



Factors affecting the adoption of contactless technologies in supply chain and logistics

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Background: Digital transformation has significantly reinvented the systems and operations in the supply chain and logistics industries, enabling organisations within the industry to be able to deliver higher value to customers at a lower cost. Some of the technologies that have taken up the industry by the storm include contactless technologies such as radio frequency identification, near-field communication, mobile wallets, smart cards, touchless check-in and robots. Adoption of these technologies has grown exponentially since the coronavirus disease 2019 (COVID-19) outbreak, as organisations were forced to transform business operations from physical to digital.

Objective: The study objective was to explore factors affecting the adoption of contactless technologies in the supply chain and logistics industry. The study has adopted the technological, organisational and environmental (TOE) framework to explore the technological, organisational and environmental factors affecting the adoption of contactless technologies in the industry.

Method: The study adopted the quantitative content analysis research design and systematic literature review method to explore factors affecting contactless technologies adoption in the supply chain and logistics industry. Furthermore, a literature matrix was developed and used as an instrument to explore the TOE factors affecting the adoption. After the collection of data, findings were presented and analysed.

Conclusion: The results suggest that technical (cost, value and security), organisational (change and management) and environmental factors (customer demand) affect contactless technologies adoption in the supply chain and logistics industry. The study contributes to the body of knowledge of factors affecting the adoption of contactless technologies in the supply chain and logistics.

Keywords: digital transformation; contactless technologies; supply chain; logistics; COVID-19; TOE framework.

Introduction

The digital transformation has disrupted many industries with the supply chain and logistics sectors, without an exception (Buller 2020). Fountaine, McCarthy and Saleh (2021) said:

[S]everal technologies have been recognized as the critical enabler of the pursuit to achieve the level of customization, personalization, and operational efficiency necessary to compete in an increasingly fast-paced, digital environment. (p. 2)

Since the coronavirus disease 2019 (COVID-19) outbreak, several industries have adopted several technologies because of the impact of the pandemic on business operations. In response to the COVID-19 pandemic, several businesses adopted emerging technologies to remain operationally viable during the lockdown period. In addition, several consumers also opted for online purchasing as a way to reduce the risk of COVID-19 transmission through contact shopping and the lockdown inconvenience (Holmez 2020).

Thus, several industries adopted emerging technologies in response to the increase in demand for safety, operational viability, security and other factors associated with the pandemic (Buller 2020). The study objective was to explore factors affecting the adoption of contactless technologies in the supply chain and logistics industry. The study used the content analysis research design and systematic literature review (SLR) method to explore factors affecting the adoption of contactless technologies in the supply chain and logistics industry. The rest of the paper is structured as follows: Section 2 presents the literature review, Section 3 the research methodology, Section 4 the research results and the final Section 5 research discussion and conclusion.

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Literature review

The adoption of emerging technologies has grown exponentially since the COVID-19 outbreak, as organisations were forced to transform business operations from physical to digital (Buller 2020). Some of the technologies that have taken up the supply chain and logistics industry by the storm include contactless technologies such as radio frequency identification (RFID), near-field communication (NFC), mobile wallets, smart cards, touchless check-in, robots, online ordering system, contactless deliveries, etc. (Holmez 2020). Thus, several industries adopted contactless technologies in response to the increase in demand for contactless services, safety and security by consumers (Buller 2020). While several technologies have disrupted the supply chain and logistics industry, the study focuses on contactless technologies in the supply chain and logistics industry.

Overview of contactless technologies

The word contactless means not involving contact, not requiring touching between people and objects. The word technology, on the other hand, refers to a skill, a method and/or a process used to achieve goals. Contactless technologies can thus be described as touch-free solutions. Holmez (2020) argues that contactless processes free up a business's most valuable asset – its people – from having to worry about manually comparing inventory against contract terms and potentially missing critical contractual terms. Several businesses have seen contactless technologies as a way of providing services and goods to customers eliminating human contact from ordering to fulfillment. Buller (2020) noted that the COVID-19 pandemic has accelerated emerging technology adoption in several industries since consumers have been forced to stay at home and increase online shopping.

