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Artificial intelligence and instant messaging technologies as service channels in South African firms

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Artificial intelligence and instant messaging technologies as service channels in South African firms

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

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ABSTRACT

This study investigates the perceptions and attitudes around the utilisation and adoption of two computer conferencing technologies (instant messaging and artificial intelligence (chatterbots)) for customer service delivery in South African organisations. Attitudes and perceptions were extracted and discussed by interviewing customer service decision makers from a variety of South African corporations.

The academic literature gives a background discussion on the real meaning of customer relationships and the benefits of adopting new channels and having multiple channels for customer service delivery. This is followed by a description of chatterbots and instant messaging technologies, and how they can be used as innovative channels to deliver customer service to today's consumers. Examples of the value that these technologies offer to corporations as well as to their customers are then discussed. The literature explores the South African context and offers suggestion why the utilisation and adoption of the technologies would be appropriate for South Africa. Finally, the literature concludes by pointing out that despite these benefits and the suggestions of the South African context, these technologies are not being widely utilised for service delivery, and this study explored why.

The data for the study was gathered by carrying out 11 in-depth interviews with South African organisations. Data from the interview was recorded and content and thematic analysis was conducted in order to identify the relevant data.

The study found that:

- South African corporations and customer service decision makers recognise the importance of having real-time interactive channels as well as multiple channels for service delivery.

- Organisations are aware of the customer complaints and business needs that are not addressed by existing channels

- Organisations are aware of how some of these business needs can be resolved by adoption of instant messaging and chatterbot service delivery channels

- South African organisations perceive that having additional service delivery channels such as instant messaging and chatterbots will improve the customer's experience

- Organisations are mostly aware of instant messaging technology.

- Organisations are mostly unaware of chatterbot technology.

- Organisations would consider the adoption and utilisation of instant messaging channels

- Organisations have reservations around adoption of technologies as they raised issues that will need to be addressed to enhance the use of instant messaging and chatterbots as customer service delivery channels.

The key message to this study is that South African organisations see value in introducing real-time chat based technologies into their work place and although they have their reservations, there are numerous perceived benefits that these technologies can bring into enhancing their customer service delivery.

DECLARATION

I, **Ayo Kolawole**, 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 Business Administration in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

_____

AYOKUNLE KOLAWOLE

Signed at ……

On the …….. day of …… 2010

DEDICATION

TO GOD: For wisdom, guidance, health and ultimately making this whole endeavour possible.

MY FATHER AND MOTHER: Gabriel and Dayo Kolawole,

MY SIBLINGS AND THEIR SPOUSES: AJibola and Tolu kolawole, Ayoyinka and Taiwo Kolawole, Adewale and Toyin Adeleke,

not forgetting MY 5 NEPHEWS (Joel, Joshua, Jeremiah, Jonathan and Jason) AND ONLY NIECE (Neo).

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- All the respondents and the organisations that they represent who took time to meet with me and gave valuable input into this research study.

- To my colleagues and friends who walked through the MBA journey with me, encouraged me right through and never deserted me even in times when the foundations of our relationship was tested. You represent the epitome of true friendship.

- My only niece who was birthed into this world the same month that I completed this report. Your arrival gave me the momentum to see this through.

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1 INTRODUCTION

1.1 Purpose of the study

The purpose of this study was to derive insight into the potential or current adoption of artificial intelligence and instant messaging communication technologies for customer service delivery in South African corporations. The study aimed to understand the perceptions of using these technologies as a delivery channel for servicing customers.

1.2 Context of the study

South Africa has many corporations with products and services that are consumed by corporate and end user customers. In providing customer service and communicating with their customers, these corporations make use of a variety of channels. One such channel is the use of telephony systems in the call centre which over the years has been the primary mode through which corporations have instantaneous communications with their customers.

However, because technological innovations have provided supplementary means of communication that human beings use to communicate with one another on a daily basis, this study explores the use of some of these communication technology platforms in a corporation's customer interactions. The methods of communication that customers and potential customers use to communicate with each other has surpassed making of telephone calls. Global trends have provided new and cheaper technologies such as computer conferencing that has afforded customers the liberty to supplement the modes of communication with these techniques.

In their book, The Network Nation: Human Communication via Computer; the authors (Hiltz and Turoff 1993 : xix) go on to say that "changes in computer and

communications technology have made the computer conferencing the cheapest, most convenient and potentially most powerful mode of communication". As the title of the book indicates, computer conferencing allows human beings to communicate via a computer, and such communications platforms are cheaper and more convenient. It can therefore be inferred that computer conferencing technologies is an area of interest worth exploring for corporations as it reduces costs of communication.

The objective of study was to gain an understanding of the perceptions and attitudes around the use of computer conferencing technologies as service delivery channels in South African corporations. This study focused on two types of computer conferencing technologies - artificial intelligence messaging (popularly known as Chatterbots) and instant messaging technologies.

1.3 Problem statement

1.3.1 *Main problem*

This research was carried out to investigate the attitudes and perceptions of customer service decision makers in utilising artificial intelligence and instant messaging technologies to enhance customer service delivery channels in South African corporations.

1.4 Significance of the study

The world has witnessed a steady increase in the advent, adoption and widespread use of new and varied technologies (McQuillen 2003). This has influenced the way humans communicate as there are so many techniques of communicating today and many of these have replaced interpersonal, face to face interactions and are now remote (virtual) and technology driven.

Organisations have increasingly been seeking to interact with their customers using more “remote channels” such as telephone and computer-based technologies (Martin and Rouncefield 2003). The global adoption of computer mediated communication (CMC) has encouraged organisations to utilise technology driven techniques in their interactions with the customer.

The study explored the use of two communication technologies (i.e. artificial intelligence and instant messaging) as service delivery channels in South African corporations.

The study provides insight to professionals and stakeholders involved in customer interactions about the use of artificial intelligence and instant messaging technologies as channels through which customer service can be provided in South Africa.

1.5 Delimitations of the study

Artificial intelligence: For the purposes of this research, artificial intelligence refers to the chatterbot technologies, a component of the artificial intelligence discipline. This research did not take into account other areas of artificial intelligence.

Computer conferencing: For the purposes of this research, only instant messaging and chatterbot conferencing are explored. This research does not study the other computer conferencing technologies.

1.6 Definition of terms

Term	Definition
Computer Mediated Communication (CMC)	The process by which people create, exchange and perceive information using networked telecommunication systems that facilitates encoding, transmitting and decoding messages (Romiszowski and Mason 1996)
Computer conferencing	The use of computers to allow people at distant sites to exchange text, audio and graphic messages as they would at a meeting (Encarta 2009)
Instant messaging	A type of communications service that enables you to create a kind of private chat room with another individual in order to communicate in real time over the Internet, analagous to a telephone conversation but using text-based, not voice-based, communication. (Webopedia 2010b)
Chatterbots/Conversational Agents (artificial intelligence)	Short for chat robot, a computer program that simulates human conversation, or chat, through artificial intelligence. (Webopedia 2010a). Chatterbots is a type of Computer artificial intelligence.

2 LITERATURE REVIEW

2.1 Introduction

The world has witnessed a steady increase in the advent, adoption and widespread use of new and varied technologies (McQuillen 2003). This increase in the means of human to human communication has caused the telephone to go from the main technique, to just one of the many ways through which corporations could potentially communicate with customers.

This review examines the uses of two communication technologies (artificial intelligence and instant messaging) and how they could potentially be used as a service delivery channel in South African corporations.

2.2 Background discussion

The Customer Contact Centre (CCC) does play a key role in the process of customer service delivery. Since their appearance on the scene in the early 1990s, CCCs have become the most important single source of customer contact in information economies (Russell 2008). This is because CCCs offers a cost efficient channel through which organisation can deliver to their customers as well as generate revenue for themselves. Customer delivery may include objectives like providing product or service support and managing customer relationships in a cost efficient manner. Revenue generation occurs through cross-selling. CCCs offer the potential for an organisation to take advantage and offer new products and services to an existing customer. Cross selling can be viewed as turning a service request opportunity into an opportunity to market additional products (Aksin and Harker 1996).

The CCC is a type of distribution channel. As its functionality is considered limited in a technology driven culture, other distribution channels have emerged to complement the CCC. A distribution channel has been described as the exchange relationship between the organisation and its customers that creates customer value in acquiring and consuming products and services (Pelton, Dutton and Lumpkin 1997). In earlier times, distribution channels were few, and usually included mail, face to face and the CCC. Developments in information technology however have allowed for more channels. Choices of channel selection now encompasses CCC for phone calls, web-chat, e-mail, and SMS messaging (Pumpfrey 2006).

Multiple distribution channels have also allowed organisations to understand and redefine the true meaning of customer relationships. In their article, Hogg *et al* (1993), observed that the decision by an organisation to initiate what is considered a customer relationship is usually one sided when the company decides to build a relationship with a customer (Hogg, Long, Hartley and Angold 1993). A choice of distribution channels for customers to choose from can offer a bi-directional manner through which customers and organisations can interact. Not only do these complementing choices make communication easier, they also ensure that the customer can initiate such communication without too much effort from their side e.g. a customer that may not have access to a phone to interact with an organisation can now be proactive and make use of another channel such as initiating an instant messaging session over the Internet with the same organisation.

One component of customer relationships that makes a difference in the life of customers is the product and service support. Customers need support after-sale for products and services and this has prompted manufacturers and service providers to offer some form of customer support. The fact that the core service often causes customers to talk to the support-service personnel confirms the belief that customer support is related to the core service (Roos and Edvardsson 2008). As these authors have pointed out, need for support prompts customers to talk to their support-service personnel. So, when customers experiences a

problem with a core product or service, they will need to initiate contact with the manufacturer or service provider in an attempt to obtain support service, so that they can still be able to derive value from the core product or service. Having multiple distribution channels in place that allows the customer to choose how they want to communicate with organisations makes their attempt to obtain support service easy, as the customer could for instance, have an online conversation session with an artificial intelligence agent online about the problem instead of picking up the phone and calling a CCC.

There are numerous reasons that encourage organisations to adopt new channels for customer delivery. Two examples, cross-selling and support were mentioned above; however there are several other factors that can encourage such adoptions. Table 1 lists the drivers for the adoption of new channels to complement existing ones.

Table 1: Drivers for the adoption of new channels (Hughes 2005)

Driver	**Main factors involved**
Cost Savings and productivity gains	Lower overheads on new channels
	Amount of automation that can be built in
	Possibilities for moving administration/processing/customer service globally to lower cost regions.
	Customer willingness to use and access to lower cost channel
	Self-service by end customers or intermediaries
	Ability to use existing channels more productively
Potential for business expansion	Customer demand
	Pricing
	Type of product Involved

The two drivers above are inherent in the objectives of profit oriented organisations. These organisations want to cut costs and increase revenues. Furthermore, they want to appeal to new customers whilst minimising the loss of current customers. Table 1 indicates that having multiple distribution channels are important for organisations that are influenced by these drivers.

In an era where the organisation that offers the most perceived value to a customer gets to keep that customer, organisations are having to do more to keep their customers satisfied. Increasingly, external forces are influencing the way the customer is doing or wants to do business. Outside market forces have provided the impetus for customers to take a more dominant position in the relationship between the organisation and the customer (Katsioloudes, Grant and McKechnie 2007). As a result of these, (Katsioloudes et al. 2007) points out that customers not only have more choices about how and when they will interact with an organisation, but organisations are now forced to invent new methods of interacting with customers to reduce costs and gain market share.

An illustration of this in the article “welcome to the customer contact centre” (Goldenberg 2001), the author recounts a phone call by a customer to an organisation where the customer went on to say: *“Hello, I am phoning you today about the email that I sent to you earlier this week concerning the problem I have using your product. My email resulted from last week’s web chat session that was prompted from your response that I sent you via regular mail last month”.* Here is an example of an organisation that offers multiple distribution channels and a customer who makes use of them to obtaining service.

It is evident from this example that the perception of what a CCC does is changing from a place where phone calls are made to and received from customers to a place where the interaction between the customer and the organisation takes place not just on the phone but via other channels of communication. The rest of the literature examines the utilisation and benefits of two main Internet technology driven service channels (instant messaging and artificial intelligence), in South African corporations.

2.3 Utilisation of artificial intelligence (chatterbots) and instant messaging technologies as customer service delivery channels

2.3.1 *Customer service delivery*

Consumers don't want to be restricted in how they interact with a company, forcing companies to supply multiple channels of interaction and this trend has been accelerated by the Internet breaking down silos within customer service (Tsai 2010). Also, the provision of customer service through physical locations such as branches and using call centres are more expensive than using the Internet (Hughes 2005). Lastly, in this fast paced world, there is a generation of consumers, everything about this demographic is different and generational effects are working to ensure that they are sensitised and comfortable with technology, and their mobile devices accompany them throughout if not all of the day (Reynolds 1997; Braiterman and Savio 2007; McConney 2008).

