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Determining the Advantages of Using Integrated Systems in Call Centres: A Literature Review

Michael Berning
Department of Operations Management
College of Economic and Management Sciences
University of South Africa, South Africa
40454452@mylife.unisa.ac.za

Anthea Amadi-Echendu
Senior lecturer
Department of Operations Management
College of Economic and Management Sciences
University of South Africa, South Africa
amadiap@unisa.ac.za

Sugandren Naidoo
Professor of Operations Management
College of Economic and Management Sciences
University of South Africa, South Africa
naidos1@unisa.ac.za

Abstract

The call centre industry is constantly changing, with it now being an integral part of organisations' operations and a critical channel to many customers, who expect excellent customer experience. To be able to provide consistent excellence to customers, call centres are dependent on integrated systems which allow various systems within the ecosystem to interact with one another. With customers becoming more demanding regarding personal and efficient service, organisations have started to invest more into digital tools, with specific reference to artificial intelligence (AI) and robotics process automation (RPA). The aim of these tools is to assist organisations to automate processes and reduce repetitive activities for employees, thereby achieving customer objectives which are integral to their business objectives. Significant benefits are also gained by leveraging big data which contains rich customer information in creating a customer profile that allows the organisation to know their customers, which in turn they can use for cross and upsell opportunities of products. Even though organisations acknowledge the critical role call centres play in today's business landscape, there remains a gap in fully harnessing their potential. The gap arises due to a lack of focus and investment in optimising call centre operations through system integration which hinders their ability to deliver exceptional customer service. This paper explores the advantages of using integrated systems in call centres by reviewing literature from different sources. Although the benefits of automation technologies have been confirmed, further exploration is recommended to fully leverage its benefits for both customers and organisations.

Keywords
Call centre, Advantages, Integrated systems, Automation technologies, Customer service

1. Introduction

Call centres have emerged as a key channel for communication between customers and organisations since the early 1990s where they can provide information, support, and other services related to various domains such as banking, insurance, emergency, or policing (Daellenbach, McNickle & Dye 2017). Depending on the query, customers may want to talk to a human, and in other cases, self-help options including chatbots might suffice. Call centre and contact centre are different in some ways; however these terms are used interchangeably. A call centre traditionally only manages inbound and outbound voice calls, and a contact centre can also make use of data applications such as e-mail, web-based chat, instant messaging when interacting with customers (Taylor & Hettick 2006). Knowing your customer is essential. Unconnected systems may result in uncoordinated activities (Talón-Ballestero, González-Serrano, Soguero-Ruiz, Muñoz-Romero & Rojo-Álvarez 2018). Leal, Guédria and Panetto (2019) identified the importance of bi-directional interoperability to ensure the availability of critical information at all levels of the business (Ndlovu, Scott & Mars 2021).

Chattopadhyay (2019) notes that one of the biggest frustrations of customers when engaging with a contact centre, is when call centre agents are unable to attend to customer queries or needs which is as a result of a lack of information being available across the various channels and systems to attend to the relevant requests. Customers demand real-time and adaptive experiences from organisations they interact with (Keiningham, Aksoy, Bruce, Cadet, Clennell, Hodgkinson & Kearney 2020). Goodman (2019) confirms that poor customer service may reduce customer loyalty and that "for every five customers with problems, one will switch brands the next time he or she buys a specific product or service in your marketplace". Negative word of mouth marketing can cause further losses. McColl-Kennedy, Zaki, Lemon, Urmetzer and Neely (2019) confirm that customers can become quite emotional when service expectations fail because of process or system failures, followed by a negative sense towards the organisation.

Information is key when dealing with customer requests, and hence Eggers, Metschan, O'Leary and Mancher (2022) highlight the example of customer frustration when information is not available, and a customer is being transferred from one department to another for assistance. The issue is compounded when systems are not integrated which results in a lack of data sharing and operational inefficiencies (Calvert 2017). Kazalarska (2017) argues that technical systems are essential and vital for delivering excellent customer service in a call centre setting and also create brand credibility. Organisations that fail to service customers effectively will suffer reputational damage, which ultimately could result in a loss of customers and revenue (Bougoure, Russell-Bennett, Fazal-E-Hasan & Mortimer 2016). Despite the awareness of the importance of integrated systems and their resultant benefits, many call centres still operate with systems that are operated from different platforms which are not integrated.