Toner (2020) added that even government departments have accelerated the adoption of contactless technologies in response to the COVID-19 pandemic to remain operational during the lockdown period. Some types of contactless technologies available for adoption by the supply chain and logistics industries include contactless payments, RFID, AI (artificial intelligence) and electronic grocery (e-grocery). Puriwat and Tripopsakul (2021) defined contactless payments as 'any payment transaction that requires an absence of physical contact between the customer's payment device and the physical terminal'. Amsler and Shea (2021) defined RFID as:

[A] form of wireless communication that incorporates the use of electromagnetic or electrostatic coupling in the radio frequency portion of the electromagnetic spectrum to uniquely identify an object, animal, or person. (p. 1)

Kaplan and Haenlein (2019) defined AI as 'a system's ability to interpret external data correctly, learn from such data and use those learnings to achieve specific goals and tasks through flexible adaptation'. Cagliano, De Marco and Rafele (2017) defined e-grocery as 'the process of ordering groceries from home in an electronic way and either having them

delivered at one's house or collecting them at a store or a pick-up point'.

Despite several benefits associated with the adoption of contactless technologies in industries, including safety and improved business processes, some challenges come with these contactless technologies. To mention a few, the smart cards that support contactless payments can be expensive, and not all smart card readers are compatible with all smart card types (Rosencrance & Cobb 2021). With regard to the RFID, the two main issues that arise with the adoption of an RFID are the reader and tag collision (Amsler and Shea 2021).

Adoption of contactless technologies in the supply chain and logistics industry

Lummus, Krumwiede and Vokurka (2001) defined logistics as:

[A]ctivities that involve the movement of physical goods from one location to another and supply chain as all the activities involved in delivering a product from raw material to the customer. (p. 3)

The supply chain definition thus implies that the logistics function is a subset of supply chain function (Lummus et al. 2001). Merlino and Sproge (2016) highlighted that the supply chain function has seen rapid adoption of emerging technologies such as big data, robotics and AI among others in response to rapid environmental changes and become more sustainable. The current supply chain environment has become more complex and hence the next of the digital transformation is to remain sustainable.

Contactless-enabling solutions empower organisations to boost supply chain efficiencies and ensure employee safety (Holmez 2020). Several emerging technologies have seen the disruption and revolutionisation of the retail customer experience, enabling customers to shop from anywhere and anytime (Hansen & Sia 2015). Cagliano et al. (2017) highlighted that the COVID-19 era has seen many organisations within the supply chain entering the e-grocery industry as a business model to remain operational and financially viable. However, it must also be noted that one of the greatest challenges of adopting some of the contactless technologies is the fact that they are costly to adopt and implement.

Related studies

Several related studies have been conducted on the adoption of emerging technologies in supply chain and logistics. Kim, Kim and Hwang (2020) conducted a study on drone food delivery services during the COVID-19 pandemic. The results suggested indicated higher behavioural intention from the consumer on drone food delivery services during the lockdown. Rejeb et al. (2021) also conducted a study on drones for supply chain management and logistics. The study performed adopted an SLR on the dynamics of drone delivery in supply chain and logistics. They collected a total of 55 published articles. A study by Yuksel and Yuksel (2021) looked

at RFID technology in business systems and supply chain management. The study proposed RFID technology and its system structure and further presented the impacts of RFID technology on business systems in supply chain management.

Other related studies further discuss the application of other technologies and systems, such as robots, IoT, contactless payments, mobile wallets and NFC (Buller 2020; Holmez 2020). It is thus evident that the mostly adopted methodology in this field of study is the SLR. However, there have been very few studies that adopted the technological, organisational and environmental framework. The study adopted the technological, organisational and environmental (TOE) framework as a theoretical lens to explore the factors that are affecting the adoption of contactless technologies in the supply chain and logistics industry.

Technological, organisational and environmental framework

The study adopted the TOE framework (Tornatzky & Fleischer 1990), which is the most popular used for studying the adoption of emerging technologies in organisations (Gutierrez, Boukrami & Lumsden 2015). The TOE framework (Tornatzky et al. 1990) posits that the adoption of technology at an organisational level is influenced by three different elements: technological, organisational and environmental (Hossain, Standing & Chan 2017). Technological factors include both the internal and external technologies relating to the organisation. The technological factors include factors such as relative advantage, ease of use and cost (Kuan & Chau 2001). Chau and Tam (1997) noted that the main characteristics of the organisational factors include internal and external resources' organisation structure, size, management support, skills and organisational culture. Tripopsakul (2018) said 'the environmental context of the framework refers to a business environment in which the organisation conducts its business such as industry, competitors and technology service providers'. Figure 1 illustrates that an organisation's decision to adopt new innovative technology is influenced by technological, environmental and organisational factors. It further shows the various components of each factor that affects the adoption of the new technology.

Research design and methodology

The purpose of this section is to illustrate how the research was done and also to describe the research design as well as the variables used in the study, to provide the reader with the ability to evaluate the reliability and validity of the study. This section will therefore cover the research design, unit of analysis, design of the instrument, data sources and sampling, as well as the data collection technique used in this study.