In order to achieve the above (i.e. provide a cost efficient customer service that is aligned to the needs of a generation of consumers that are at ease with the use of technology and are pushing for multiple channels of interaction with their service providers), this literature aims to suggest the use of two web-based (i.e. chatterbots and instant messaging) technologies in the delivery of customer service.

2.3.2 *Overview of chatterbots and instant messaging technologies*

Chatterbots are software systems capable of engaging in a conversation with its users in natural language. Their knowledge base consists of a collection of rules, whose triggering depends on text patterns recognised with user input (L'Abbate, Thiel and Kamps 2005). Chatterbots integrate computer interaction and natural language understanding to provide a human-like presence at the point of contact (such as on a corporation's website) between a service provider and its customers

(Seol 2000). Although the degrees of intelligence of chatterbots vary, academic literature suggests that an intelligent chatterbot should have;

- the ability to understand its conversationalists;
- the ability to remember its preceding context and
- the ability to learn (i.e. acquisition of new linguistic knowledge) (Zdravkova 2000)

Whilst chatterbots allows for conversations between artificial intelligence and human beings, instant messaging technology is a conversation between two or more human beings at a point of contact. Instant messaging is a tool which allows for near-synchronous computer-based one-on-one communication (Nardi, Whittaker and Bradner 2000). Not only does instant messaging provides real time interaction between the two users, but it allows for presence i.e. a user can look to see in advance if the person they would like to chat to is available to respond before they initiate a session (Olivia 2003).

Service channels like chatterbots and instant messaging technologies are not meant to replace but rather complement existing channels as they offer functionalities that resolve some of the challenges and complaints associated with existing channels. For instance, some problems faced with the interaction between call centers and customers include delayed response time, not being able to get a live person to talk to when they want to, and getting the run around from the call centre as they are being transferred to multiple agents with no resolution in sight (Seol 2000; Adeyeye and Atayero 2008). Also, one of the challenges that a call center faces is that customers sometimes have enquiries that do not fall into any of the categories of the Automated Answering system (Seol 2000). One last key limitation of the customer call centre is that for customers to have real time interaction with companies, they are required to (audio) talk. Customers are people with various commitments and interests, places to be and things to worry about (Stump 2007) and because of this, are not necessary able to talk.

The features and functionalities found in chatterbots and instant messaging technologies can alleviate problems and challenges mentioned above. Furthermore, they offer a wide range of benefits for customer service delivery to both the customers and the service providing corporation.

2.3.3 *The value it offers to a corporation's customers*

The value of chatterbots and instant messaging service channels to customers are made apparent by a research by Corporate Research International which found that customers want personal and prompt interaction when getting in touch with companies. Also, more than 70% of respondents stated that they would favour Internet connection if live chat and instant messaging were options (Mermelstein and Zid 2006). This is because such technologies allows customer to communicate with company one on one, directly, quickly, easily and precisely (Onks 2006).

These technologies also provide customers with supplementary channels through which they can interact with companies especially if they find other channels to be difficult or expensive. For instance, the Library and Information Services, University of Teesside, Middlesbrough, UK implemented an instant messaging service and found that it is a useful form of interaction for their students based overseas (Hvass and Myer 2008). In the same way, these technologies can allow customers to interact with their companies without being subjective to incurring costs of long distance international phone calls.

Within the context of mobile interaction, the chatterbots and instant messaging technologies allows customers the benefit to interact with their companies via their mobile devices as they please. Mobile devices accompany their users throughout the day. These devices such as mobile phones with Internet connectivity are usually carried in all indoor and outdoor environments travelled by their owners (Braiterman and Savio 2007).

Another major benefit of these technologies is that they are quiet. There is no need to talk. So customers can interact with their companies when they are in places that aren't conducive to people speaking out loud, but where it is still okay to type such as in the lobby of a building, meeting room, or a library (Onks 2006).

To conclude on the benefits of these technologies to customers, it should be said that these technologies allow customers to interact with their companies on a balanced platform. For instance, companies are known to capture and record a dialogue between them and their customers. Customers can now do this with instant messaging and chatterbots as these technologies allows them to save their conversations, maintain a record of correspondence with companies so they can refer to these at a later stage (Onks 2006).

2.3.4 *The value it offers to corporations*

The benefits of chatterbots and instant messaging technology are not limited to customers alone. Besides pleasing their customers, corporations that adopt these service channels also reap certain benefits such as cost savings and competitive advantages.

Both chatterbots and instant messaging technologies can result in cost savings. According to Olivia (2003), enterprises that have installed instant messaging for business applications see results such as 20% - 40% savings on storage and bandwidth for e-mail, a reduction in the number of long distance calls, and minimised travelling as people can now hold instant messaging meetings. Also, a query answered by a chatterbot agent can cost less than a third of an inbound email and a tenth of an inbound phone call (Howell 2004). This is because chatterbot technology has the ability to provide automated answers to these queries.

Chatterbots and instant messaging technologies also offer additional channel of convenience for a corporation's customers and in the process allows a company

to gather data systematically about their customer by indexing the concepts customers are conversing on (Howell 2004). One of the inherent benefits of such information is that these can be used to enhance a target advertising revenue model, where advertising placement for customers are aligned to their interests. A study conducted on larger online retailers (such as Land's End) use of instant messaging found that in the case of Land's End, customers who used instant messaging were 70 percent more likely to buy than those who called the 800 number (Tamimi, Rajan and Sebastianelli 2003).

Company benefits can also be realised by an organisations human resource management. This is because a chatterbot's repository of knowledge from which it extracts its response to queries can also serve as a reference point of information for all employees (Howell 2004). Also, training of employees becomes easier as most employees are already aware of instant messaging or can learn to use it quickly because it is simple and straightforward (Ward 2006; Ward and Kern 2006).

Chatterbots offer an organisation the ability to provide real time solutions to FAQs (frequently asked questions). Getting a chatterbot to answer people's questions, in a typed conversation, has a number of advantages. Once the right questions and responses have been programmed into the system, it is easy to add more capacity as the volume of inquiries increases. And bots don't get tired, so they can answer queries around the clock (Economist 1999). A study conducted to test the user experience of FAQs being answered by chatterbots found that most users considered it a novel and interesting way to access FAQ using natural language questions (Shawar and Atwell 2007). This can be of benefit to companies as a chatterbot application can be built to handle FAQ queries passing customers on to human support staff (via instant messaging) only when it encounters a problem it cannot solve (Economist 1999).

In their paper, "*Can I help you? Implementing an IM service"* (Hvass and Myer 2008), the authors found that it is possible to set up a simple instant messaging service without the need for the purchase of hardware or software. Although this may not always be the case especially for chatterbots (as a chatterbot itself is a

software program that may need to be built or purchased), the use of instant messaging channels does offer a cost benefit to small businesses that may not be able to afford capital intensive service channels (such as automated telephonic systems) as it is a low cost communication tool that is easy to implement and use (Zhang and Fjermestad 2008).

There are numerous applications for a chatterbot in servicing customers such as an electronic shopping assistant (that helps users that helps users access e-commerce sites to find relevant information about products and services (Chai, Hovarth, Nicolov, Stys-Budzikowska, Kambhatla and Zadrozny 2000)) and a museum guide (a fictional person to talk with in a museum which provides background information concerning a certain piece of art (Mummi 2003)). ABN Amro bank also makes use of a chatterbot to help customers in carrying out financial tasks such as a wire money transfer etc (Voth 2005).

Lastly, the combined use of these two technologies also offers a business benefit. This is because the knowledge base of standard chatterbots contains a finite number of rules, resulting in a finite number of different responses (L'Abbate et al. 2005). In the event of a customer making an enquiry that is beyond the comprehension of a chatterbot, a human messaging chat agent can be prompted to take over from the chatterbot via an instant messenger and resolve the customer's query.

From above, it is evident that communication technologies like chatterbots and instant messaging can be used to reach more customers, make timely decisions and enhance the value of a customer's experience in real time (Onks 2006; Zhang and Fjermestad 2008). Not only can this result in a competitive advantage, but it can help to radically reduce a company's cost of answering customer enquiries (Howell 2004; Onks 2006).

The use of chatterbots and instant messaging communication technologies has the potential to be of tremendous value to both companies and their customers. In this ever changing business environment where the customer is setting the pace by determining and influencing how they are doing or want to do business,

companies are forced to invent new methods of interacting with customers (Katsioloudes et al. 2007). These two communication technologies, have been shown to not only have the potential to reduce costs, but also to help gain market share.

2.3.5 *Internet based service delivery channels in a South African context*

Whilst the previous section highlights some of the benefits that are presented by adoption of these technologies, there is still the underlying question of what to expect if they are adopted in South Africa. This section therefore aims to examine the practicability of using communication technologies in a South African context.

In the previous section, it was made evident that chatterbots and instant messaging communication technologies can help to radically reduce a company's cost of answering customer queries (Howell 2004; Onks 2006). One reason for this is that both these technologies can function on the Internet.

Internet usage in South Africa is currently documented at 5 300 000 users (Internet World Statistics 2009). This figure is projected to grow and one reason for this is the mobile web that allows for Internet connectivity through mobile technology devices such as mobile phones. This is because despite the fact that South Africa has a fixed line telephone statistic of 4.425 million, the country's mobile phone usage is documented at 45 million (Central Intelligence Agency 2008).

The mobile web is the World Wide Web accessed through a mobile device. It includes the entirety of the web and is not limited to web sites that are specifically designed for mobile viewing (Library Technology Reports 2008). Many see mobile technology as an opportunity for developing countries to close the digital divide especially in Africa (James and Versteeg 2007). As a result of this by 2001, the number of African mobile subscribers had outpaced fixed line subscribers with a

recorded ratio of 17 mobile phone subscribers per 1 000, compared to 14 per 1 000 land-line phones (Mbarika, Jensen and Meso 2002).

Mobile web, an evolution of hand held device combined with high speed wireless data networks that allows for mobile Internet connectivity (Library Technology Reports 2008) therefore offers a great opportunity for South Africa, and as this industry grows and improves its consumers experience, the South African Internet connectivity ratings are expected to grow with it.

Although an increase in Internet connectivity does not necessarily equate to the adoption of Internet-based service delivery channels like artificial intelligence and instant messaging technologies, statistics reveals that the South African population consists largely of a generation of people that are more likely to adopt new technology.

According to Statistics South Africa, 33 947 700 of South Africa's 49 320 500 population are under the age of 35 (Statistics South Africa 2009). This age group reflects people who were born after the year 1975. This group of people are sensitised to and comfortable with technologies (Reynolds 1997). They are consumers of and future consumers of technology (as some of them are still too young, typically those born after the year 2000). This group, known as the Generation Y, millennials or the Net Generation (Zakett 2009) makes up about 70% of the South African population.

With a relatively young population and a rising growing Internet connectivity statistic combined with cost savings that these technologies offer, South Africa does seem like a place where, the adoption of Internet based service delivery channels like Chatterbots and instant messaging technologies as supplementary service delivery channels could benefit both organisation and customer.

2.3.6 *Research question*

What are the attitudes and perceptions of customer service decision makers concerning the utilisation of artificial intelligence and instant messaging technologies to deliver customer service to South African customers?

2.4 Conclusion of literature review

This literature suggests that Internet based communication technologies like artificial intelligence and instant messaging offer service delivery benefits to both customers and their organisations. South Africa's young population and its growing Internet usage and connectivity give the indication that the adoption of such delivery channels will be possible if they were widely available.

Despite this however, these channels are not as popular as the use of other channels such as the telephony in the customer call centre. The reasons for this are unclear and have not been resolved in the literature. This study helped to identify why and gain insight into the issues that need to be addressed in order for South African corporations to better adopt these technologies.

3 RESEARCH METHODOLOGY

In order for this research to have been carried out in a structured manner, a research methodology was required. This section describes the methodology that was used in detail by discussing the qualitative research method followed by a description of the research design, population, sample and research instrument that was used. The data gathering procedures as well as how the collected data was analysed and interpreted will then follow. The methodology section will be completed by a discussion of the limitations as well as validity and reliability of study.

3.1 Research methodology

In determining the attitudes and perceptions of South Africa corporations around the use of chat-based technologies to deliver service to their customers, decision making representatives from these corporations with roles related to customer service delivery were encouraged to share their views and the information obtained was recorded.

A qualitative approach was utilised to conduct this study. This is because the qualitative methodology allows the collection of data in a non-numeric form which can help data to be captured in a naturalistic, contextual based manner and this enhances holistic understanding (Gelo, Braakmann and Benetka 2008) of data collected.

This methodology was suitable for the study as it allowed for the reconstruction of personal perspectives, experiences and understandings of the participants (Gelo et al. 2008) which enabled the interpretation of findings within the South African context.

To aid the in-depth understanding of participants' perspective, data collection was done by interviews. This is because interviews are a structured way of obtaining information on a focused content (Swetnam 2000).

