

**THE ROLE OF DIGITISATION IN
ENHANCING SUPPLY CHAIN
INTERNATIONAL BUSINESS: A
QUANTITATIVE STUDY OF THE IRELAND
RETAIL INDUSTRY**

Vineeth Vijayachandran Pillai

Student ID - 21179832

Declaration

I thus affirm that the material given in this research article is entirely original with no unauthorised use of any text, whether published and unpublished. All references and citations for the sources used are accurate. Additionally, I certify that this work hasn't been submitted to another organisation for review or analysis.

Name: VINEETH VIJAYACHANDRAN PILLAI

Date : 08/05/2023

Signature: VINEETH

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Abstract

The paper investigates how digitization has improved global trade in the Irish retail sector. The study examines the effects of digital technology on the supply chain in the retail industry using a quantitative methodology. In particular, the demands, expectations, and input of stakeholders, including retailers, customers, suppliers, and partners, are highlighted in the paper's discussion of the potential problems that the industry's digital transition presents. The research investigates the trend of digitization in the retail industry supply chain of Irish, the impact of digitization on the efficient flow of products and services in the retail industry supply chain, and the use of technology and the consequences of digital services on supply chain international business. According to the study's conclusions, digitalization has allowed the Irish retail sector to take advantage of new possibilities and overcome new obstacles, changing the retail environment as a result. The paper offers insights into how the international trade in the Irish retail industry has benefited from digitalization and how the use of digital technology may make Ireland's retail sector more global and competitive.

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Chapter 1: Introduction

1.1 Chapter Introduction

The digitalization of the retail industry's supply chain has had a significant impact on international business. This study will examine how digitalization has enabled the Irish retail industry to benefit from emerging opportunities and challenges, transforming the current retail landscape. In doing so, the research will provide insights into how digitalization has enhanced international business in this sector.

1.2 Background of the topic

The retail industry supply chain is a cornerstone of economic activity in Ireland, contributing 40.1% of total merchandise exports in 2019 while employing over 180,000 people in the same year. Retailers in Ireland must protect their profitability while responding to an increasingly complex landscape due to rising competition and changing consumer demands. In recent years, the global retail industry supply chain has been rapidly embracing digitization as a means of enhancing international business operations and introducing innovative practises. Digitization has assumed a more prominent role in the Irish retail sector supply chain since the emergence of the COVID-19 pandemic, as businesses seek to adopt digital technologies to resume daily operations safely and boost sales. Digitization involves the adoption of new technologies in the retail sector supply chain that promote engagement, visibility, and operational efficiency. Digitization has the potential to reduce costs, cut the time taken for processes, and increase access to an enlarged customer base for businesses (Alzoubiet et *al.*, 2022). At the forefront of digitization in the retail sector supply chain is the combination of retail-focused technologies and data analytics. Companies are increasingly leveraging consumer data to personalise their product offerings, optimise their marketing, and analyse consumer behaviour to adjust their pricing. This has enabled companies to benefit from better customer insights and unlock potential that had long been overlooked. Mobile applications have also become a critical component of the digitization of the retail sector supply chain (Bryan, Clempner, and Low, 2020). Even though these platforms haven't been widely used by Ireland's oldest retail enterprises, they have been widely adopted by smaller and younger ones. By communicating with customers and providing a portal that is simple to use for ordering products, mobile applications have emerged as a useful tool for improving

the customer experience. Mobile applications have proven to be a key revenue stream for firms in the sector due to the convenience and speed with which users may acquire products. According to reported numbers for 2019, mobile shopping income averaged more than 800,000 in the United Kingdom alone. Web-based entertainment is also becoming a key gadget for retail firms in Ireland. The platforms are being utilised by a lot of businesses to sell things, market services, and engage with customers. The rise of influencer marketing is one piece of evidence of this. Companies are gradually resorting to powerhouse marketing to develop a distinctive brand and harmony with clients. Additionally, man-made consciousness and AI have become progressively obvious inside the retail sector (Cakir, Bezbradica, and Helfert, 2020). ML is being used to optimise product design, evaluate consumer data, and automate inventory management in the supply chain, while AI aids in the automation of routine jobs and increases customer loyalty. Simulated intelligence and ML supply a bigger informational index to examine and empower companies' inventory chains to pursue choices promptly and with more significant precision (Cakir *et al.* 2020). With the rise of technologies like artificial intelligence, machine learning, and data analytics, the retail sector in Ireland is undergoing a digital transformation. While these innovations are being taken on by companies' inventory chains across the area, we still need to sort out how best to carry out these advances.