Research design

Terre Blanche et al. (2006) defined a research design as 'a strategic framework for action that serves as a bridge between

research questions and the execution or implementation of the research'. The author further added a research design that provides the guideline for the procedure of data collection and data analysis to achieve the research objectives. The study adopted content analysis as the research design. Stemler (2001) said, 'content analysis provides an empirical basis for monitoring shifts in public opinion'. According to Mouton (2001:167), content analysis is described as studies that analyse the content of texts or documents and can be both qualitative (thematic: chronological) and quantitative (descriptive statistics).

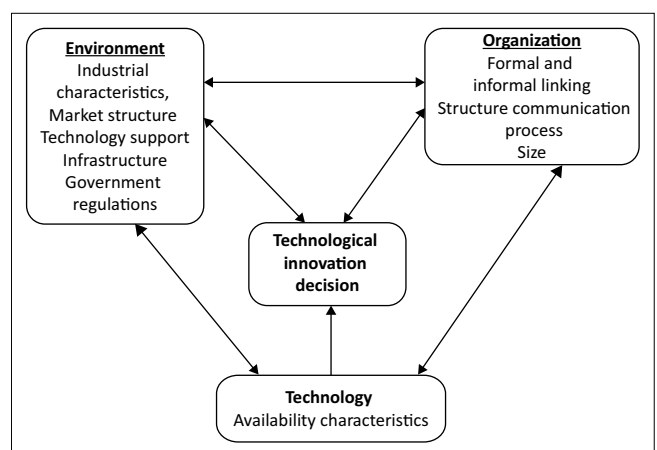
The study adopted the quantitative content analysis to achieve the research objectives. Lock and Seele (2015) defined quantitative content analysis as:

[T]he systematic and replicable examination of symbols of communication, which have been assigned numeric values according to valid measurement rules, and the analysis of relationships involving those values using statistical methods, to describe the communication, draw inferences about its meaning or infer from the communication to its context. (p. 4)

The study collected secondary data from published articles on factors affecting the adoption of contactless technologies in the supply chain and logistics industry.

Unit(s) of analysis

Dolma (2010) defined a unit of analysis 'as the entity that is being analysed in scientific research'. Babbie and Mouton (2005) said, 'a unit of analysis has the following common social science units of analysis: individuals, groups, organisations and institutions, social artifacts/cultural objects, social actions and interventions'. The unit of analysis type for this study is organisational, with the unit of analysis being the organisations within the supply chain and logistics industry. This is because the identified problem of this study focuses on how the adoption of contactless technologies in supply chain and logistics affects the organisations within the industry. Thus, the unit of analysis



Source: Tornatzky, L.G. and Fleischer, M., 1990, 'The Processes of Technological Innovation', Lexington Books, Lexington

FIGURE 1: Technological, organisational and environmental framework.

TABLE 1: Technological, organisational and environmental factors influencing the adoption of contactless technologies in supply chain and logistics.

Technological factors	Organisational factors	Environmental factors
Security	Firm size	Competition
Value	Change	Policy
Compatibility	Objectives	Customer demand
Cost	Readiness	Industry pressure
Complexity	Management	Vendor
Service quality	Skills	-

is an organisation within the supply chain and logistics industry.

Design of the instrument

The search for the articles was conducted using the keywords of this study and also by substituting the keywords with their synonyms for better search results. A total of 50 articles were collected. Furthermore, this study made use of a literature matrix, which was used to classify and categorise the collected literature that is relevant to the study. Data were extracted from the collected literature and transferred onto an excel spreadsheet where it was scored using the matrix scorecard. The demographic data that were extracted from the collected literature include the author(s), year the articles were published, research method, research design, the region in which the article was published and its framework. The three categories that were used in the matrix to score the literature are technological factors, organisational factors and environmental factors. The literature was therefore scored according to the factors (subcategories) of these categories that appear in the author's literature. For example, if an author's literature revealed organisational factors and identifies the business processes or business strategies to adopt these technologies, the literature will be given a score of 1. And in an instance where the literature did not identify any factor, it was then given a score of 0. The TOE framework was adopted, along with its various factors, as a guide to conceptualising the categorisation of the literature on the matrix. The factors that are used in the literature matrix for this study are shown in Table 1.