3.2 Research design

Qualitative approaches make use of naturalistic designs (Lincoln and Guba 1985). Structured interviews are a form of naturalistic design method known as discourse and conversation analysis design. This method focuses on language as a medium of interaction between participant and researcher (Gelo et al. 2008). This method was appropriate for this research as it allowed the participants to relate experiences, perceptions and attitudes in their own words.

Advantages of this method is that it makes it possible to allow for probing, clarification and follow up of questions, however this method, can be time consuming and expensive (Kalof, Dan and Dietz 2008). Also, this method can be influenced by factors such as the personality of the interviewer and participant, time control, location, total environment of the interviewer and shared knowledge of interviewer and participant (Swetnam 2000).

A pilot study was carried out to test the research instrument. The objective of this was to be able to anticipate how long it will take for each question to be answered. Furthermore, the pilot study helped to test the validity of the alignment between the research instrument and the research question before the actual research takes place. This gave an opportunity to amend the research instrument before the data gathering began.

Although disadvantages such as the time factor was managed by planning ahead and estimating the amount of time it took for participant to answer each question, the nature of this research required detailed relevant information and collection of this required a lengthy amount of time per participant. An attempt was made to ensure that participants were not in a hurry by scheduling an appointment with

them for a time that was convenient for them. As the participants were chosen from a variety of industries the research instrument was designed such that it can be comprehended by professionals and stakeholders of customer service delivery in South African corporations irrespective of their knowledge base. This also ensured that the assumption of a participant's shared knowledge was minimised.

3.3 Population and sample

3.3.1 *Population*

The population included customer service decision makers in all business units/departments/teams that interact with customers in South African corporations, decision makers who have a technical understanding of the technologies and their relevance to customer service delivery in South Africa and decision makers with a business and strategic view of a corporation and were able to offer insight into how these technologies could impact corporations and their customer service.

3.3.2 *Sample and sampling method*

A combination of a convenience and snowball sampling techniques were used to select the participants. Convenience sampling draws participants according to their accessibility and the research interest (Gelo et al. 2008). Snowballing sampling refers to a form of sampling in which existing sample members suggest potential new sample members (Dictionary 2007). The knowledge and experience of the representatives of these corporations with regards to the research interest as well as their availability was taken into consideration.

Convenience sampling was appropriate because it reduced the delay to the study that could have occurred if desired participants were not available. Also, it does

not compromise on the quality of the information as it will ensure that participants are available people with experience and knowledge. Snowballing sampling further ensured that there were always potential participants to draw from and minimised the risk of running out of accessible participants.

The objective was to interview about 15 participants. However, a point of convergence was reached early during the data gathering process. As a result of this, the study was carried out with 11 participants. Corporations that took part in the research are listed in table 2.

Table 2: Corporations that took part in the research

Name of company	Number of Participants
Standard Bank - Credit Rehab Home loans	2
MTN	2
DC Interactive	1
Business Connexion	1
Acer South Africa	1
Council of Scientific and Industrial Research (CSIR)	1
Hollard	1
Vodacom	1
Liberty Retail	1

3.4 The research instrument

An interview instrument may make use of open ended questions to obtain detailed or descriptive data about the study (Kalof et al. 2008). In APPENDIX A, the designed research instrument aimed to achieve this by asking open ended questions that provided data for the study.

The interview process also allowed for the opportunity to clarify and explore insights further when they arose. These clarifications applied to both parties as some of the participants also needed to be educated on instant messaging and chatterbot technologies.

3.5 Procedure for data collection

Once the preferred participants had been selected, they were asked to commit to a scheduled appointment. A brief on the scope of the interview was sent ahead in times when it was requested by participant.

In the collection of the data, information given by participants was recorded. This was done by the taking of notes as well as by audio recording. This ensured that the data gathered provided an in-depth understanding of the participants' perspective.

3.6 Data analysis and interpretation

Data analysis and interpretation involves analysis and interpretation of collected data to extract answers to the research question (Gelo et al. 2008). Qualitative data analysis was carried out on the previously collected text data through content

or thematic analysis. Content or thematic analysis is based on the examination of the data for recurrent instances of some kind; these instances are then systematically identified across the data set and grouped together by means of a coding system (Silverman 2004). In conducting the analysis, text to be analysed was divided into labelled units (of sentences, phrases or passages). These units were then re-labelled into content categories based on their similarities and differences observed (Gelo et al. 2008).

Content categories were then inter-related into each other and abstracted into a set of themes that allowed the reaching of higher levels of abstraction in the description of the data. This aided the interpretation of the obtained data in creating meaningful and consistent explanations of the obtained results with reference to the specific and particular context of this study (Gelo et al. 2008).

3.7 Limitations of the study

The qualitative methodology could limit the findings as it dealt with mainly non-numeric data. The findings of this research may not be of much use to people who are looking for a numeric based finding for this study.

Another limitation of the sampled participants was the degree to which they were willing to divulge information which may be impacted by factors such as their corporate policies around dissemination of information as well as the personalities of the participants.

These limitations may have impacted interpretation of findings as the findings will be mainly non-numeric and dependent on the quality of information given and the willingness to divulge such information by the participants.

3.8 Validity and reliability

Validity is referred to as the level of accountability and legitimacy that is strived through data collection (Gelo et al. 2008). It answers the questions are we actually measuring or observing what we claim to be and is our work applicable or useful to other people or situations (Swetnam 2000)?

3.8.1 *External validity*

External validity is the ability to generalise from a study to a larger population (Kalof et al. 2008). The external validity of this study was limited to South Africa as it took into account the South African context, and could probably apply to countries that have been identified as having similar characteristics with South Africa. Also, the validity of the findings of this research may be constrained by time; this is because the relevance of the findings may not be so relevant after a period of time because of the rapid evolution of technology taking place around the globe today.

This study however tries to maximise on external validity by indicating in the report findings that it may be constrained by time as well as mention the fact that this is a South African context and may not necessarily apply to other countries especially those that have little comparison to South Africa.

3.8.2 *Internal validity*

Internal validity ensures that the conclusions are extracted from the data at hand (Kalof et al. 2008). This research meets internal validity by ensuring that the data gathered are relevant to the research interest as well as ensuring that the data analysis was carried out in a logical manner where the findings are based on the gathered data.

Internal validity was maximised by ensuring that the design of the research instrument is applicable to the study such that the layout of the interview questions was designed in a manner that encouraged the supply of relevant answers to this study.

3.8.3 *Reliability*

Reliability of research findings has to do with consistency i.e. when similar findings are revealed time after time in repeated applications of research (Kalof et al. 2008). Reliability asks the question whether the same procedures, experiments or actions carried out again produce the same result (Swetnam 2000)?

This study meets the reliability criteria within the South African context and any country similar to South Africa. However, this reliability may be limited to a period of time as this has a technology component to it. The world has witnessed a steady increase in the advent, adoption and widespread use of new and varied technologies (McQuillen 2003) and this ongoing rapid increase can influence the findings of this study if carried out at another time.

In maximising validity, the report will highlight the findings that are likely to lose their relevancy in a short period of time provided the data gathered suggests this.

4 PRESENTATION OF RESULTS

4.1 Introduction

The purpose of this study was to derive insight into the adoption of artificial intelligence and instant messaging communication technologies for customer service delivery in South African corporations. The study aimed to understand the perceptions of using these technologies as a delivery channel for servicing customers.

In presenting the findings from the study, the data gathered has been divided into the two main sections and these sections have been subdivided into further categories as follows:

Findings around existing service delivery channels in organisations

a) Prevalent existing customer service delivery channels

b) The benefits, effectiveness and complaints of existing customer service delivery channels

c) Business needs that are not being addressed by the existing customer service delivery channels

Findings on attitudes and perceptions of instant Messaging and chatterbot technologies

a) Reasons for use and lack of use in organisations

b) Perceived benefits of technologies to customers and businesses

c) Reasons why use of technologies form or don’t form part of future customer strategy

d) Reasons cited for consideration of adoption of chatterbot and instant messaging technologies

e) Reservations around the adoption of proposed technologies as customer service delivery channels

4.2 Demographic profile of participants

Prior to the data gathering, the intended profile of participants were members of South African organisations in a leadership role that had some understanding and involvement with customer service delivery. This group of people included participants who understood customer service delivery from a technical, strategic and customer centric view points, and who were able to offer insights into what impact the two technologies could have on customer service delivery.

The actual category of people that took part in the study was well aligned to the intended profile (although the intended number of participants to partake was 15, the actual participants that took part came to 11, as a point of data convergence was reached). The participants were selected from a variety of South African organisations and this included both large corporations as well as small to medium sized organisations. The participants also included participants from different levels of a variety of organisations in different business sectors such as Chief Executives, Managing Directors, Business Head units, Senior Managers, Business Consultants and Researchers.

4.3 Results pertaining to research question

4.3.1 *Findings around existing service delivery channels in organisations*

a) Prevalent existing customer service delivery channels

Table 3: Existing customer service delivery channels

Ranking	Existing Channel	Description
1.	Inbound Telephony Call center	A telephony driven call center that allows the customer to make contact with the organisation.
2.	Outbound Telephony Call Center	A telephony driven call center through which an organisation makes contact with the customer.
3.	IVR channel (also referred to as automated answering systems)	Interactive Voice Response channel that allows customer to interact with organisations through a menu-based system.
4.	Branch network	A network of physical locations where organisations offer services to their customers.
5.	Internet Customer Portal	An access point usually found on an organisation's website through which authenticated customers can access the organisation's systems and self-service. Examples include Internet banking.
6.	E Mail/ticketing system/Contact form on website	This is the case where customers seek or obtain service from organisations via electronic mailing platforms.

Table 3 - Existing customer service delivery channels (continued)

Ranking	Existing Channel	Description
7.	Text Messaging (sms) channels	This is usually outbound. It's a channel used by organisations to communicate short messages to their customers by sending text messages to their mobile numbers.
8.	Registered/Snail letters	Interacting with customers via conventional post and courier services.
9.	USSD (Unstructured Supplementary Service data) channel	A point of contact through which customers self service themselves via their mobile phones.
10.	WAP (Wireless Application Protocol) channel	A protocol through which a customer can make use of their mobile phones to access the mobile web and obtain service.
11.	Web based secure messaging	A secure channel through which a customer can communicate with an organisation.
12.	Knowledge Base Repository	Some companies make their knowledge repository/base available to their customers, and allow their customers to search the repository for possible resolutions to the problems they have. This reduces the number of queries made to conventional channels.

Table 3 - Existing customer service delivery channels (continued)

Ranking	Existing Channel	Description
13.	Discussion Forums	Some companies invite members of the public to partake in their discussion forums, and then make this available to the public. This allows customers to educate other customers about the issues being discussed. Some customers can therefore find the answers to some of their queries by reading the information on these forums.
14.	Door to door outside agents	Some customers are remotely located and may not have access to the other channels or know how to make use of them. To reach these customers, door to door agents are usually dispatched to them.

Table 3 contains a list of channels (and their descriptions) through which organisations are providing service delivery to their customers. The channels are ranked from 1 (most utilised channel) – 14 (least utilised channel).

b) The benefits, effectiveness and complaints of existing customer service delivery channels

Table 4: Benefits, effectiveness and complaints of existing channels

Existing Channel		Benefits, effectiveness and complaints
1 & 2	Inbound and outbound telephony call center	**Benefits and effectiveness** - Calls are recorded. - Customer gets to converse with a human being in real-time, and this allows for probing and repetition of unclear information. - Data about call is captured and tracked (e.g. organisation can pick up number customer is calling them from), and such data can inform business decisions. - In the event where the center number is a toll free number, this service is at no cost to customer. - There is an opportunity to disseminate information (such as the marketing of a new product) to customers whilst they are waiting to speak to an agent.
		Complaints - Quality of information provided to customer may be unsatisfactory. - Social differences (e.g. age gap and cultural) may trigger conflict between customer and agent. - Factors such as bad training of agents, lack of information on agents side, a show of substandard soft skills on agents `side diminishes the quality of service delivered to the customer.

1 & 2	Inbound and outbound telephony call center (continued)	**Complaints** *(continued)* - During high call volume periods, customers find themselves waiting for the next available agent for an extended period of time. - In the event where call center number is not toll free, customers have to either share the cost of the call or pay the full amount. Customers find this inappropriate especially when they are being kept on hold for an extended period of time. - In the event of the customer getting cut off during a call, the entire conversation may have to be repeated from the beginning as many times when customer calls again, they find themselves connected to a different agent. - Its difficult to gauge service levels because of human intervention, as service levels vary from agent to agent. - Customers find that many times when they need to call an inbound call center, they do not have the telephone number on them and some effort is required for them to obtain this such as visiting the organisational website to find some way of contacting someone in the company who will then provide them with the telephone numbers. - Not available for 24 hours a day, 7 days a week.