1.3 Research Rationale

The supply chain in the Irish retail business has significant difficulties as a result of exponential development and increased complexity. Many retail owners are unaware of the advantages that integrating digital solutions can bring to their company's supply chain because a minimal study has been undertaken to establish the effects of digitization on the operation of retail enterprises in Ireland (Duane, 2021). Due to the paucity of research on the effects of digitization on the supply chain of the Irish retail sector, retailers demand more clarity regarding its ability to boost their operations. This study will first examine the current digital landscape of the Irish retail supply chain to discover the primary areas in which digital solutions can be implemented and the role of digitization (Gamage, 2020). Digital technologies and their potential to benefit the Irish retail sector as a whole will also be the topic of the study's in-depth assessment. The research will look at how much merchants are adopting technology and how it affects their performance. The information and bits of

knowledge gained in this investigation will subsequently provide a more clear appreciation of how digitization might be utilised to strengthen firms.

1.4 Research Aim

This research aims to explore the role of digitization in enhancing international business in the Irish retail industry. This research will examine how the introduction of digital technologies can help Ireland's retail sector become more international and competitive. It will also evaluate the challenges and opportunities of digital transformation for the industry, with a particular focus on the needs, expectations, and feedback of stakeholders, namely retailers, consumers, suppliers, and partners.

1.5 Research Objectives

- To assess the trend of digitization in the Irish retail sector supply chain
- To examine the effect of digitization on the smooth flow of goods and services in the retail industry's supply chain.
- To analyse the use of technology and the effects of digital services on supply chains in international business.
- To examine best practices and innovative techniques in the Irish context.

1.6 Research Question

- How has digitization impacted the supply chain of the retail industry in Ireland?
- What are the benefits of the free flow of trade in the Irish retail market due to digitization?
- What are the potential implications of digitization for retail sales growth in Ireland?

1.7 Research Hypothesis

Hypothesis 1: It can be assumed that retail in Ireland is currently experiencing a transformation due to the increasing digitization of the sector. Nowadays, digital tools play a key role in ensuring the shopper's journey is enhanced and successful. This can help improve

the customer experience in-store by providing them with more information and intelligence than was available in the past.

Hypothesis 2: This increased level of customer-centricity allows retailers in Ireland to track essential metrics that can help them make more informed decisions, which can improve their supply chain overall (Ganda, 2022). The research hypothesis suggests that the incorporation of digital tools into the processes of retail businesses' supply chains in Ireland has an impact on their performance and ability to interact with and attract customers on an international business level.

Hypothesis 3: It is hypothesised that the increased use of digital tools within retail business supply chains has had a positive effect on their ability to compete in the global market and foster trading relationships with other businesses, contributing to the Irish economy. It is therefore predicted that the introduction of digital technologies has improved the operational efficiency and customer experience of the Irish retail industry and ultimately enhanced its overall international business activity.

1.8 Research problem

In Ireland, limited data indicate the impact that digital technology has had on the retail sector's supply chain. Specifically, research has yet to be conducted to track the Irish retail sector's growth rate and assess whether the implementation of digital technology has enabled businesses' supply chains to flourish successfully. There needs to be more insight into how digital technology can continue to improve the spectrum of sales an Irish retail business can achieve in the future (Gromova, Timokhin, and Popova, 2020). Thus, it is crucial to gain a better understanding of this ever-changing relationship between digital technology and the retail sector supply chain in Ireland to maximise its value in an increasingly digital and competitive business world.

1.9 Research Significance

The research into the role of digitization in the Irish retail sector can provide valuable insight into strategies for enhancing the international business capabilities of Ireland's retail industry. The retail industry employs a significant number of people in Ireland, and its economic output is an essential component of Ireland's economy. This evaluation can provide a better appreciation of how digitalization can be employed to further create corporate efficiencies and tap into new global business sectors (Keogh, 2021). (Keogh, 2021). Policymakers can

use the research's findings to learn the best strategies to encourage the industry's further globalisation. Also, it may serve as a good model for other governments or sectors contemplating the strategic application of digitalization to boost economic growth. At long last, it can assist in uncovering best practices that can be reproduced by different nations or places around the world, empowering the advanced alteration of their economies.