Data sources and sampling

Peer-reviewed journal articles were used as sources of data for this study. These peer-reviewed journal articles were collected from easily accessible publishing houses such as Google Scholar, Taylor & Francis Online and Elsevier. This study, therefore, adopted the convenience sampling technique, meaning that the samples in the case of this study are articles that have open access. The journal articles that were collected range from the year 2010 to 2021. The purpose was to observe whether the adoption of contactless technologies was significantly influenced by the changes and demands that came with the COVID-19 pandemic. This study, therefore, made use of the nonprobability sampling strategy. Etikan and Bala (2017) defined a nonprobability sampling strategy as:

[A] sampling procedure that will not bid a basis for any opinion of probability that elements in the universe will have a chance to be included in the study sample.

Various sampling techniques fall under this sampling strategy; the one that will be used in this study is the judgemental or purposive technique. Etikan and Bala (2017) defined a judgemental or purposive technique as 'a sampling design that is based on the judgment of the researcher as to who will provide the best information to succeed for the objective of the study'. This was therefore the appropriate technique to use for this study because it gives the researcher the ability to decide on which of the existing literature that will be collected is most relevant to the study and will provide the factors affecting the adoption of contactless technologies in supply chain and logistics.

Data collection technique

On a general basis, a research methodology can be described as the specific procedures and techniques that are used to identify, select, process and analyse information about the selected area of study. The study adopted the SLR method to achieve the research objective. Okoli and Schabram (2010) defined a systematic review as 'a systematic, explicit and reproducible method for identifying, evaluating and synthesising the existing body of completed and recorded work by researchers, scholars and practitioners'. The study used secondary data collected, analysed, categorised and scored based on the literature matrix following the TOE framework. The study adopted the SLR method which uses secondary data content analysis along with the TOE framework to explore the factors affecting the adoption of contactless technologies within the supply chain and logistics industry.

Data analysis

To explore the factors that are affecting the adoption of contactless technologies in supply chain and logistics, the content analysis method is the adopted research method. Stemler (2001) defined content analysis 'as a systematic, replicable technique for compressing many words of text into fewer content categories based on explicit rules of coding'. Upon completion of the literature review, the data collected were analysed and classified according to the literature matrix as explained in Section 'Analysis of variance'. The literature matrix thus served to provide the findings on the factors affecting the adoption of contactless technologies within the supply chain and logistics. The factors with the highest scores will therefore be the ones that are going to be used. Based on data that were collected, it was analysed based on demographic findings, which include the articles by year, region, design, research method and the framework. More findings on the TOE factors influencing the adoption of contactless technologies in supply chain and logistics were presented and analysed. Furthermore, an analysis of variance (ANOVA) between total constructs and region was conducted, along with the correlation based on year.

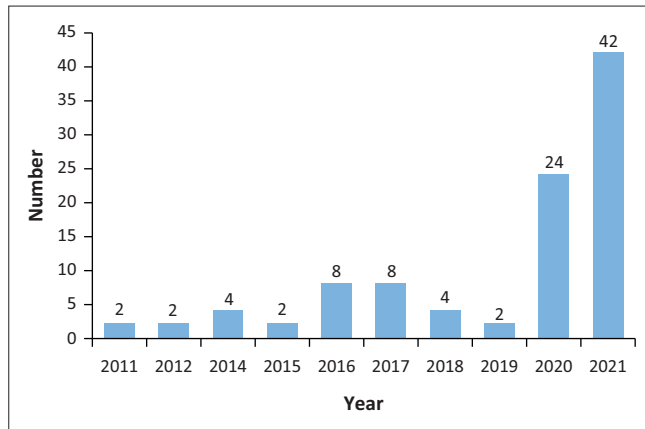


FIGURE 2: Articles by year.

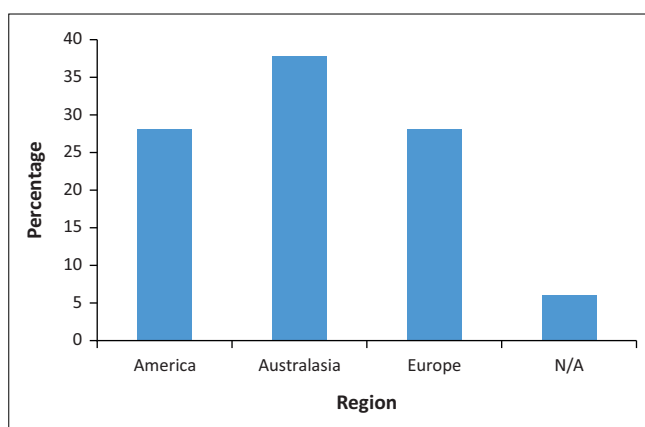


FIGURE 3: Articles by region.

Ethical considerations

This article followed all ethical standards for research without direct contact with human or animal subjects.