Table 4: Benefits, effectiveness and complaints of existing channels *(continued)*		
Existing Channel		**Benefits, effectiveness and complaints**
3	IVR channel (also referred to as automated answering systems)	**Benefits and effectiveness** - In some instances, a customer can be serviced via IVR without human intervention. - If IVR number is a toll free number, then service does not cost the customer anything.
		Complaints - Customers tend to get frustrated when they are not able to use the IVR for their queries or when the IVR malfunctions. - Customers find the IVR unhelpful when none of the menu options have to do with their query.
4	Branch Network	**Benefits and effectiveness** - Offers customers an opportunity to have a face to face interaction with an organisation.
		Complaints - The branch network is subject to many inconveniences such as systems downtime, long queues, operational only during certain hours of the day.

Table 4: Benefits, effectiveness and complaints of existing channels *(continued)*		
Existing Channel		**Benefits, effectiveness and complaints**
5	Internet Customer Portal	**Benefits and effectiveness** - Functionality on portal allows for customer interaction. - Saves time. - It's cost efficient for organisation as customers can interact directly with systems. - Customers can choose to access the system anytime of the day.
		Complaints - Only caters for customers with access to the Internet. - Some customer portals are considered user unfriendly as they are impersonal, lack detail and/or sufficient information.

Table 4: Benefits, effectiveness and complaints of existing channels *(continued)*		
Existing Channel		**Benefits, effectiveness and complaints**
6	E Mail/ticketing system/Contact form on website	**Benefits and effectiveness** - Some customers prefer this option to the telephony call center as they find the call center to be time consuming because of the delays associated with being put on hold. - This option is a cheaper option for customers who have access to the Internet, but may not have access to the call center e.g. customers who are overseas in a location of a different time zone from South Africa.
		Complaints - Response time is not instantaneous. Customers may have to wait a while before getting their response from organisation. - Information contained in emails may be misunderstood resulting in customer not being able to get satisfactory response from organisation. The consequence of this is that to clarify email contents, multiple emails may have to be sent between customer and email agent until customer is satisfied.

Table 4: Benefits, effectiveness and complaints of existing channels *(continued)*		
Existing Channel		**Benefits, effectiveness and complaints**
7	Text Messaging Engine (sms) channels	**Benefits and effectiveness** - Tool helps to generate sms to customer and execute sms campaigns to a database of customers mobile numbers. - Undelivered sms' can be tracked. - No human intervention required.
		Complaints - A lot of the text messaging channels are outbound with no inbound capabilities. As a result of this, customers receive communication from channel, but cannot use the channel to interact with their organisation. Hence customers are unable to respond to organisation on the same channel that organisation used to communicate with them and may have to switch to another channel.
8	Registered/Snail letters	**Benefits and effectiveness** - This channel is used by organisations to comply with legislation in certain lines of businesses. E.g. when changes are made to terms and conditions of the customer's agreement with an organisation, they are in some industries legally supposed to be notified in writing.
		Complaints - Customers seldom complain about this channel. Organisations believe this is because customers are aware that any grievance about this channel can't be directed at them but rather towards the postal service providers.

Table 4: Benefits, effectiveness and complaints of existing channels *(continued)*		
Existing Channel		**Benefits, effectiveness and complaints**
9	USSD (Unstructured Supplementary Service data) channel	**Benefits and effectiveness** - Use of service is extremely cheap for customer. - Channel is secure and can potentially be available 24 hours a day subject to systems not being down.
		Complaints - Limited in its capabilities as it does not solve all customer problems.
10	WAP (Wireless Application Protocol) channel	**Benefits and effectiveness** - Offers limited capabilities to customers as it only solves some of the customer problems.
		Complaints - Not widely adopted as by customers, this may be because not a lot of phones have WAP technologies or perhaps WAP channels are not trusted or considered user unfriendly by customers.

Table 4: Benefits, effectiveness and complaints of existing channels ***(****continued****)***		
Existing Channel		**Benefits, effectiveness and complaints**
11	Web based Secure messaging	**Benefits and effectiveness** - Offers a secure platform through which customers can send confidential message queries to an organisation.
		Complaints - There is usually a time lag between the time the customer sends message and the time the organisation responds back to customer.
12 & 13	Knowledge Base Repository and Discussion Forums	**Benefits and effectiveness** - Saves time and cheaper for organisations as customer can get answers to their queries without having to interact with a human agent. - Offers a platform where customers can educate one another as well as be educated by organisation. - Knowledge repositories are considered user friendly as they work like search engines. - Eliminates the feeling of helplessness as customers can do something about obtaining service.
		Complaints - No complaints about these channels.

Table 4: Benefits, effectiveness and complaints of existing channels *(continued)*		
Existing Channel		**Benefits, effectiveness and complaints**
14	Door to door outside agents	**Benefits** - Allows organisations to interact with customers that are unreachable through other channels.
		Complaints - It is considered expensive, but necessary in some cases such as credit collection businesses.

Table 4 contains findings around the effectiveness and benefits of existing customer channels. It also highlights the complaints that customers or employees within organisation have raised about these channels.

c) Business needs that are not being addressed by the presence of existing channels

This section contains business needs that are not currently being addressed by the existing service delivery channels. As illustrated below, some of these needs are specific to certain channels whilst others are more general towards improving the customer service delivery.

<u>Inbound and outbound call center</u>

- In the case of a bank, call center is unable to interface with branch network. That way contact center can see what the branch sees. This capability would lead to more accuracy in the information that the call center disseminates to customers

- Customer call preferences like language, best time to call, customer profile not available.

- Telephony that could adjust for noise interference. This will eliminate faux pas such as agents unintentionally screaming in the customers ears.

- High call volumes in call centers are normally caused by inadequate human resources as well as the inability of agents to interact with more than one customer at the same time.

- Aligning agent capacity with the volumes of calls coming in.

- The need to reduce waffling and clarity in the conversations between customer and agent call center, as this normally causes calls to take longer meaning customer that are on hold for an agent tend to wait longer.

Web based secure messaging & E Mail/ticketing system/contact form on website channels

There is a time lag between the time message was sent by customer and the time it takes for organisation to call customer (which may be too late to address customer needs).

General needs (not limited to specific channels)

- Not all channels can be used for advertising to customers.

- Sufficient security is a concern in some channels.

- Not enough channels for customers to interact with organisation.

- Being able to have real-time interact with organisation 24 hours a day, 7 days a week.

- Visual customer education of products lacking.

4.3.2 *Findings on attitudes and perceptions of Instant Messaging and Chatterbot Technologies*

a) Reasons for use and lack of use in organisations

Table 5: The reasons why organisations already use or do not use technologies in organisations

Reasons for use	**Instant messaging** - Instant messaging used as a communication tool between members of the same project team. - Instant messaging used as an internal communication tool by employees.
	Chatterbots - Chatterbots not being used in organisations.
Reasons for lack of use	**Instant messaging** - Concerns around security issues and vulnerability of technology to these. - A conservative risk averse culture has discouraged the willingness to explore new technology. - Lack of awareness of value and benefits of use. - Wide adoption of emails for business use, has made chatterbots and instant messaging unpopular. - Access to Internet is required and not all employees have access to Internet.
	Chatterbots - Most organisations are not aware of chatterbots, and those that are aware, have never considered making use of them in their organisations.

Table 5 consists of reasons that participants gave on why they either used or didn't use chatterbot and instant messaging technologies in their organisations.

b) Perceived benefits of technologies to customers and businesses

Perceived benefits of instant messaging and chatterbots technologies to customers

- Quicker turnaround time in resolving customer queries.
- Customer has a copy of the conversation in text form that can be referred to at a later time.
- It alleviates the frustration that comes with being put on hold at telephony call center.
- Whilst customer awaits the agent's response during a chat conversation, they are able to multitask and do other things.
- In the event of the telephony call centre being unavailable, customers are still able to have real time communications with organisations via channels such as these.
- The financial cost to customer is reduced as the cost of interacting with organisation over the Internet is cheaper than the cost of interacting with organisation over the telephone.
- Technologies can help address the language issue in a cost effective manner as customers can be given the option to chat to an agent that is proficient in their preferred language or interact with a chatterbot in a language of their choice.
- Customers that make use of channels such as these do not need to go through the process of finding the right telephone number to contact the inbound call center.

- In the event of a customer getting cut off (halfway through a conversation) and having to re-establish contact, on a telephone call center channel, the customer may find that many times the agent they are routed to is not the same agent that they were speaking to earlier, and this new agent has no clue of the interaction between customer and the previous agent. Correcting such a situation on instant messaging or chatterbot channels, is possible as customer just has to copy and paste the records of the previous conversation, and this will allow the new agent to read and understand what has been said before without the customer having to repeat themselves.

Perceived benefits of instant messaging and chatterbots technologies to businesses

- Can positively influence the customers perception of organisation.
- Marketing opportunities (running advertisements during a chat that customers can see is perceived to be more effect that the advertisements that customers hear whilst being placed on hold in the call center)
- Cost savings for call center channel expected as channels such as these is expected to take the pressure of the call center (reduce the number of queries being directed at call center).
- Agents can be able to interact with multiple customers simultaneously.
- Increase in brand recognition and customer retention as technologies such as these being used for customer service delivery are almost non-existent in South Africa. Hence, any organisation that successfully implements this is bound to improve their customers experience and this is perceived to have a positive impact on the brand as well as the customer retention.
- The issue of noise interference that telephony call centers are guilty of are non-existent in these chat technologies as there is no audio involved.

- Can potentially reduce the lag time between the time customer initiates a service request and the time that customer is served.

- A widely adopted supplementary channel will ease backlog and volume on existing channels.

- Interaction between customer and organisation is tracked and recorded by both parties

c) Reasons why use of technologies form or don't form part of future customer strategy.

This section contains the reasons that participants cited for why the adoption of these technologies is part of or not part of the future strategy for customer service delivery.

Part of future strategy

- In a drive towards gaining competitive advantage, organisations are slowly evolving, and are open to consider technologies such as these.

- Organisations are looking to investigate this as a proof of concept, in the near future.

- Organisations have identified the need for a customer service delivery channel that can respond to customer queries with little or no human intervention.

- Technologies such as instant messaging are part of ongoing IT enablement for customer service delivery discussion and strategy to increase transactional capability on the web and enabling customers to be able do more themselves.

Not part of future strategy

- Conservative organisations are not willing to include this as a future strategy until they have seen other South African organisations tested and tried it successfully.
- Not quite part of strategy as adoption is dependent on the resolution of challenges that are currently being experienced by legacy systems.

d) Reasons cited for consideration of adoption of chatterbot and instant messaging technologies

Instant messaging and chatterbots

- Adoption of technologies for customer service delivery can help organisations gain competitive advantage.
- There is a drive towards improving the quality of customer service, and these technologies can potentially help in this regard.
- The technologies can help in reducing the time lag between the time a customer makes a query and the time customer query is serviced.
- A supplementary customer service delivery channel can help reduce call center costs and call volumes to the call center.
- Offers opportunity for visual advertising to customers whilst chat conversations are taking place.
- Technologies offer an alternative service delivery channel that caters for real time customer problem resolution.
- Mobile usage is on the increase in Africa and the trend is the same in South Africa.
- More and more phones now have Internet connectivity capabilities.

- Cost of Internet connectivity in South Africa is relatively high in comparison to first world countries. However, not only is this expected to drop, but it is cheaper than cost of calling the call center.

- Although this may potentially lead to job losses, but it's the era of the rise of the knowledge worker. People's job descriptions are changing, and South Africa cannot as a country be so rigid about job descriptions anymore.

Instant messaging only

- Customers are already making use of technologies such as Instant messaging for social interaction, hence they are expected to be open to embracing the technology for customer service.

- Instant messaging still allows for human to human communication, which caters for customers that are still keen on interacting with a human being.

e) Reservations around the adoption of proposed technologies for customer service delivery

This section consists of reservations that participants have about adoption of these technologies. These reservations were divided into internal and external business environments as well as the broader South African environment.

Internal business environment

- Organisational culture does not lend itself to innovations such as these and this can lead to the resistance to adopt technologies.

- Organisational culture is more people-driven and less technology-driven.

- Cost factor: Judging by the way instant messaging has been adopted as a social communication tool, introducing such a service delivery channel to customers could result in a high level of adoption by customers, and if this

happens, the organisation may not have available infrastructure and funds to maintain the demand for these channels.

- When it comes to service delivery, the human element makes the difference. Technologies are just a tool and channels are only as effective as the people who are using them.

- Technologies such as instant messaging are open to abuse, and cause possible distraction. Employees could make personal use of them instead of using them to improve productivity.

- Security concerns as this potentially exposes internal systems to the public via the Internet.

External business environment

- Customers are perceived to prefer face to face or telephonic interactions with organisations.

- Adoption of technologies will work only if customers are convinced it is secure. The degree of trust between customer and organisation must be upheld for customer to utilise channel.