1.10 Chapter Summary

The supply chain management landscape in Ireland has altered as a result of the retail industry's digitalization. Better order and stock planning, increased adaptability, and a shorter time to market are all benefits of digitalization. These techniques are a crucial step in meeting client expectations and realising the industry's potential.

Chapter 2: Literature Review

2.1 Chapter Introduction

Digitization is transforming the worldwide business environment, and its effect on the inventory network of the board is especially crucial. The objective of this literature review is to provide a description of the most recent advancements in digitization theory and practises as well as an examination of how these shifts have affected the retail business in Ireland. The audit will try to draw out crucial repercussions for the effective execution of computerised systems.

2.2 Theoretical Themes

2.2.1 Trend of Digitisation in the Irish retail sector supply chain

According to McTiernan (2021), one of the most significant current trends in the industry is the digitalization of the supply chain for the retail sector. The retail business has seen a substantial shift towards a more digital approach to supply chain management as a result of technological improvements. Digitization has helped firms lower expenses, concentrate on functional competency, boost client loyalty, and reinforce the upper hand they have over the opposition. In the retail industry, huge cost savings are the key benefit of digitalization. Businesses can enhance operational efficiency, cut operational expenses, and speed up manual procedures via digitization. Businesses that use a supply-chain network to get goods

and resources from around the world may particularly profit from this. Businesses can speed up the entire process, streamline transportation and inventory management, and quickly locate cost-effective suppliers by digitising the supply chain.

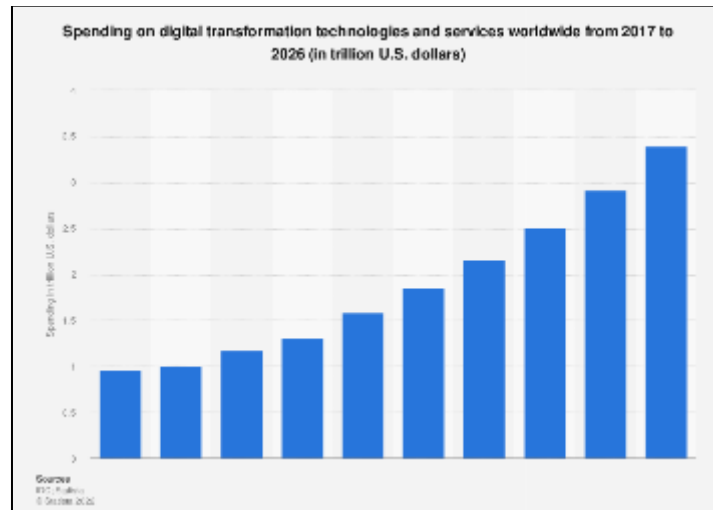


Figure: Global digital transformation spending

(Source: Sava, 2022)

In addition, Okpala and Korzeniowska (2021) claimed that digitalization boosts the capacity to trace and monitor the movement of goods and commodities across the supply chain. Businesses can spot issues like delays and errors more rapidly as a result of this, thereby minimising downtime and enhancing customer satisfaction. Businesses can help them develop customer trust by automating the supply chain, ensuring that each stage works well and that products are delivered on time. One other benefit of digitization that merchants may enjoy is information-driven guidance. Retailers may obtain a greater understanding of their operations by collecting, storing, and analysing data from all points along the supply chain. This enables them to quickly respond to market shifts, improve product design and development, and obtain a deeper grasp of the requirements and preferences of their customers. Analytics enabled by AI can potentially predict consumer preferences and behaviour, providing firms with an advantage over the competition.

According to Pallant (2020), various Irish retail sector organisations have been adopting digital procedures into their operations to take advantage of this possibility. For instance, numerous retail chains are optimising their ordering and inventory management operations using integrated technologies, resulting in cost savings and increased efficiency. Consumers

can now obtain information about products in real-time thanks to cloud-based capabilities that many merchants have added to their existing systems. In addition, the retail industry has experienced a considerable surge in the application of data mining and analytics. Retailers can acquire insight into client buying patterns and make proactive decisions to enhance sales and optimise revenue by leveraging technologies such as artificial intelligence and machine learning. By gathering information on each customer's location, demographics, and shopping history, firms may also tailor their approach to each customer. Digitization in the Irish retail space likewise delivers expanded precision and straightforwardness. Businesses can construct a distributed ledger that maintains transactions and information in real-time using blockchain, giving customers a trusted data source. Giving clients the most recent information removes the danger of errors or fraud associated with traditional data management systems and empowers them.