Integration allows for all touchpoints to be combined and for effective coordination between various systems to take place, thereby allowing for information to be shared seamlessly. This paper reviews the evolution of call centres and positions the requirements that may arise from an integrated call centre. This paper is structured as follows: Firstly, a literature review is giving insights into call centres, where the reader is provided with general context of call centres, the evolution of call centres as well as systems used in call centres. Thereafter methods and data collection methods used to compile this paper is explained. The paper concludes with key discussion points, conclusions, recommendations and recommendations for future studies.

2. Literature Review

2.1 Contextualising call centres

It is important to note that the call centre industry has undergone significant changes and transformations in the last two decades, making it a vital medium for many customers to connect and communicate with various organisations (Calvert 2017). Call centres are resilient and have survived economic crises with minimal impact (Srivastav, Gopalan, Agarwal & Agarwal 2019) including the Covid-19 pandemic that imposed lockdown restrictions (Hrabí 2020). Call centres are attractive to organisations in all industries due to their ability to reduce costs, increase efficiencies, enhance productivity and advance higher profits (Gounder 2014) while making products and services more accessible to the end user or customer through virtual operations. With the call centre industry growing at a rapid pace, South Africa became a desired destination for outsourced call centres (Sookdeo 2023) offering technical support, back and front office services in various sectors that include telecommunication, insurance, banking and financial services (Bodri 2009).

Various humanitarian organisations have identified the need for a call centre in Zimbabwe to help support people with HIV and tuberculosis. This enabled more people to get this much needed support, while also reducing on people visiting clinics (Mukwenha, Dinakaran, Mugurungi & Musuka 2020). Andrade and Moazeni (2023) further describe call centres to shape customer experience and customer loyalty based on the service received. Capacitating call centres require a combination of knowledgeable staff, automated processes, and self-service tools to adequately manage the vast number of calls from customers (Eggers, Metschan, O'Leary and Mancher, 2022). Call centre staff has one of the highest attrition rates averaging 25-40% due to the mundane nature of work (Kushwaha, Tyagi, Sharma & Singh 2022; Deb 2020) but require a high level of professionalism to ensure service excellence and customer satisfaction (Chicu, del Mar Pàmies, Ryan & Cross 2019). Newer technologies such as internet of things (IoT) enable on-point solutions (Patterson 2015) for faster query resolution as well as first call resolution (Chicu, del Mar Pàmies, Ryan & Cross 2019; Mughele & Susan 2020) but there is sparse implementation of such technologies. System failures or information gaps make call centre staff's roles more challenging and thereby hindering their ability to attend to customer requests.

2.2 Evolution of call centres

Call centres traditionally only managed incoming and outgoing telephone calls. Significant advancements in technology and the internet led to the inclusion of emails, online chats and text messages (Bergevin, Kinder, Siegel & Simpson 2010). Social distancing and working from home due to the Covid-19 pandemic in 2020 resulted in Checkers 60Sixty, Mr Delivery, and Woolies Dash becoming more popular with an equal increase in call centre activity that led to the establishment of an omnichannel approach. Table 1 briefly summarises the differences between three main call centre types.

Table 1. Evolution of call centres (Researchers own 2023)

⇧	Omnichannel	Telephony, email, messaging, web chat, web, social media, AI, RPA (all channels are integrated and connected)
⇧	Contact centre	Telephony, email, messaging, web chat, web, social media
⇧	Call centre	Inbound and outbound telephony only

Picek, Peras and Mekovec (2019) refer to the omnichannel approach as a seamless and integrated environment that empowers agents with a 360-degree view of a customer's interactions with the organisation using various channels. This holistic perspective enables better customer engagement, cross- and upselling opportunities. Consistency across the different channels is key and demands specific communication strategies to plot and manage customer behaviour (Weber & Chatzopoulos 2019).

2.3 Technology used in call centres to provide service to customers

In reality, the lack of integration of systems and technologies in call centres, coupled with the compartmentalisation of the operating model according to work functions means that end-user customers are not always able to be assisted by a single call center agent. The inability of an agent to view all information or execute certain tasks, necessitates the transfer of calls to different departments, thus causing the customer to join a new queue. Staff movements and shift changes may also result in non-resolution of pending customer requests and queries which translates into unfulfilled obligations and agitated customers.