- Customers tend to oppose change that radically changes a way they have become accustomed to, and if this is tampered with, customers tend to resist such initiatives.

The South African Environment

- South African business landscape takes a while to adopt new technology.

- This can rapidly change how customer service is delivered in South Africa, and South African culture is not open to adopting new initiatives as it requires that people change the way they do things.

- Technologies such as these could potentially increasing unemployment in South Africa especially in industries such as the telephony call center industry.

- Adoption of Internet based channels will be impacted by the fact that access to the Internet in South Africa is still relatively low as well as the reality that Internet costs are considered relatively high in comparison to that of other countries.

- Although both technologies have merits, customers will be more open to adopting instant messaging than a chatterbot because of its human to human features. People in South Africa are less likely to utilise a chatterbot channel if they are aware that they are being served by an artificial intelligence application.

The results gathered from the study were to provide answers to the research question stated as thus:

> What are the attitudes and perceptions of customer service decision makers concerning the utilisation of artificial intelligence (Chatterbots) and instant messaging technologies to delivering customer service to South African customers?

As presented above, these attitudes and perceptions vary. Also, the participants' views on the impact these technologies can have in South African customer service vary as well. This variability in findings will be discussed further in the next sections of this report.

4.4 Summary of the results

The results gathered from participants were aimed at getting information from them around two related areas of the research, namely:

- Customer service delivery channels in South African corporations
- Use of instant messaging and chatterbot technologies as customer service delivery channels.

Results gathered around customer service delivery channels in South Africa provided information on the benefits, effectiveness and complaints associated with existing customer service delivery channels in South Africa. Participants also supplied information about the business needs that are not being addressed by existing channels.

Results gathered around the use of instant messaging and chatterbot technologies as customer service delivery channels provided insight into:

- why organisations make use of or don't to make use of chatterbot and instant messaging technologies in South Africa.
- perceived benefits that technologies offer business and customers.
- whether adoptions of these technology forms part of current or future strategy.
- why organisations would consider adopting technologies and what reservations they have around the use of the technologies in a South African internal and external business environment.

5 DISCUSSION OF THE RESULTS

5.1 Introduction

In this chapter, the results of the study will be discussed. In these discussions, reference will be made to the literature review with the intention of drawing comparisons between the information gathered from participants and academic literature.

The discussions will be discussed in the following structure:

- Benefits, effectiveness and complaints of existing customer service delivery channels
- Perceived benefits of instant messaging and chatter bots technologies to customer and business
- The reasons why organisations already use or do not use technologies in organisations
- Business needs that are not being addressed by existing channels
- Reasons why utilisation of technologies form or don't form part of future customer service strategy
- Reasons for consideration of adoption
- Reservations around the adoption of technologies for customer service delivery
- Attitudes and perceptions towards instant messaging in comparison to attitudes and perceptions towards chatterbots for customer service delivery
- Outstanding business needs that can be addressed by adoption of instant messaging and chatterbots as customer service delivery

- A comparative analysis between the reasons for adoption of technologies and the reservations around the adoption of technologies.

5.2 Demographic profile of respondents

The demographic profile of participants included customer service managers, individuals that have a technical understanding of customer service technologies and systems as well as business leaders that can provide strategic views of customer service delivery. As all the different participants were asked the same questions, the results from the study showed several areas of convergence amongst the participants. This area of convergence caused the number of interviews that were conducted to be reduced from the intended 15 down to 11.

5.3 Discussion pertaining to Research Question

5.3.1 *Benefits, effectiveness and complaints of existing customer service delivery channels*

a) Existing channels

In this study, 14 existing customer service delivery channels were found to be prevalent mainly used in South African organisations. Of these, the most popular channels were the inbound and outbound call center. This is in line with the literature which suggests that the customer contact center plays a key role in customer service delivery (Aksin and Harker 1996; Russell 2008).

Despite the popularity of the call center, organisations have at least one other channel through which customer service is delivered. This suggests that organisations are deriving some value when they have other channels to supplement the call center. This also aligns with what the literature suggests that

consumers do not want to be restricted in how they communicate with a company forcing companies to supply multiple channels of interaction (Tsai 2010). This points to the logic that South African consumers are causing organisations to find ways to deliver better customer service.

The literature indicated that the choices of customer service delivery channels have over the years increased due to the development in information technology (Pumpfrey 2006). This is reflected in the nature of existing channels that were discovered in the study, as of the 14 channels, 9 were solely developments of information technology whilst some of the others have been improved with technology over the years. The 9 technology founded channels are: IVR Channel, Internet Customer Portal, E Mail/ticketing/contact forms on website, text messaging (sms) channels, USSD channel, WAP channel, web based secure messaging channel, knowledge base repository and discussion forums.

b) Customer relationship

Although the literature suggests that customer relationship should be a bi-directional interaction where customer can initiate interaction with organisation and vice versa without too much effort customer's side (Hogg et al. 1993), the existing channels and some of the complaints associated with them reveal that not all channels are bi-directional and initiation of interaction with organisation by customer on some channels either requires a lot of effort or is impossible.

The literature also states that consumers do not want to be restricted in how they interact with a company (Tsai 2010), however all of the existing channels have restricted the customers in some way. Unlike chatterbots and instant messaging technologies, none of these existing channels allows a customer to communicate with company one on one, directly, quickly, easily and precisely (Onks 2006).

c) Customer complaints

The problems and challenges of existing channels that the literature suggests were also confirmed in the study. According to the literature, some problems with existing channels include delayed response time, not being able to get a live person to talk to when they want to, and getting the run around from call center as customers are being transferred to multiple agents (Seol 2000; Adeyeye and Atayero 2008). Also customers sometimes have enquiries that do not fall into any of the categories on a menu option (Stump 2007).

Challenges such as delayed response times were echoed in channels that did not provide real time interactions. In reference to not getting a live person to talk to when they want to, channels such as the inbound call center is guilty of that especially during high call volume periods. Also, when agents are clueless about a customer enquiry, they might end up transferring customers multiple times to other agents due to lack of training and substandard skilling of agents.

Channels such as the IVR sometimes do not always offer the menu option that solves the customer problem and this is echoed in the data gathered and consequently leaves the customer frustrated and not serviced.

These results provide some answers to the research question. Results gathered from this part of the study indicate that the attitudes and perceptions of customer service decision makers when it comes to real-time interactive channels is one that recognises the importance of real-time interactive systems (judging from the wide utilisation of the inbound and outbound call center) as well as the need to have multiple channels in place to deliver customer service (as all organisations have more than one service delivery channel). Another observation is the fact that 9 out of 14 channels that were found in the study are technology systems, which suggests that organisations are open to technology channels for customer service delivery.

The participants' feedback on the customer complaints around the use of the existing channels suggests that they are also aware that organisations know that

their customers are not exactly satisfied and hence it gives the impression that they will be willing to investigate new ways of improving customer service.

5.3.2 Perceived benefits of instant messaging and chatterbots technologies to customer and business.

There is a correspondence between the perceived benefits of instant messaging and chatterbot technologies (as service delivery channels) that were gathered in the study, and what the literature suggests.

a) Perceived benefits to customers

The literature suggests that real customer relationship by an organisation should not be one sided i.e. when the company decides to build a relationship with a customer (Hogg et al. 1993), rather it should be bi-directional, and the customer should be able to initiate communication without too much effort their side. The perceived benefits of participants regarding the use of instant messaging and chatterbots as service delivery channels indicates that these channels can offer a bi-directional relationship that allows the customer to initiate communication without too much effort, as these technologies allows you to see which agents are available to chat with whom customer can then simply initiate conversation.

For instance, a component of customer relationship that makes a difference in the life of the customer is after-sale support. As customers are usually the party that initiates after-sale support service interactions, simple to initiate bi-directional channels such as instant messaging and chatterbots will be of value to them.

The benefits of these technologies also allow customers to interact with organisations on a balanced platform as suggested by literature (Onks 2006). This is because the conversation is in text form and this makes it easy for the customer

to capture and record such information to refer back to in the event of a dispute in the future.

The literature highlights some challenges with existing customer channels as delayed response time, not being able to get a live person to talk to, and the call center's need for the customer to be able to speak. With the exception of the need to get a live person to talk to which the chatterbot does not address by itself (although the instant messaging does), the perceived benefits of these technologies indicate that they solve such challenges.

Onks (2006) suggests that technologies like instant messaging and chatterbots allow customers to communicate with company one on one, directly, quickly, easily and precisely. This statement is in line with the perceived benefits as the interaction between customer and company is between an agent and a customer (one on one), without the need to have to go through an intermediate system such as the IVR channel (directly). Also, as these technologies can alleviate the frustration that comes with being put on hold in a call center, the initiation of the communication is considered easy. Precision may not always apply to chatterbots due to the absence of the human to human interaction, but it can apply to instant messaging for the same reason.

b) Perceived benefits to business

The call center is a medium through which organisations can deliver to their customers as well as generate revenues for themselves (Aksin and Harker 1996). Instant messaging and chatterbot technologies as channels are no different and although their ability to deliver to customers has been discussed, their ability to generate revenue is discussed in this section.

These technologies offer two distinct characteristics to the user – they are visual, and they are in text form. These two characteristics correspond with perceived benefits that participants mentioned in this study. This is because the visual characteristic offers opportunities for initiatives such as visual advertising of new

promotions to the customer whilst a chat is taking place. The text characteristic (as suggested by literature) allows the organisation to gather data systematically about customer by indexing concepts that they are conversing on (Howell 2004).

A combination of these two characteristics as suggested by literature offer an additional benefit to organisations as they can use a combination of the information gathered and the opportunity to disseminate visual information such as advertising to enhance a visual target advertising model where advertising placement for customers are aligned to their interest (Tamimi et al. 2003).

c) Perceived benefits that apply to both business and customer

There is a cost benefit both to customer and business to utilising these technologies for service delivery. Literature suggests that research done by Corporate Research International found that more than 70% of respondents favour Internet based channels (Mermelstein and Zid 2006). Although the participants highlighted access and costs of Internet as one of the reservations of using these channels in South Africa (See **Error! Reference source not found.**), there is still merit in the perceived benefits of these technologies as the cost of obtaining customer service over the Internet can still be relatively cheaper than the cost of utilising an existing channel such as the call center.

This is because when phone calls are made, factors such as the communication service provider of the customer and that of the organisation as well as the physical distance between customer and organisation impacts the cost of that call. On the contrary, Internet based chat technologies are not influenced by factors such as physical distance, between customer and agent, and so there is still some money to be saved (especially in an instance where customer and organisation are located far apart like when they are on different continents) when organisations communicate with customers via the Internet and vice versa.

Further cost savings benefits are highlighted in literature. (Howell 2004) mentions that organisations can save 20% - 40% of electronic storage and bandwidth for

email. Also, both customers and organisations will now have a cheaper alternative to making long distance calls as mentioned above, and a query answered by a chatterbot agent can cost less than a third of an inbound email and a tenth of an inbound phone call.

The findings in this section reveal some answers to the research question. The perceptions of participants reveal that they do see a lot of value in adopting these technologies for customer service delivery not just for the customers but also for the organisation. The findings show that the participants are of the opinion that having additional channels for the customer will improve the customer experience as such channels are perceived to enhance faster real-time service delivery, more cost efficient, bi-directional and not too difficult on the customers side.

Furthermore, in addition to all the benefits that have been discussed thus far, the findings reveal that channels such as these can positively influence the customer's impression of the organisation, and improve the brand recognition and retention of customers. Also participants are of the opinion that such technologies could potentially ease the backlog and high volume of work that is currently being experienced at channels such as the inbound and outbound call center.

5.3.3 *The reasons why organisations already use or do not use technologies in organisations*

a) The use of instant messaging

The results of study show that none of the organisations that took part in this study make use of instant messaging as a customer service delivery tool. However, the organisations that do make use of instant messaging applications are aware of its value as a communication tool between employees as well as between members of project teams.

b) The lack of use of instant messaging

There are two types of organisations that do not make use of instant messaging applications:

- Organisations that are aware of the technology but do not see how it could benefit them

- Organisations that are not aware of the technology's business benefits.

Organisations that are aware of the benefits but stay away from instant messaging cite security issues, lack of willingness to adopt new technology, and the fact that not all employees have Internet access as reasons for not making use of technology.

Study shows that organisations that are not aware of the technology and its benefits fail to see how instant messaging will be of benefit to them. For instance, participants feel like employees chatting at work will instead of aiding productivity, slow it down, as employees will do less work and chat more about non-work related stuff.

c) Artificial intelligence (Chatterbots)

At this stage, the use of artificial intelligence – chatterbots in South African organisations is currently not a reality. Very few organisations are aware of it, and those who know about it do not make use of it. As one participant put it, it is considered too hi-tech for South Africa in the year 2010.

This findings suggest that the attitudes that some organisations have towards adopting instant messaging for customer service delivery is positive as they have already experienced its value as a communication tool. It also suggests that some organisations may have misconceptions, little or no knowledge about instant messaging and therefore such organisations might need to be educated about its functionalities.