Lastly, Pitt (2019) claimed that digitization might also help retailers cooperate more efficiently with other supply chain partners. Retailers may strengthen their relationships with partners, consumers, and vendors by embracing digital platforms. This can expand the competence of the production network and guarantee that all partners approach the fundamental facts. One key trend that is fast gaining pace is the digitization of the retail business. Even though there are a few charges associated with setting up and keeping up with a digitised framework, the advantages it delivers in terms of cost reserve funds, functional productivity, client loyalty, and upper hand considerably balance these expenses. The industry will be able to continue moving towards the new digital standard as more retailers embrace the power of digitization.

2.2.2 The way digitisation impacted the supply chain of the retail industry in Ireland

According to Polyaninova (2021), the digital revolution has dramatically affected the retail sector in Ireland over the past ten years. Digitization of the inventory network has disturbed the retail company by extending item permeability, smoothing out activities, and cutting expenses. From sourcing to last-mile delivery, technology has transformed practically every part of the supply chain. Businesses can acquire a better understanding of their supply chain by integrating modern technology like ERP systems, artificial intelligence (AI), and robotics. This will improve the customer experience and save money.

Quinn and others (2022) claimed that the procurement method is a crucial component of the retail industry since it has the potential to considerably lower costs while also maximising efficiency. As a result of digitization, numerous shops have begun to deploy automated procurement procedures and computerised purchasing systems. Using these technologies, merchants may cut down on paperwork, speed up transactions, and simplify vendor selection. Retailers may likewise hunt for changed items and administrations on the internet, permitting them to think about charges, issue requests, and pay merchants swiftly and safely. Furthermore, shops can likewise follow orders using consistent information to guarantee that providers are fulfilling their delivery time limitations.

According to Rajput (2019), inventory management is a critical component of the retail industry since it enables firms to ensure that their shelves are supplied with the products required to satisfy client demand. Digital technology has made it possible for shops to automate the process by using inventory management systems. Barcodes and radio frequency identification (RFID) tags, for example, can be used by merchants to track their inventory, allowing them to quickly refill it and acquire a better understanding of its levels. Businesses may minimise expenses, improve customer service, and lessen the risk of stockouts by automating the process of managing their inventory.

According to Stoyanova (2020), order fulfilment is a critical component of the retail industry since it ensures that customers receive their products promptly and precisely. Nowadays, many retailers use automated systems to quickly and accurately fulfil orders. By executing computerised advancements, for example, artificial intelligence, mechanical technology, and stockroom management, the executive's frameworks allow retailers to follow orders, pick items from racks, and plan shipments quicker than at any time in recent memory. Predictive analytics can also be used by retailers to anticipate customer demand and make sure the right products are ready to ship quickly. Costs have been reduced, customer satisfaction has increased, and the order fulfilment process has become faster and more effective as a result.

Okpala and Korzeniowska (2021) expressed that inventory network perceivability alludes to the capacity to follow items from the second the request is set to the second it is conveyed to the client. Digital technologies have made it possible for retailers to now have real-time visibility of their supply chain, allowing them to minimise delays and respond quickly to any disruptions. By utilising instruments, for example, GPS tracking and IoT sensors, retailers can screen the advancement of their shipments and guarantee that they are conveyed to the

ideal locations on time. This makes things run better and saves money, which makes customers happier. The last-mile conveyance process is an essential piece of the retail business, as it guarantees that clients accept their orders on time and in great shape. To speed up the last-mile delivery process, many retailers are now utilising technologies like drones, robots, and on-demand delivery services. These innovations empower retailers to rapidly and precisely convey requests to the client's doorstep, decreasing expenses and further developing consumer loyalty.

2.2.3 The benefits of the free flow of trade in the Irish retail market due to digitisation

Schilir (2020) stated that the advent of digitization brought about an unparalleled free flow of trade to the Irish retail industry, ushering in various benefits that have now been felt across the country. One of the key advantages of the free flow of trade is the increased competition and consumer choice that the marketplace currently affords. By supporting the easy sharing of product information, prices, and availability, consumers can reliably compare between retailers within the area to find the best deal while simultaneously providing stores with the opportunity to gain new customers by offering competitive prices and promotions. This newfound rivalry also drives businesses to become more efficient and innovative to remain competitive, resulting in increased production and improved quality of items in the retail market.