Automation trends enhance call centre capabilities (Davis, 2020), for example, chatbots attend to customers alongside frontline staff to cope with high volumes with reduced response times (Tran, Pallant & Johnson 2021; Haugeland, Følstad, Taylor & Bjørkli, 2022). IoT, cloud computing, AI, remote monitoring and wireless sensors are all other types of technologies that can be used in call centres (Adam, Wessel & Benlian, 2021; Tortorella, Prashar, Saurin, Fogliatto, Antony & Junior 2022; Chandrasekaran 2021). Call centre environments are complex. Figure 1 illustrates the intricate and complex nature of call centre ecosystems, emphasising the need for all technological components to work together seamlessly for optimal performance. Digital transformation is necessary to enhance the human experience using a virtual agent, leading to satisfied customers and staff (Eggers, Metschan, O'Leary & Mancher 2022).

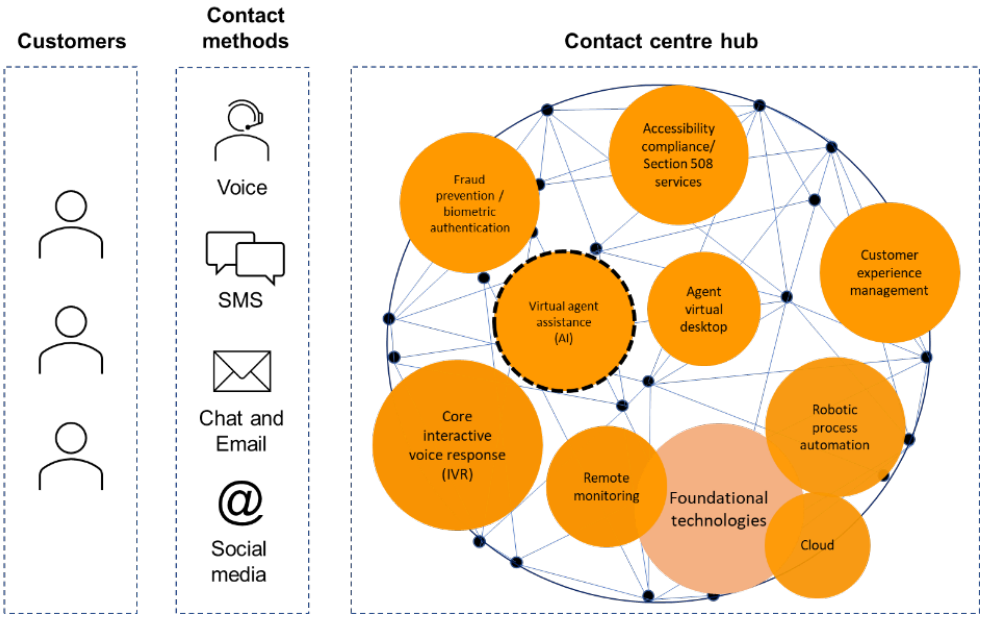

Figure 1. Different elements of a contact centre's ecosystem working in harmony (Eggers, Metschan, O'Leary & Mancher 2022)

These different technological components need to work together in an integrated way to enable the best performance of the call centre (Eggers et al., 2022). Relevant information must be made available at the right time, to the right application in a specific channel. Integration can facilitate the interchange of information (Stergiou, Psannis, Kim & Gupta 2018) for better customer insights, customer relationship management, digital transformation and improved customer interactions to meet customers' overall needs (Kaondera, Chikazhe, Munyimi and Nyagadza 2023). The lack of integration and system incompatibility require users to access multiple applications or desktops to obtain different types of information. Organisations must continually evaluate their systems (Alkazemi, Nour & Meelud 2013) and standardise technological development language to facilitate interoperability, allowing multiple systems to seamlessly exchange information (Whitman & Panetto 2006).

IT systems tend to degrade over time that may result in increased maintenance, or technology becomes outdated or obsolete (Chervenski & Bordin 2020). Furthermore, IT systems need to continuously evolve to remain relevant and compliant (Chervenski & Bordin 2020) whereby additional features are incorporated over time (Annett, 2019). In reality, many organisations including call centres, work with legacy systems that patch in newer technologies as required. A legacy system refers to as a system, technology or software program that is old or out-of-date, but might still be used in organisations to perform the functions they were originally designed to do (Kulkarni 2019). The complex nature of legacy systems does not always allow for changes to be made in a timely and cost-effective manner (Alkazemi, Nour & Meelud, 2013). Balasundaram and Venkatagiri (2020) confirm that companies are compelled to use these legacy systems in the 21st century, because data is housed in different systems that are incompatible. Using legacy systems force call centre staff to access multiple systems to fulfill their duties. Consequently, this increases the average handling time (AHT) per call, leading to adverse impacts on customer satisfaction, productivity, and overall efficiency (Ing, 2021) and strains staff morale.