The findings also suggest that attitudes and perceptions towards the use of chatterbots are almost non-existent as most organisations have never heard of them and the ones that have cannot comprehend how it could sufficiently be of benefit to them as they believe the complexities of training a chatterbot far outweigh its benefits as they are of the perception that their customers will not trust a machine enough to want to chat to it. This suggests that South African organisations lack a great deal of education and awareness of chatterbot technologies for business use. It also suggests that the organisations are less likely to adopt chatterbot technologies now (although they may consider instant messaging), but no organisation at the time of conducting this research had experienced the value of chatterbots as a communication tool.

5.3.4 *Business needs that are not being addressed by existing channels*

Service channels like chatterbots and instant messaging technologies are not meant to replace but rather to supplement existing channels as they offer functionalities that resolve some of the business needs that are not addressed by existing channels.

The study found that organisations had needs that existing channels were not meeting, and this negatively affecting customer service delivery. Some of these needs can be serviced by introducing supplementary channels such as chatterbots and instant messaging.

The perceived benefits of these technologies for customer service delivery suggests that some of the needs of the call center can be addressed by having technologies available for service delivery. For instance, the issue of telephony that adjusts for noise interference is a non-issue in chat technologies as there are no audio interactions involved. This suggests that both agents and customer have the opportunity to interact in an alternative channel like instant messaging that does not require any audible communication, and although this doesn't take away the need for telephony that adjusts for noise interference, but it does ensure that

customers who make use of an instant messaging channel will not experience such.

Also, high call volumes in call centers are caused by a need for customers to have real-time interactions with an organisation at a time when number of customers calling exceed number of agents available to service customer needs. An alternative channel that offers this ability will not only reduce call volumes in call centers, but also allow agents to be able to interact with multiple customers at once.

Telephony (voice) lends itself to a lot of waffling and lack of clarity about customers query. Instant messaging is an alternative channel that can offer real time telephony capabilities and eliminate the waffling and lack of clarity, as both customers and agents are under no pressure to speak on demand, they can think about what they want to say before they type it out.

The time lag between the period the customer requests service and the period when they actually obtain satisfactory service in channels such as web based secure messaging and E mail/ticketing system/contact form on website is significantly reduced. This is because of the real time capabilities of technologies such as instant messaging and chatterbots, and as a result the customer is expected to be serviced a whole lot quicker when utilising these channels.

Visual dissemination of information such as advertisements is a perceived benefit of instant messaging and chatterbots. Availability of these technologies ensures that organisations can now educate customers visually during an interaction. Instant messaging also offers an opportunity for the customers to enquire from the agent they are interacting with on information that they have just seen as unlike the call center, organisations can advertise to the customer simultaneously as customer is chatting to organisation.

The study found that real-time interaction with customers did not happen 24 hours a day, 7 days a week. For example, the costs of running a call center around the clock far outweighs the benefits, hence none of the organisations have call centers that run 24 hours a day. A technology such as a chatterbots offer an

organisation with an opportunity to have an around the clock real time interactions with their customers without incurring the costs of running a channel operated by human agents.

This part of the study suggests some answers to the research question. It suggests that organisations are not completely satisfied with their current customer service delivery set up. The literature suggests that business today is in an era dominated by several market forces that has allowed customers to take a more dominant position in the relationship between customer and organisation and so organisations have to do more to keep their customers happy (Katsioloudes et al. 2007). This indicates that organisations would consider the adoption of technologies such as instant messaging and chatterbots if they are made aware of how it can add value as well as resolve some of the business needs that they are currently looking to have resolved because not resolving some of these business issues could lead to loss of customers.

5.3.5 *Reasons why utilisation of technologies form or don't form part of future customer service strategy*

The study found that organisations are looking for new ways to deliver customer service. Whilst some organisations have already started planning for the adoption of technologies such as chatterbots and instant messaging as potential channels, other other organisations are reluctant to include the adoption of this in their future strategy.

The main reason why reluctant organisations are hesitant is because they are not aware of any South African success stories of adoption of technologies. As the concept of chat technologies as a customer service delivery channel is not common in South Africa, organisations are reluctant to take the first step, and would only consider adoption after they have seen other South African corporations utilised these channels successfully.

Another reason why some organisations are reluctant to plan for adopting these technologies is because they are of the opinion that although the technologies could be beneficial to them, the challenges currently experienced by the current systems infrastructure within the organisation has to be resolved first before value can be derived from the adoption of new channels.

On the contrary, there are organisations that are having boardroom discussions on the adoption of chat technologies for customer service delivery. These organisations are open to adopting these technologies as part of future customer service delivery. The literature suggests that organisations are now forced to invent new methods of interacting with customers to reduce costs and gain market share (Katsioloudes et al. 2007). The reasons participants cited for why adoption of instant messaging and chatterbots form part of their customer service strategy echoes the citation from the literature.

Furthermore, organisations that are looking to adoption of technologies as part of strategy are investigating how to increase transactional capability over the World Wide Web that enables customer to do more themselves. This reason for making this a part of strategy is also resonated in the literature as organisation are finding that in an era where the Internet is breaking down silos of communication, consumers don't want to be restricted in how they interact with an organisation (Tsai 2010).

The reasons given by participants for considering or not considering these technologies as part of customer service strategy provides some insight into answers to the research question. It suggests that no organisation has a negative perception towards the use of these technologies for customer service delivery. Despite the fact that some organisations have internal system challenges or that they are conservative, there is the possibility that these organisations would eventually consider these technologies once they have resolved the system challenges as well as have evidence that the adoption of such technologies can work in South Africa.

5.3.6 *Reasons cited for considerations of adoption of technologies*

Several of the reasons that participants gave on why they would consider adopting these technologies for service delivery in South Africa are similar to the perceived benefits that these technologies offer for customer service delivery (see 5.3.2).

In addition, the results from this part of the study also highlighted that customers are already making use of technologies such as instant messaging for social interaction, and as a result are expected to embrace such for customer interaction. Furthermore, because mobile usage is on the increase in South Africa, and more and more phones have Internet connectivity capabilities, it makes sense to consider the adoption of this technology especially as South African Internet connectivity costs although considered high in comparison to some other countries around the world, is expected to drop over time.

The literature concurs with these considerations, as mobile phone usage in South Africa is documented at 45 million (Central Intelligence Agency 2008), and there is a group of people (known as Generation Y, millenials and/or the Net generation (Zakett 2009)) born after the year 1975 that are sensitised to and comfortable with technology which makes up 70% of South African population (Statistics South Africa 2009).

One more consideration given to the adoption of this (that the literature does not address) is that the era of existence in today's world is one that is designed for the knowledge worker. Although, the adoption of these technologies may potentially lead to job losses or amendment of job descriptions, South Africa cannot continue to be a country that is so rigid about job descriptions anymore. This suggests that employees are needed to be flexible e.g. to go from being a call center agent to a chat center agent.

Other considerations that participants did not mention in part of the study can be found in table 1 (Drivers for the adoption of new channels) in literature.

This part of the study reflects similar answers to the research question in section 5.3.2 (Perceived benefits of instant messaging and chatter bots technologies to customer and business). In addition however, this section reveals some insight about organisations perceptions of their environment which is relatively accurate as confirmed by literature. Organisations recognise that the way South Africans are communicating is evolving at a faster rate than the evolution of customer service delivery interactions with customer. Furthermore, organisations are becoming aware that mobile phones are an opportunity for South Africa to close the digital and web accessibility divide. All of this suggests that organisations will be open to investigating the use of chatterbots and instant messaging technologies for customer service delivery, as not only does it allow organisations to communicate with customers on the World Wide Web platform that more customers are having access to by the day, but it also offers an opportunity to bridge the gap between the way South Africans communicate and the way organisations interact with customers.

5.3.7 *Reservations around the adoption of technologies for customer service delivery*

In understanding attitudes and perceptions of customer service decision makers concerning the utilisation of chatterbots and instant messaging for customer service delivery, it was significant to find out what reservations research participants had about the adoption of the technologies within the context of a South African environment. The results from the study were divided into three distinct but related areas

Internal business environment

The study suggests that there are reservations that organisations have with regards to the adoption of technologies in their business environment. One of these reservations has to do with organisational culture. When it comes to innovation, some South African organisations are conservative and as a result

usually frown on anything new such as using chat technologies for customer service delivery. Also, the culture of some organisations does not lend itself to technology, and are more people driven and although they might consider technologies such as instant messaging, they are opposed to technologies such as chatterbots as it eliminates human intervention.

Another reservation that may affect the internal business environment is one that reveals the downsides of too much success. This is because although organisations see potential in adopting these technologies, and are pretty certain that their customers will eagerly adopt them, this adoption can however lead to huge demands in the use of this service which will result in a rise in cost of maintenance and support that they may not be able to afford. This reservation suggests that there is a cost that can be incurred by organisations when customer service delivery is improved, that organisations may not be ready to incur just yet.

The human element was another key point mentioned. Participants pointed out that customer service delivery channels are just tools, and that channels are only as effective as the people using them. In other words, organisations feel that the quality of service delivery of human agents that are interacting with customers cannot be enhanced because it is taking place via a tool such as instant messaging i.e. bad customer interactions remain exactly that even if it is taking place over a new channel. Another human element that was raised is that having these technologies in the workplace instead of enhancing productivity, can actually cause the opposite to happen as they are distracting and are open to abuse by employees who may utilise them for non work related purposes.

Lastly, organisations are concerned about security issues. Having direct interaction with customers over the World Wide Web (a platform that has been known to be manipulated by some smart individuals such as hackers or programmers that build antivirus software and dispatch them over the web) is cause for security concerns for some organisations.

External business environment

The reservations organisations have around their external environment mainly have to do with their customers. The results in this part of the study suggests that organisations perceive the South African people as a group of people who are opposed to change in the way things are done, have a preference for face to face and/or telephony based interactions for customer service delivery and these factors can potentially cause customers to resist adoption of technologies.

Organisations also perceive that security is a major concern for customers stating that customers will only make use of channels such as instant messaging and chatterbots only if they are convinced that it is secure.

The South African environment

The literature gave an optimistic insight into Internet based service delivery in the South African context (see section 2.3.5). This part of the study contrasts that as it covers some realities of the South African environment that causes some uncertainties about the adoption of these technologies in South Africa.

According to participants, the South African business landscape for instance is considered conservative when it comes to adopting new technology. Also, the South African culture is slow to adopt new initiatives as it requires people to change the way they do things. These two reservations suggests that perhaps the reason business landscape are slow to adopt new technology is perhaps because there is not much demand for change by the South African people as the South African people have a relatively change-resistant culture.

The issue of unemployment is a reality in South Africa, and introducing technologies in the work place could potentially exacerbate the situation. This reservation suggests that technologies such as this will make some roles in customer service redundant, and this will potentially increase unemployment levels in South Africa.

Accessibility of Internet in South Africa is considered relatively low and expensive. This is suggested by literature that puts the number of Internet users in South Africa at 5 300 000 users (Internet World Statistics 2009) and the population of South Africa at 49 320 500 (Statistics South Africa 2009). Organisations consider this something to worry about as it suggests that Internet based customer service delivery channels may not be accessible to all their customers.

One last reservation has to do with chattterbots. The results from the study suggest that customers are more predisposed to adopt instant messaging instead of chatterbots if given the choice to choose. This is because of the preference of South African people to deal with humans which is a feature that instant messaging offers that chatterbots does not offer.

Although this part of the study contains some results that the literature did not address, it does offer an insight into attitudes and perceptions on adoption of Internet based technologies. It offers an insight into the issues that need to be addressed in order for adoption to be a success. For instance concerns such as security requirements have to be addressed in the business requirements for the adoption of Internet based technologies, also business rules and guidelines on usage of these tools have to be established in order to prevent abuse in the work place.

5.3.8 *Attitudes and perceptions towards instant messaging in comparison to attitudes and perceptions towards Chatterbots for customer service delivery*

The results gathered from this study offer an insight into the attitudes and perceptions of organisations in using instant messaging for service delivery in comparison to that of using chatterbots for service delivery.

The results suggest that most organisations are not aware of chatterbots, and those that are aware, have never considered making use of them. On the

contrary, organisations seem to be aware of instant messaging, and some of them are already making use of them as a communication tool between employees and project teams, and those that are not making use of them are not failing to utilise them because they are ignorant of the benefits existence they offer. This implies that whilst most South African organisations are aware of instant messaging, very few are aware of chatterbots.

The results also suggest that organisation's customers are aware of instant messaging and are already making use of them in their social capacity, and hence customers are more likely to embrace this technology for customer service delivery as they are familiar with it. On the other hand, there is no suggestion in the study that organisation's customers are aware of chatterbots or that they are already making use of them in another capacity. Hence this suggests that organisations perceive that their customers will better embrace instant messaging customer service delivery channels as opposed to chatterbot service delivery channels.

