritise and implement AI initiatives in South Africa.

The study further aims to document the key factors that result in value adding conversational AI implementations in the insurance industry. As insurance companies are implementing various conversational AI solutions, the key factors which result in improved distribution channels, enhanced customer experience and improved claims processes are not accurately defined, while these are the main drivers of CAIs implementations. There is not satisfactory literature in South Africa as compared to global content on AI adoption in the insurance sector. The study aims to contribute towards narrowing this gap and inviting more researchers to study this case further.

Anticipated benefit of this study is a contribution to content on AI implementation frameworks within the SA insurance context. Further, produce a blueprint on consumers' views, expectations and experience with CAIs interactions.

Thank you for taking the time to assist me in my educational endeavours. The research will entail collecting data from Insurance AI stakeholders, AI service providers and Insurance consumers. The interviews are estimated to be 30 minutes long, over a virtual call. This will preferably take place outside of working hours. It is key to also

note that all participant's responses will be audio recorded to allow the researcher an opportunity to revisit the conversation and easily transcribe into text.

Participants will be asked to give their written or verbal consent before the research begins. Their responses will be treated confidentially, and identities (their names and the name of the organisation) will be anonymous. Individual privacy will be maintained in all published and written data resulting from the study. The results will be communicated in a dissertation, anonymously.

The research participants will not be advantaged or disadvantaged in any way. They will be reassured that they can withdraw their permission at any time during this project without any penalty. There are no foreseeable risks in participating in this study. The participants will not be paid for this study.

All research data will be destroyed after 3 years post the research.

I therefore request permission in writing to conduct my research at your organisation by interviewing at least two members of your team who work closer to AI design or/and implementations. The permission letter should be on your organisation's headed paper, signed and dated, and specifically referring to myself by name and the title of my study.

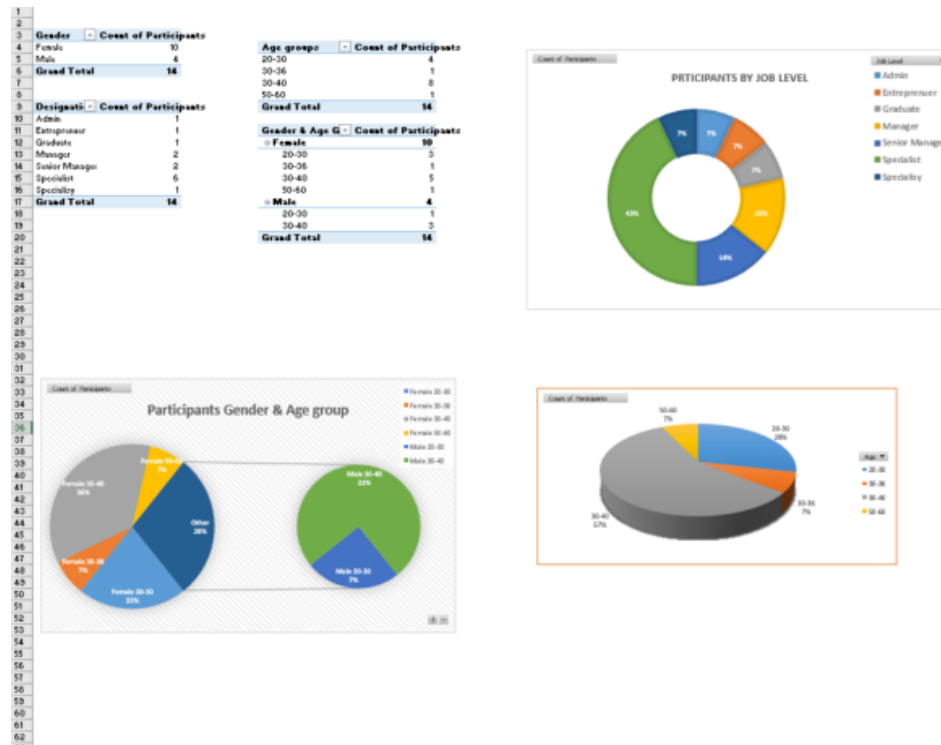
If you require additional information or have questions, please contact me at the number listed below.

Yours sincerely,

Setebatebe Maphutha
0833061735
0512757R@students.wits.ac.za

Supervisor: Dr Manamela Matshabaphala
+27 11 717 3668
manamela.matshabaphala@wits.ac.za

Appendix C: Demographics of participants



Appendix D: Participant consent letter



Participant Consent form

Research Title: Factors facilitating conversational artificial intelligence at an Insurance company in Johannesburg.

Researcher: Setebatebe Maphutha

Dear Sir / Madam,

I, (please put your name here) agree to participate in this research project. The research has been explained to me and I understand what my participation will involve. I agree to the following:

(Please circle the relevant options below).

I agree that my participation will remain anonymous	YES	NO
I agree that the researcher may use anonymous quotes in his / her research report	YES	NO
I agree that the interview may be audio recorded	YES	NO
I agree that the information I provide may be used anonymously after this project has ended, for academic purposes by other researchers, subject to their own ethics clearance being obtained.	YES	NO

..... (signature)
..... (name of participant)
..... (date)

 (signature)
Setebatebe Maphutha (name of person seeking consent)
18 November 2021 (date)