Research results and discussion

This study was conducted to explore the factors that affect the adoption of contactless technologies in supply chain and logistics. This section, therefore, presents the research data that were taken from the 50 articles collected and analysed in this study. The section first presents and briefly discusses the demographic data, which include articles by year, region, methodology, research design and research framework, followed by the technological, organisational and environmental factors.

Demographic findings

Articles by year

Figure 2 shows the study results of the articles published from the year 2010 to 2021, which show that there was little to no research done relating to the study before the year 2010. The contactless technologies started to increase only after the year 2011. The graph also shows the significant increase in articles published in the years 2020 and 2021, with 24% of the articles published in 2020 and 42% published in 2021. This could be because of the growing and rapid

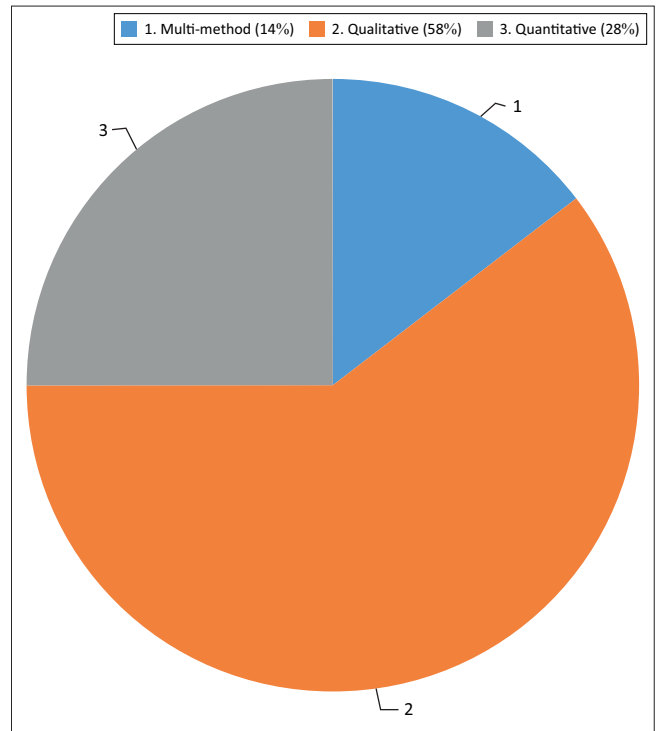


FIGURE 4: Articles by methodology.

implementation of contactless technologies in the supply chain and logistics in response to the demands of the COVID-19 outbreak.

Articles by region

The study outcomes of publications published in various regions are depicted in Figure 3. Australasia has the biggest percentage of publications published within its borders, accounting for 38% of all articles. America and Europe came in second and third, respectively, with 28% of the articles in each region. The last 6% of articles, denoted by the letters N/A in Figure 3, did not mention the region in which they were published. According to the study findings, none of the 50 articles gathered were published in the African region, indicating that the region has not conducted much research on the study. Furthermore, the findings demonstrate that Australasia is the leading continent in research relating to contactless technologies in the supply chain and logistics industries, with America and Europe trailing behind.

Articles by methodology

Figure 4 shows a pie chart depicting the frequency of research methodologies employed in all 50 publications analysed, which were published between 2006 and 2021 on the factors affecting the adoption of contactless technologies in supply chain and logistics. With a frequency of 58%, the majority of the articles gathered used the qualitative research approach. The quantitative approach was the second most popular research method, with a frequency of 28%. The multimethod technique has a frequency of 14%, indicating that it is the least commonly used methodology for researching contactless technologies adoption. The findings, therefore, indicate that the qualitative approach was preferred by