The study also highlights that unlike chatterbots, instant messaging allows for human to human interaction. In a South African environment where customers are perceived to prefer interacting with a human being, this is important. This suggests that it might be easier to get customers to adopt the instant messaging customer service delivery channel than it would be to get them to adopt the chatterbot service delivery channel.

In providing an answer to the research question, this part of the study suggests that in comparison to chatterbots, there will be less resistance towards the adoption and utilisation of instant messaging as a customer service delivery channel in South African corporations.

5.3.9 *Outstanding business needs that can be addressed by the adoption of instant messaging and chatterbots as customer service delivery*

The findings of this study highlighted some business needs that were not being solved by existing channels. This section connects these needs with perceived benefits of adopting these technologies to get an insight into which needs can be resolved by the adoption of these technologies for service delivery as illustrated in Table 6.

Table 6: Outstanding business needs that can be addressed by the adoption of instant messaging and chatterbots as customer service delivery

Outstanding business needs	**Perceived benefit solutions**
Inbound and outbound call center	
High call volumes in call centers.	Can be reduced as having these technologies in place can reduce the volume of calls being made to the call center. Furthermore, with instant messaging, agents can interact with multiple customers simultaneously.
Telephony lends itself to waffling and lack of clarity.	Chat agents are under no real pressure to respond to a chat immediately hence can think of what to say before they respond to chatting.
Web based Secure Messaging **E Mail/ticketing system/contact form on website**	
Time lag between time message was sent by customer and time it customer obtained service.	These technologies offer real time communications, and this reduces the time lag between when service was requested and when service was delivered.

Table 6: Outstanding business needs that can be addressed by the adoption of instant messaging and chatterbots as customer service delivery(continued)

Outstanding business needs	**Perceived benefit solutions**
General needs (not limited to specific channels)	
Not all channels can be used for advertising to customers.	These two technologies offer opportunities to visually disseminate information to clients.
Not enough channels for customers to interact with organisation.	These two technologies offers organisations an opportunity to add to their customer service delivery channel offering.
Being able to have real-time interaction with organisation 24 hours a day, 7 days a week.	Chatterbots technology allows organisations to interact with their customers 24 hours a day, 7 days a week without human intervention.
Visual customer education of products lacking.	Unlike channels like the inbound and outbound call center that only allow for audible customer education, these two technologies allows customer allow organisations to visually educate customers.

The above analysis depicts that the adoption of instant messaging and chatterbots can be of value to organisations as it solves some of their customer service delivery needs. This suggests that organisations who consider the use of technologies such as these for service delivery are most likely to find it to be of value to them.

5.3.10 *A comparative analysis between the reasons for adoption of technologies and the reservations around the adoption of technologies*

The data suggests that there are related links between the reasons participants gave for consideration of adoption of technologies and the reservations they have around the adoption of technologies for service delivery. The aim of this section is to do a comparative analysis and discuss these related links.

The related links between two parts of this study offers some insights worth exploring.

Related link 1

Reasons for considerations of adoption of technologies	Reservations around adoption of technologies
Although this may potentially lead to job losses, it is the era of the knowledge worker. People's job descriptions are changing and South Africa cannot as a country be so rigid about job descriptions anymore.	Technologies such as these could potentially increase unemployment in South Africa especially in industries such as the telephony call center.

On the issue of job descriptions and unemployment, these two findings provide some interesting views once compared against each other. The one finding suggests that the time has come for South African organisations to stop being rigid about job descriptions, and that it is the rise of the knowledge worker, and although adoption may cause people's job descriptions to change, it will not necessarily result in job losses. The other finding suggests that this could potentially increase unemployment in a country that has significant unemployment levels of 25.3% (Statistics South Africa 2010). These views suggests that the impact of adopting these technologies as service delivery channels could result in a change in job descriptions and roles and responsibilities of employees, and not

only that, as it might also result in some employees jobs being redundant and hence loss of jobs.

Related Link 2

Reasons for considerations of adoption of technologies	Reservations around adoption of technologies
Customers already making use of technologies such as instant messaging for social interaction.	Customers tend to oppose change that radically changes a way they have become accustomed to, and if this is tampered with, customers tend to resist such initiatives. This can rapidly change how customer service is delivered in South Africa, and South African culture is not open to adopting new initiatives as it requires people to change how they do things.

Reservations that were found in this study described South African customers as a group of people that oppose change as South Africans don't necessarily like the way they do things. This logic is contradicted by another finding that describes customers as a group of people that are already making use of instant messaging for social interaction. These two views suggest that despite the perception that South Africans are opposed to change, there is an exception to this view with regards to the adoption and utilisation of instant messaging for social interactions and this adoption for social interactions is likely to spill over with little resistance into utilisation for business interactions.

Related Link 3

Reasons for considerations of adoption of technologies	Reservations around adoption of technologies
Mobile usage is on the increase in South Africa and more phones now have Internet connectivity capabilities. Cost of Internet in South Africa is relatively high in comparison to first world countries. However, not only is this expected to drop, but it is cheaper than the cost of the call center.	Adoption of Internet based channels will be impacted by the fact that access to the Internet in South Africa is still relatively low as well as the reality that Internet costs are considered relatively high in comparison to that of other countries.

When it comes to Internet costs and usage, some reasons for adoption suggest that as mobile usage are on the increase in South Africa, and more phones now have Internet capabilities, the number of Internet users in South Africa are growing. The costs of Internet in South Africa offer some reason for concern though as they are relatively high in comparison to other countries, however, it is important to also note that the findings from the study point out that these costs can be cheaper than the costs of making a phone call and is expected to drop over time.

Related Link 4

Reasons for considerations of adoption of technologies	Reservations around adoption of technologies
The technologies can help in reducing the time lag between the time a customer makes a query and the time the customer query is serviced. Technologies offer an alternative service delivery channel that caters for real time problem resolution.	Customers are perceived to prefer face to face or telephonic interactions with organisations.

Another reservation that organisations have about the adoption of technologies for customer interaction is that they lack face to face or telephonic interactions which some organisations perceive South African customers to prefer. This finding is contradicted by other findings that suggest that although South Africans may prefer telephonic and face to face interactions, but because of the challenges associated with these types of interactions, the benefits that chatterbots and instant messaging offer, (such as the reduction of lag time between the time a customer makes a query and the time customer query is serviced and the benefit of having additional supplementary channels through which customers can interact with organisations) override the disadvantages of not having face to face and/or telephonic interactions.

Related Link 5

Reasons for considerations of adoption of technologies	Reservations around adoption of technologies
Adoption of technologies for customer service delivery can help organisations gain competitive advantage. There is a drive towards improving the quality of service, and these technologies can potentially help in this regard. A supplementary customer service delivery channel can help reduce call center costs and call volumes to the call center.	Organisational culture does not lend itself to innovations such as these and this can lead to resistance to adopt technologies. Organisational culture is more people driven and less technology driven. Cost factor: Judging by the way instant messaging has been adopted in social communication tool, introducing such a service delivery channel to customers will result in a high level of utilisation by customers, and if this happens, the organisation may not have the infrastructure to maintain the demand for these channels.

The last related link between reservations around adoption and reasons for adoption of technologies has to do with the internal issues. The study suggests that factors such as organisational culture that lacks innovation or one that is people driven as opposed to technology driven can impede adoption. Also, factors such as the cost of maintaining and supporting a widely adopted channel may not be something companies are willing to incur. The reasons given for adoption suggest that adoption can enhance competitive advantage, can also help organisations achieve its drive towards improving quality of service and offering supplementary service delivery channels. These findings offer an insightful view into how organisations can perceive the benefits of adoption in relation to their own internal challenges. For instance, organisation's will have to assess the impact internal culture has on their strategy and business objectives, as culture might need to be relooked at in the light of gaining ground on the competitor as

well as servicing customers better. Also, the possible costs of too much success (i.e. the costs of having to maintain and support the new channels) will have to be weighed against the cost savings that come with having supplementary channels in place (e.g. having instant messaging channel in place may reduce the volume of customer queries that's directed to the call center, which may results in savings for the call center) and this cost benefit analysis may assist organisations in making quantifiable adoption decisions.

5.4 Conclusion

In discussing the results from study in this chapter, the data was discussed and explained in reference to the literature review (where applicable), and inferences were made from the data to arrive at conclusions that suggests answers to the research question.

The results of the study were discussed by reviewing:

- benefits, effectiveness and complaints of existing customer service delivery channels.
- perceived benefits of instant messaging and chatter bots technologies to customer and business.
- the reasons why organisations already use or do not use technologies in organisations.
- business needs that are not being addressed by existing channels.
- reasons why utilisation of technologies form or don't form part of future customer service strategy.
- reasons for consideration of adoption.

- Reservations around the adoption of technologies for customer service delivery.

Further analysis was done to allow the discovery of some more information. This was carried out by a process of extrapolating new findings from the results gathered. These results were discussed as follows:

- attitudes and perceptions towards instant messaging in comparison to attitudes and perceptions towards chatterbots for customer service delivery

- outstanding business needs that can be addressed by adoption of instant messaging and chatterbots as customer service delivery

- a comparative analysis between the reasons for adoption of technologies and the reservations around the adoption of technologies.

The aim of this study was to establish the attitudes and perceptions around the utilisation of artificial intelligence (chatterbots) and instant messaging technologies as service delivery channels. This study was inspired by the fact that despite the literature suggesting that chatterbots and instant messaging technologies offer service delivery benefits to South Africa, these channels are not as popular as mainstream service delivery channels. Also, it is important to note that the validity of the findings from this study may be constrained to a period of time because of the rapid evolution of technology in the world we live in.

The findings of this study relative to the research questions are listed as follows:

- South African organisations and customer service decision makers recognise the importance of having real-time interactive channels and multiple channels for service delivery. Also, they are open to technology powered customer service delivery channels.

- Organisations are aware of the customer complaints and business needs that are not addressed by existing channels. Furthermore, research

participants understand how some of these business needs can be solved by adopting chatterbots and instant messaging technologies.

- South African organisations believe that having additional service delivery channels in place such as instant messaging and chatterbots will improve the customer's experience (and they expect factors such as customer's impression of organisation, brand recognition and retention of customers to improve).

- Organisations are mostly aware of instant messaging, and have some exposure to its benefit as a communication tool although it has never been used for customer service delivery.

- Organisations are mostly unaware of chatterbots, and its benefits.

- Most organisations would consider the adoption and utilisation of these technologies however organisations are more likely to adopt and utilise instant messaging than they are to adopt and utilise chatterbots.

- Organisations have reservations about utilisation of instant messaging and chatterbots that will need to be addressed to enhance the use of technologies as customer service delivery channels.

6 CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This chapter brings this report to a conclusion. The chapter starts off by summarising the findings from study and conclusions. Suggested recommendations are then made to the professionals and stakeholders of customer service delivery for whom this study is significant. This chapter is brought to a conclusion by a compilation of suggestions for new research that were inspired by outstanding questions that was related to but beyond the scope of this study.

6.2 Conclusions of the study

The aim of this study was to explore attitudes and perceptions around the use of two chat based communication technologies (instant messaging and chatterbots) for customer service delivery in South African organisations. The study provided insight about the feasibility, considerations and potential benefits of having these technologies in place for customer service delivery. The study was carried out by getting insight into existing customer delivery channels in South Africa as well as attitudes and perceptions towards the two chat based communication technologies.

a) Existing channels in South Africa

The study found that the existing channels in South Africa although with benefits are not without complaints. Also, customer call center is the most widely used channel for customer interaction, and every organisation makes use of at least one supplementary channel to support the call center. Furthermore, the study

found that there are business needs that existing channels are currently unable to solve.

Judging from the wide utilisation of call center, the conclusion can be made that organisations recognise the importance and value of having real-time interactive channels for customer service delivery. Furthermore, having supplementary channels in place also suggest that organisations are open to the idea of having channels that can support the call center and give the customer more than one choice of communication. From the complaints of existing channels and business needs not addressed by existing channels, suggestions can be made that utilisation and adoption of instant messaging and service delivery channels could potentially be of value and help resolve some of the business challenges that organisations are currently faced with.

b) Perceived benefits and reasons for adoption of instant messaging and chatterbots for service delivery channels

The suggestion made about how instant messaging and chatterbots could help resolve some of the challenges and complaints from existing channels was confirmed by data that was gathered around the perceived benefits of the adoption of technologies as well as the reasons given for consideration of adoption. It suggested several benefits of instant messaging and chatterbots as well as providing reasons why organisations would consider adopting them as channels for customer service delivery. This conclusion was further enhanced by extrapolating results from the study to find the outstanding business needs that can be addressed by adoption of instant messaging and chatterbots as customer service delivery

c) Use and lack of use of instant messaging and chatterbots technology in organisations

The study found that most organisations are aware of the benefits of instant messaging and some are already making use of it as a communication tool for employees and project teams. Organisations that are not making use of instant messaging seem to have misconceptions about them and may need to be educated about the technology.