3. Cybersecurity and access to systems

The introduction of IoT technologies, however, brings about trust, identity and rights issues, which demand the ethical and responsible use of data (Van Kuiken 2022). This creates an interesting dynamic with organisations that need to adjust to retain a competitive advantage while protecting customers and being responsible with how customer data are used. The growing dependence on data-driven processes aimed at enhancing business efficiency, introduces risks that require sufficient cybersecurity protection (Ukwandu, Ben-Farah, Hindy, Bures, Atkinson, Tachtatzis, Andonovic & Bellekens 2022). As technology integration continues, concerns about cyber vulnerabilities that lead to cyberattacks are becoming increasingly important (Kure, Islam & Razzaque 2018). Once a cyberattack takes place, business

continuity is compromised (Kure, Islam & Razzaque 2018). Furthermore, sensitive customer data may be compromised in the process, which could result in compliance failures in terms of the Protection of personal Information (POPIA). Cyberattacks include malware, phishing, man-in-the middle and day-zero exploits whereby perpetrators gain access to or even modify information (Patel et al 2023). With cybersecurity threats identified as key risks to organisations, several mitigation and preventative measures are being put in place to protect organisations and their data.

Cybersecurity involves safeguarding networks, devices, and data by preventing, detecting, and responding to network attacks. On the other hand, information security focuses on protecting information and information systems from unauthorised access, use, disclosure, disruption, modification, or destruction with the aim of ensuring confidentiality, integrity, and availability of sensitive information (Patel et al., 2023). Organisations must adopt a data and information security mindset and introduce simple safety practices relating to internet security, access to systems and use of complex passwords. For more advanced monitoring and detecting of cyber threats in real-time, AI can be used in the event of suspicious activities before they can spread (Alhayani, Abbas, Khutar & Mohammed 2021).

4. Methods and data collection

This research used a desktop literature review to investigate how integrated systems are used in call centres. This study did not conduct a systematic literature review and the PRISMA framework was not followed. Keywords used were call centres, call centers, advantages, benefits, integrated systems, integration, AI, artificial intelligence, customer service, legacy systems. The Scopus and ScienceDirect databases as well as Google Scholar were used to locate the relevant articles over the past twenty years.

5. Discussion

We acknowledge that call centres are systems and people intensive. If either systems or people are impacted as a result of a lack of integration of systems, it will have a negative effect on an organisation, whether failure to effectively service customers or failure to fulfil responsibilities (Ndlovu, Scott & Mars 2021; Lai & Deng 2018). Call centre staff are predominantly young persons, most of which are within their twenties (Rivera-Rentas 2019). These staff members have not necessarily had the job experience and tenure to allow them to easily adapt to change within call centres. With the introduction of new systems or the integration of additional systems, the way in which work is performed within the call centre will change and necessitate the upskilling of current call centre agents (Nord, Koohang & Paliszkiewicz 2019). To anchor and support envisaged changes, effective change management will need to be introduced to facilitate a smooth transition to the changes.

System integration has the added risk of more information being compromised should a security breach occur. Additional security layers would need to be added to enhance total system security (Duggineni 2023). Single access which provides easy access to multiple applications increases this risk. To address this risk, sufficient controls and mandates must be introduced to manage access to the various datasets, enable access to authorised users only and have sufficient verification protocols in place to protect valuable information (Ghelani, Hua & Koduru 2022). The upgrade of legacy systems addresses the risk of outdated systems that can to some degree curb the vulnerability in the systems. System failures or information gaps make call centre staff roles more challenging and thereby hindering their ability to attend to customer requests.