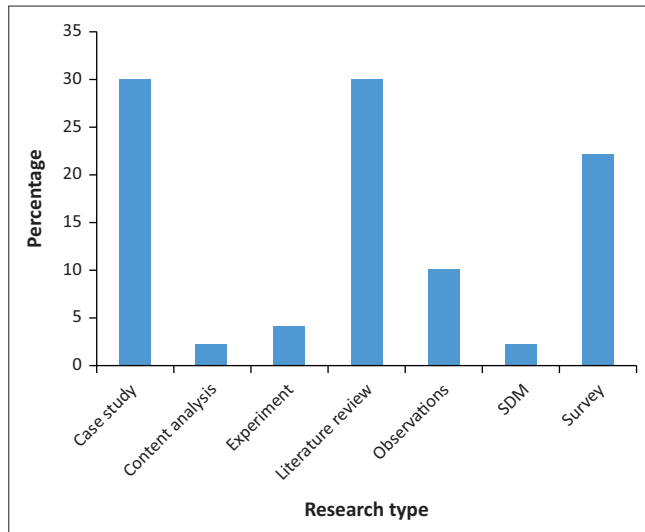
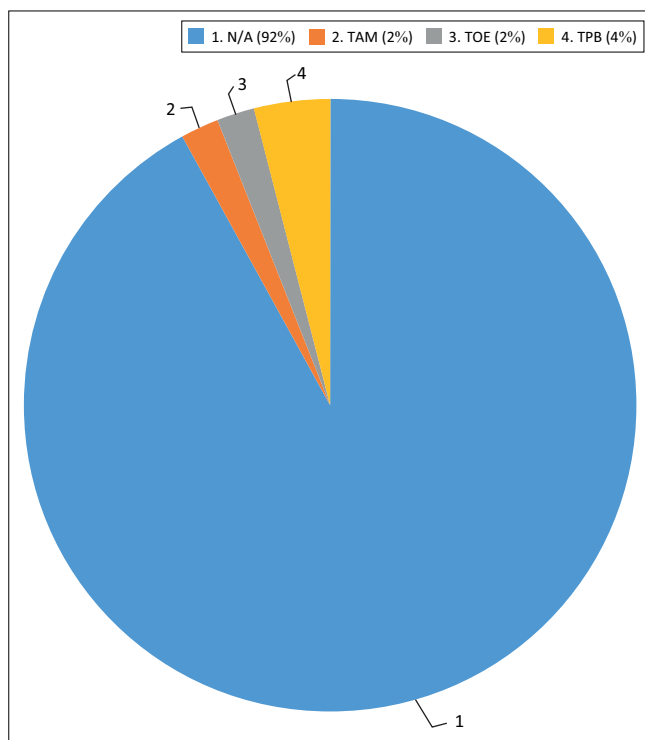


FIGURE 5: Articles by design.



TOE, technological, organisational and environmental; TPB, theory of planned behaviour; TAM, technology acceptance model.

FIGURE 6: Articles by framework.

academics who researched the adoption of contactless technologies.

Articles by design

Figure 5 shows a graph depicting the frequency of research design employed in all 50 publications analysed, which were published between 2006 and 2021 on the factors affecting the adoption of contactless technologies in supply chain and logistics. According to the results, the most commonly used research types are case studies and literature reviews, each of which has a 30% frequency, followed by surveys, which have a 22% frequency. Following surveys are observations, with a

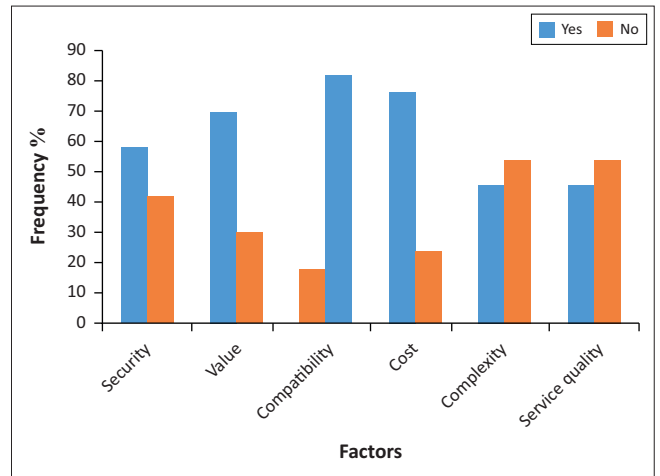


FIGURE 7: Technological factors.

frequency of 10%, and experiments, with a frequency of 4%. Furthermore, the results suggest that content analysis and Simulation Data Management framework (SDM) were the least preferred research types with each type holding a frequency of 2%.

Articles by framework

Figure 6 shows a pie chart depicting the frequency of research design used in all 50 publications analysed, which were published between 2006 and 2021 on the factors affecting the adoption of contactless technologies in supply chain and logistics. The frameworks that were used in the article include the TOE framework, the technology acceptance model (TAM) and the theory of planned behaviour (TPB). The majority, with a frequency of 92%, of the articles did not indicate the framework used for the studies, which are indicated as N/A in the pie chart. The TPB framework had 4% frequency. Finally, the results suggest that the TOE and TAM frameworks were the least used frameworks in the studies conducted from 2016 to 2021, with each of the two frameworks holding a frequency of 2%.

Technological, organisational and environmental findings

This section presents the findings on the technological, organisational and environmental factors affecting the adoption of contactless technologies in the supply chain and logistics industries.