From the study, it can be concluded that very few organisations have knowledge of the chatterbot, and currently, no South African organisation is making use of them in any capacity within the organisation.

d) Customer service strategy and technologies adoption

The study concludes that most South African organisations are not opposed to the adoption of these technologies as part of customer service strategy. Organisations are looking for ways to service their customers better and distinguish themselves from their competitors and would therefore be willing to investigate the adoption of these technologies in their service channel offering. Although some organisations indicated that adoption of technologies is not part of strategy, their reasons for this was not because they were against the technology adoption, but because they wanted to see it work elsewhere before they considered it and because there are internal system challenges that needs to be resolved before adoption can be considered.

e) Reservations around the adoption of technologies

The study found three types of reservations that organisations had around the adoption of technologies.

Reservations around the internal business environment suggests that issues around organisational culture, security concerns, costs of maintaining and supporting the technologies and the human element of customer service delivery that some channels cannot conceal which can lead to a bad customer experience are issues that need to be addressed when considering adoption of technologies.

Reservations and concerns in the external business environment revolve around organisation's perceptions of what their customers concerns are. The study finds that organisation's are of the belief that their customers are generally opposed to change and have a preference for face to face interactions as well as using the telephone call center. Furthermore, security is a major concern for customers and customers would have to be certain that this channel is secure before they consider utilisation. All of these are issues that need to be addressed to alleviate resistance to adoption of technologies.

When it comes to the South African environment, the study portrays the South African environment as conservative when it comes to adopting technologies and change. This thread runs through the business landscape as well as the culture of the South African people. Furthermore, the study finds issues as such as unemployment statistics and costs associated with Internet accessibility as realities that need to be dealt with as a wide adoption of these technologies may not only cause an increase in unemployment in the telephony call center industry, but it may also be delayed, as accessibility of Internet in South Africa is still perceived to be relatively low and expensive.

Lastly, the study finds that the South African environment are more predisposed to adopting instant messaging than chatterbots as South Africans are perceived to be people that prefer to interact with a human being as opposed to interacting with an artificial intelligence program. This does not necessarily rule out the potential adoption and utilisation of chatterbots by South Africans. The perceived benefits of the technology as well as the value discussed in the literature suggest that there are several enticing incentives that could encourage the adoption and use of a chatterbot customer service channel.

f) Instant messaging or chatterbots?

Based on the findings of this study, the answer is definitely instant messaging. The data found in this study suggests that whilst most organisations are aware of instant messaging and some are already making use of them within the organisation as a communication tool, very few organisations are aware of chatterbots, and no South African organisation has made use of chatterbot in any capacity.

Furthermore, the study finds that organisations perceive customers and South African people to be already familiar with instant messaging as several of them are already making use of instant messaging technologies in their social capacities. This suggests that getting these people to embrace instant messaging for customer service delivery will be easier than introducing chatterbot channels.

Lastly, the study finds that when it comes to adoption in South Africa, the distinguishing factor between the two chat technologies have to do with the fact that one allows for human to human interaction (instant messaging) which South Africans are perceived to prefer and the other doesn't (chatterbots).

g) Comparative analysis between reasons for adoption and reservation around adoption of technologies

The related links between the two sets of results above offered some insight into the pros and cons of adopting these technologies. The study finds that adoption of technologies for customer service delivery could result in change in job descriptions of employees as well as result in job losses.

Also, the study found that despite the fact that South Africans are opposed to change, there might be an exception when it comes to adoption and utilisation of instant messaging for social interactions, and this exception may positively influence the rate of adoption and utilisation of instant messaging service delivery channels.

The study also finds that the issue of low Internet accessibility in South Africa is perceived to being addressed by the availability of mobile phones that have Internet capabilities. Furthermore, high costs of Internet usage are expected to drop over time.

The study finds that despite the fact that factors like face to face and telephonic interactions are channels that customers prefer, these channels are not without complaints and some of these complaints can be resolved by instant messaging and chatterbots. Hence, as a result of this, the study suggests that customers will not be totally resistant to the use of these technologies for service delivery should they be adopted.

Lastly, internal issues such as conservative and people driven organisational culture are seen as issues that could oppose adoption of technologies. Adoption on the other hand offers the ability to gain competitive advantage and service customers' better, and this suggests that organisations would not refrain from adopting because of conservative and people driven culture. Also, the costs of maintenance and support of channels as a hindrance to adoption can be justified as not only do these technologies offer benefits, but having them in place ensures that the costs of running other channels could potentially reduce and the savings from these other channels would be to the benefit of the organisation.

In conclusion, the findings in this study concur with the context of study. The objective of the study was to gain an understanding of perceptions and attitudes towards the use of two computer conferencing technologies as customer service delivery channels. The findings from the study offers a comprehensive information on the utilisation and adoption of of instant messaging and chatterbots as customer service delivery channels in South Africa.

As stated in the context of this study, the findings also confirms that the telephony system in the call center is the primary use mode through which corporations have instantaneous communications with their customers. Also, the study found that 9 out of the 14 existing channels are powered by technology, which is aligned to the suggestion that technological innovations have offered supplementary means of

communication and that these technologies are also found in the organisation and used for customer service delivery as well.

Finally, the context of the study implied that changes in technology has made computer conferencing the cheapest, most convenient and potentially most powerful mode of communication (Hiltz and Turoff 1993). As this study was done in a South African environment, it does not confirm all of this, but the study does suggest that the use of the two types of computer conferencing technologies that was selected for this study (i.e. instant messaging and chatterbots) can potentially offer corporations in South Africa a channel that could potentially be cheaper, more convenient for customers to interact with organisations, and only time will tell whether this mode of communication will unseat the call center to become the most powerful means of interacting with customers.

6.3 Recommendations

The aim of this study is to provide insight to professionals and stakeholders involved in customer service delivery. Based on the findings of this study, this section provides some recommendations to these professionals and stakeholders.

Bi-directional customer relationship assessment

The literature suggests that customer relationship should be a bi-directional interaction where customers and organisations can initiate interaction with each other without too much effort (Hogg et al. 1993).

It is recommended that a bi-directional customer relationship assessment be done for the existing customer service delivery channels in the organisation. The assessment should test whether the relationship is on a balanced platform. In other words, are the efforts and costs that organisations incur to initiate interaction with the customer the same as the efforts and costs that customers incur to initiate interaction with organisations?

These assessments should also account for different types of interaction. E.g. a sales-driven scenario will differ from an after-sales support driven scenario, as the organisation will most likely be the party initiating interaction in a sales driven scenario, whilst the customer that needs support will be the one to initiate interaction in an after-sales driven scenario.

This will give organisations an insight on their customer relationship, and this can open up discussions into adoption of technologies such as instant messaging and chatterbots.

Internal adoption of Instant messaging

Organisations that are not familiar with instant messaging should consider piloting instant messaging as a communication tool between employees. This will allow organisations to be exposed to the benefits and reservations around the technology and thus allow them to assess whether it will be of value for customer delivery.

Perceived benefits assessment

The perceived benefits of these technologies for customer delivery should be assessed in line with the needs of the organisation. For instance, stakeholders may want to compare the value that real-time chat-based text communications offer by comparing the value that these features offer to equivalents that current channels offer to current customers.

An illustration of this is that an advantage of having real-time chat-based communication is that in the event of a dispute both parties have copies of the conversation to aid the resolution. In a call center, organisations record calls, but customers seldom do or know how to, and so in the event of a dispute, customers can hardly prove their case. This benefit of having the conversation in text format may or may not be of value to an organisation. An organisation that has a high

dispute rate with customers will value this benefit much more than an organisation that has a low dispute rate. Hence, whilst this may be reason to consider having instant messaging for service delivery for some organisations, it may not be for others.

Cost analysis of existing channels

The costs of adopting and utilising these technologies can be quantified by also carrying out a cost analysis of existing channels for customer as well as for organisations. For instance, forecasting how savings in existing channels can be achieved by having supplementary channels such as these in place is a way for organisations to justify the costs of adopting, utilising, maintaining and supporting these technologies.

Channel security

To address the security issues identified in this study, it is suggested that first these issues be identified, then organisations find ways (such as hiring of consultants) to address the security issues. Also, studies can be done on how businesses around the globe that make use of instant messaging as customer service delivery have gone about addressing these issues.

Training of employees

A finding from this study suggests that bad customer service remains so if the human element is not properly addressed. One way of addressing such is training of employees. This will improve not only that of existing channels but also the quality of service of these channels should they be adopted for customer service delivery.

Chatterbots education

There seems to be a lack of awareness of chatterbots in South African organisations. It is recommended that stakeholders educate themselves more on this tool. This study highlights the benefits of this technology, and how it can be of value to organisations, and although it may not be something that the South African public is not keen on adopting now, but there is the possibility that South Africa will be ready for it in future, and when this happens, the professionals and stakeholders of customer service delivery should already be aware.

6.4 Suggestions for further research

1. **Artificial intelligence and Instant messaging technologies as mediums of learning in the South African education sector**

   Some of the findings of this study were beyond the scope of this study. As this study was conducted at a time when South African teachers were on strike, and children were barred from schools, it became a study worth carrying out to see if school curriculums could be taught to students via Internet based chat technologies.

2. **Attitudes and perceptions of customers towards the utilisation of instant messaging and chatterbots for service delivery.**

   The views of customers and users expressed in this study were perceptions of customer service decision makers. This suggested study aims at carrying out a similar study as a case study for an organisation looking to adopt either one or both of these technologies for service delivery with the intention of understanding the perception of the customers of South African organisations.

3. Information security factors for computer conferencing

This study finds that security is a great concern for organisations as well as customers. A new study is recommended to look at the security concerns around computer conferencing technologies, and how they can be resolved.

RESEARCH SCHEDULE

6.1 Time-table (2010)

Task	Time Schedule
Proposal: Finalisation and Submit	30 June
Panel Approval	14 July
Data Gathering and analysis: Phase	15 July – 23 September
Consolidated data analysis	24 september – 28 september
Report writing	30 september – 18 October
Finalise Report	10 November

6.2 Consistency matrix

Table 7: Consistency matrix

Research problem: This research aims to investigate the attitudes and perceptions of customer service decision makers in utilising artificial intelligence and instant messaging technologies as service delivery channels in South African corporations.					
Main-Problem	**Literature Review**	**Research questions**	**Source of data**	**Type of data**	**Analysis**
Determine the attitudes and perceptions of utilising of artificial intelligence and instant messaging Technologies as service delivery channels in South African Corporations.	Howell (2004) Katsioloudes, Grant and McKechnie (2007) Onks (2006) Statistics South Africa (2009)	What are the attitudes and perceptions of customer service decision makers concerning the utilization of artificial intelligence and instant messaging technologies to delivering customer service to South African customers?	Data gathered from interview sessions	Non-numeric/qualitative data	Content or thematic analysis Content categorisation and theme abstraction Content interpretation (Gelo et al. 2008)

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APPENDIX A

Letter to Participants

Dear Participant,

I am a Masters in Business Administration (MBA) student at the University of Witwatersrand Johannesburg. The thesis component of my studies is on understanding the attitudes and perceptions to utilisation of artificial intelligence and instant messaging technologies as service channels in South African Corporations.

To successfully complete this thesis, your expertise and experience is required, and I will like to arrange a session to meet with you to discuss certain questions at your earliest convenience.

Kindly note that this research is for academic purposes only, and confidentiality will be observed throughout the thesis process and final report.

I will be available to meet with you at a location and time of your convenience.

Thanking you for your kind assistance

Yours sincerely,

Ayo Kolawole

082 864 1212.

Actual Research Instrument

Interview Schedule (for use by researcher only)

Current service delivery channels Questions

- What customer service delivery channels do you have in [company name]?
- How effective are these delivery channels?
- What customers (3-5) complaints are caused by their use of the existing current service delivery channels?
- What advantages do the existing channels provided to the customer?
- What customer needs are not being addressed by the existing channels?
- What other concerns are there regarding the use of these service delivery channels that [company name] employees have picked up?

Instant messaging and Chatterbot Questions

(The participant will be educated if they are not already knowledgeable about these tools)

- How have you made use of instant messaging and Chatterbot technologies in your corporation?
- Are there any reasons why you have not made use of instant messaging and chatterbot technologies in your corporation?
- In what ways would you think these technologies might be beneficial to your customer?
- In what ways would you think these technologies might be beneficial to your business?
- Would you consider it for use as a customer service delivery channel and why?
- In future planning for customer service delivery, please elaborate (if any) on any plans to incorporate technologies such as these?
- Are there any reservations about the use of these tools in providing customer service that could keep [company name] from adopting it as a customer service delivery channel or prevent your average customer from adopting it if made available? Consider the
    - Internal business environment

- External business environment
- South African environment