Call centre staff are dependent on technology to be able to perform their call centre responsibilities (Patterson 2015). IoT is in use in call centres through a variety of technologies albeit that these technologies are not currently integrated. If literature has shown us that there are numerous benefits of using integrated systems in call centres to benefit both operations and customers; why are organisations delaying the upgrade of legacy systems? With a 32.1% unemployment rate in South Africa (StatsSA, 2024), there may be intentional delays to introduce full integration that could replace many jobs. Business disruption is also a consideration regarding system upgrades or integration initiatives as it could severely impact business operations. It is well known that call centre technologies are expensive and hence organisations may opt to defer the replacement of legacy systems (Teichmann, Boticiu & Sergi 2023). However, organisations should approach system updates by way of analysing the costs versus the efficiency benefits of introducing new technologies into their call centres. These benefits can be measured in terms of efficiencies that can be translated into cost optimisation as well as increasing profitability per customer by having critical information on hand to enable upselling and cross selling of products. Increased sales will over time yield organisational income that will offset technological investment costs over a period of time.

The integration of IoT and other technologies will allow for streamlining of processes and the creation of efficiencies by addressing customer objectives where more personal and efficient services are demanded (Fluss 2020). However, should automation technologies like chatbots and robotics in call centre be integrated, automation and predictions can be used to create efficiencies that may negatively affect job security as a result of less staff required to fulfill certain operational tasks. Digital twins can assist with failover and backup systems to preserve data for organisational continuity in emergency situations that may include disasters and security breaches (Jiang, Yin, Li Luo & Kaynak 2021). Big data can facilitate the management of big datasets that can be translated into intelligence for managers to make better informed operations land strategic information.

6. Conclusion

There is no doubt that call centres play a pivotal role in organisations' service delivery models. This paper highlights the barriers and challenges that inhibit call centres from delivering exceptional customer service due to lack of integration of systems. The evolution of call centres from simply accepting and making telephone calls to an omnichannel using technologies such as AI and IoT amidst call center staff is explained. Various 4IR technologies have been incorporated into call centres but the use of legacy systems still stunts operational efficiency. Bi-directional interoperability between different organisational systems involves the sharing and exchange of data between various systems and software to enable effective business functions and this is largely absent due to the use of legacy systems. Organisations have not capitalised on the gains of interoperability due to the complexity of legacy systems to integrate and streamline communications between different systems, as well as the immense costs required.

Customers exercise choice across various competing organisations, hence organisations must understand customer requirements and needs to ensure consistent and positive experiences across all touchpoints, necessitating integration of data and information sharing. The successful integration and ultimate interoperability of 4IR technologies will create a powerful ecosystem where data flows seamlessly, leading to more efficient and effective operations across various domains. Call centre staff will be equipped to service customers more effectively by accessing all required systems from a centralised platform as opposed to accessing snippets of information from different systems to achieve first call resolution. In addition, automation technologies could be introduced that would remove mundane tasks from operational staff and assist with creating efficiencies through automation or chatbots. With the increase in the availability of information, it will be essential to adapt security measures due to an increase in vulnerability and risks measures to protect customer information.

It is recommended that organisations use the information in this paper as a departure point to assess their own call centres environments for possible improvements to the introduction of newer IoT technologies, architecture and nosiness processes. To support a seamless customer experience irrespective of channel, organisations can assess the viability to introduce an omnichannel strategy which will provide a 360 view of customers and it is recommended that call centres contextualise system integration in the context of their channel mix. The configuration of call centre staff and technologies must be clearly defined and incorporated into the organisation's standard operating procedures. Future studies can be conducted to determine why organisations do not prioritise the effort to upgrade legacy systems if they acknowledge that it is important and most probably way overdue.

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Biographies

Michael Berning is currently a Master's degree student from the Department of Operations Management at the University of South Africa studying towards a Master of Commerce in Business Management. His study focuses on analysing important information collected during the data gathering process that could assist the researcher to explore how the integration of systems can enhance interoperability in call centres. He has extensive call centre knowledge with more than 24 years spent in banking and insurance call centres.

Anthea Amadi-Echendu is a senior lecturer at the University of South Africa. She holds a Master of Commerce degree from the University of South Africa and a Doctor of Philosophy degree from the University of Pretoria. Anthea has presented various national and international conference papers and published several journal papers. She holds directorships of the Society of Operations Management in Africa (SOMA) and Destiny Environmental and Infrastructure Development (Pty) Ltd. Anthea is also a founder member of SOMA. In addition to academia, she has more than 15 years' industry experience on various levels.

Sugandren Naidoo is currently employed at the University of South Africa (UNISA) as an Associate Professor in the department of Operations Management. Prior to becoming an academic, he was in industry for 20 years and worked for world class organisations where he gained first-hand experience in the field of Operations management. His

Doctorate focused on operational research and organisational efficiency. His research interests include quality management and operations management with the focus on 4IR.