Technological factors

This study measured six technological factors affecting the adoption of contactless technologies within the supply chain and logistics industries. The technological factors include security, value, compatibility, cost, complexity and service quality. Figure 7 presents the frequencies of these technical factors. The results suggest that the cost factor, with a frequency of 76%, is the most important factor that organisations should consider before adopting contactless technologies. With a frequency of 70%, the cost is followed by a value, implying that organisations in the industry must first

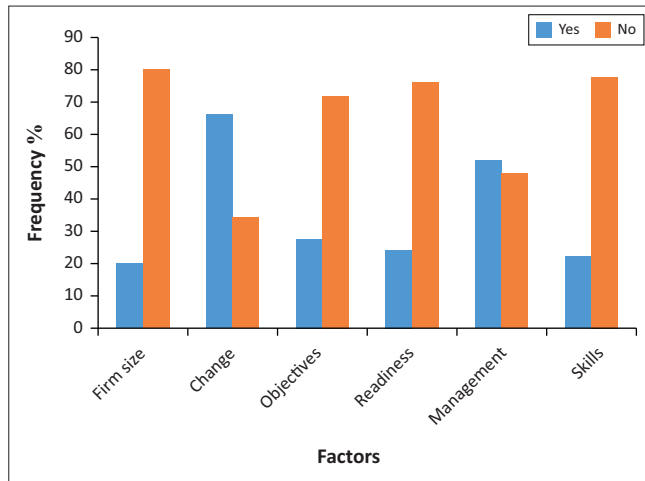


FIGURE 8: Organisational factors.

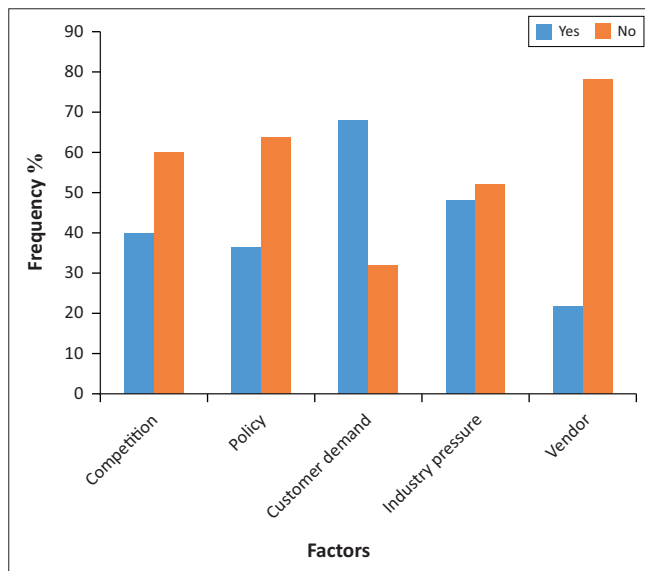


FIGURE 9: Environmental factors.

determine the value of the technology before deciding to invest in it. The security factor comes next, holding a frequency of 58%. Security is then followed by the complexity and service quality factors, both of which have a frequency of 46%. Very few of the articles gathered discussed the compatibility factor, as it is the factor with the lowest frequency (18%). This, therefore, suggests that few studies have looked into compatibility; however, ranking last does not necessarily imply that it is unimportant.

Organisational factors

This study measured six organisational factors affecting the adoption of contactless technologies within the supply chain and logistics industries. The organisational factors include firm size, change, objectives, readiness, management and skills. Figure 8 presents the frequencies of the organisational factors. The results show that 66% of the articles discuss the change factor, which suggests that the change that comes with the adoption of the new contactless technologies is something that organisations need to consider when deciding

TABLE 2: Analysis of variance by region.

Variable	F	Significance
T3_Compatibility	2.28	0.032
E5_Vendor	3.10	0.005
E1_Competition	3.16	0.034
E2_Policy	2.96	0.041

on adopting contactless technologies. Change is followed by the management factor with a frequency of 52%, then by objectives (28%), readiness (24%) and skills (22%), and lastly by firm size with a frequency of 20%. The results also show that for almost all the organisational factors, there is a high-frequency percentage of articles that did not discuss these factors. It is thus possible that very few studies have been conducted that have addressed the organisational factors influencing the adoption of contactless technologies in the supply chain and logistics industry.

Environmental factors

This study measured five environmental factors affecting the adoption of contactless technologies within the supply chain and logistics industry. The environmental factors include competition, policy, customer demand, industry pressure and vendor. Figure 9 presents the frequencies of the environmental factors. The results show that 68% of the articles gathered discussed the customer demand factor. This, therefore, is an important factor that, in most cases, pushes organisations within the industry to adopt and implement contactless technologies. With a frequency of 48%, customer demand is followed by industry pressure. Following industry pressure is competition (with a frequency of 40%), policy (with a frequency of 36%) and vendor (with a frequency of 22%). With the vendor factor ranking last, it indicates that few studies have looked into this factor, which could imply that future studies should look into and discuss vendor capability more.

Analysis of variance

Scheffe (1999) defined the ANOVA as 'a statistical technique for analysing measurements depending on several kinds of effects operating simultaneously, to decide which kinds of effects are important and to estimate the effects'. This section discusses the ANOVA between the demographic variables and total constructs. Table 2 shows the variables that were found to be significant, with significance that is below 0.05. A test was done to compare whether construct variables were influenced by region. According to the findings, compatibility was significantly based on region, with a significance of 0.032. The table also shows that the other significant construct variables are environmental factors, which include vendor (0.005), competition (0.034) and policy (0.041). These findings suggest that these variables are regarded as important in some regions but not in others. The rest of the construct variables was found to be not significant as their significance was above 0.05.

Correlation

This section discusses the correlation between year and the different variable constructs. Table 3 illustrates the variables

TABLE 3: Correlation between year and constructs.

Variable	Pearson correlation	Significance (two-tailed)
T1_Security	-0.395	0.004
T3_Compatibility	-0.315	0.026
T4_Cost	-0.291	0.040
O3_Objectives	-0.332	0.018
E5_Vendor	-0.365	0.009

that had a significance that was below 0.05 based on year, as well as the relationship between the construct variables. The findings show that there was a negative relationship between the year and the different variables, which suggests that as the years progressed, each of the variables was becoming less of an issue. Although there is a negative relationship between year demographic variables and the construct variables, they are still significant because their significance is below 0.05 as shown in Table 3. The rest of the construct variables were found to be not significant as their significance was above 0.05.

Discussion and conclusion

The objective of the study, which adopted the TOE framework, was to explore factors affecting the adoption of contactless technologies in the supply chain and logistics industry. To answer the study question and achieve the research objectives, a total of 50 published articles were collected and analysed.

The study results suggest that cost, value and security were the main technological factors that influence the adoption of contactless technologies in supply chain and logistics industry with the highest frequencies (above 50%). These findings suggest that the decision to adopt the technology is influenced by how much it will cost for the organisation, the value the technology will add to the organisation and how secure it is. The results support the previous studies that the key factor of widespread usage of the RFID technology is its cost. The previous studies also showed that the technological factors such as security, compatibility and cost were significant factors.

The study results also showed that the main organisational factors that influence the adoption of contactless technologies in supply chain and logistics industry are change and management, as these factors had the highest frequencies. These results suggest that the changes brought by adopting these technologies, along with the support and drive from top management, were important factors. The results support the previous studies that mentioned that internal resources, competent management and skilled labour were important factors affecting the adoption of technological innovation (Lin & Ho 2009).

The study results showed that customer demand is the main environmental factor that influences the adoption of contactless technologies in supply chain and logistics industry, as it was the one with the highest frequency. This, therefore, suggests that customers' demands and expectations have the greatest influence on an organisation's decision to adopt contactless technologies. The study supports previous studies that indicated that customer demands influence technological innovations in an organisation as a means of

trying to be sustainable and to collaborate with customers (Hwang, Huang & Wu 2016), meaning that a company's decision to adopt new technologies is influenced by the need to maintain its competitive advantage and to meet customer demands and expectations. The findings also showed that the significant environmental factors such as competition, policy and vendor were significant. The study results suggest that technological innovation is seen as important to maintaining a competitive advantage by organisations (Lin & Ho 2009).

In conclusion, the study achieved its objective of exploring factors that affect contactless technologies in the supply chain and logistics industry. The results suggest that technical (cost, value and security), organisational (change and management) and environmental factors (customer demand) affect contactless technologies adoption in the supply chain and logistics industry. The study contributes to the body of knowledge of factors affecting the adoption of contactless technologies in the supply chain and logistics industry. The study results can be useful to practice in terms of decision-making during contactless technologies in the organisation. The study also has limitations in that it was based on nonempirical data (SLR) and convenience sampling. The limitation therefore also provides an opportunity for further studies using other research designs and methods.

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Competing interests

The authors declare that they have no financial or personal relationships that may have inappropriately influenced them in writing this article.

Authors' contributions

The work was an honours degree project for S.B. who was under the supervision of O.J.

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Data availability

Data sharing is not applicable to this article as no new data were created or analysed in this study.

Disclaimer

The views and opinions expressed in this article are those of the authors and do not necessarily reflect the official policy or position of any affiliated agency of the authors.

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