Chang *et al.* (2019) stated that the unrestricted flow of trade made possible by digitization has also resulted in higher convenience for shoppers in Ireland. Customers may now conduct their shopping online, meaning that there is no need to browse real stores and stalls to get the things they are looking for. Internet retailers offer more product detail, allowing buyers to find exactly what they need without having to spend their time visiting multiple establishments. With the advent of a delivery service, it is now even easier for clients to get what they need without leaving their homes.

Polyaninova (2021) stated that with the free flow of trade in the Irish retail market, businesses are also able to become more efficient. The digitization of operations has made it easier for stores to keep track of sales and inventory levels, which enables businesses to avoid overstocking or understocking things. This enables businesses to maximise their resources and ensure that they are giving their clients the best possible service. All in all, digitization has had an extremely positive impact on the Irish retail market by permitting the free flow of

trade, leading to enhanced competition and consumer choice, more convenience for customers, and improved efficiency for enterprises. The success of this new system has been essential in pushing economic growth inside the country, giving it an outstanding illustration of the benefits of digitization for retail marketplaces around the world.

2.2.4 Potential Implications of Digitisation for retail sales growth in Ireland

Küfeoglu *et al.* (2019) stated that the digitization of retail sales in Ireland had had a huge impact on the growth of the sector over recent years. The introduction of Internet shopping as an increasingly popular choice for customers, together with the rapid expansion of digital payment technologies, has transformed the way that people shop. This has led to a continuous increase in retail sales for both traditional storefronts and online retailers and has established a dynamic marketplace for consumer goods in the country.

Linsner (2021) highlighted that internet marketplaces have also made it simple to order products from anywhere in the world and made it easier for individuals to compare costs and get the best deals. The expansion of web-based buying has also been supported by the expanding moderation of quick web associations and cell phones. This has substantially enlarged the variety of businesses that are now able to communicate with potential clients and has made it feasible for people to shop and make purchases from any location. Hence, the number of businesses that are currently open to customers in Ireland has greatly expanded as a result of the digitization of retail transactions.

According to Trașcă (2019), the digitization of retail sales in Ireland has had a substantial impact on the sector's expansion. Due to the convenience it provides, it has widened the market for customers and improved client loyalty. This has also made it possible for retailers to provide reduced prices and better delivery services, which attract customers to buy again and again. Digitalization has also made it feasible for firms to better understand client preferences and create more personalised purchasing experiences. This has opened up new income streams and permitted organisations to target clients all the more efficiently, consequently helping their client base and finally bringing about improved incomes.

In a similar vein, Keogh (2021) said that digitization has had a huge impact on the retail industry in Ireland. Companies have been able to grow sales and expand their market share as a result of the rise in online sales and the resulting rise in consumer loyalty. Digitization has

also made it easier for merchants to strengthen the services they provide and the overall experience they deliver to clients, which has contributed to an increase in sales.

Lastly, Campos (2022) said that digitalization had erased conventional entry barriers, providing customers with more options and enabling merchants to become more competitive. The sector's expansion in Ireland has been considerably impacted by the digitization of retail sales. It has expanded the number of retailers and sales volumes as a result of giving customers more options, convenience, and a superior shopping experience. As innovation persists to produce and expand, the digitization of retail dealings in Ireland will probably continue to push development in the industry for years to come.

2.2.5 Best digitisation practices and innovative techniques in the Irish context

Cakire *et al.* (2021) stated that digitization had become a basic aspect of modern life, and Ireland has been particularly effective in embracing it. Ireland has succeeded in becoming the digital capital of Europe due to its great infrastructure, considerable investment in research and development, and government initiatives. This has fostered the development of innovative digital processes and technology, which have allowed the country to go to the forefront of digital transformation.

Connolly *et al.* (2022) argued that the digitization of documents was the first big digital practice to develop in Ireland. Most records were written on paper before they were digitised, and there was no systematic file system or digital storage system. This frequently made supervising records difficult, as well as prolonging dynamic cycles. Digitising records requires the connecting of programming stages and the establishment of a safe computerised atmosphere. Not in the least did this make it simpler to obtain and utilise records; however, it additionally allowed for more effective systems. Because it makes it possible for records to be transmitted securely between doctors, nurses, and care teams, this has been extremely significant in the healthcare industry. It has moreover provided continual access to clinical notes and patient data, which has been vital for patient consideration and disease management.

Ciruela-Lorenzo *et al.* (2020) highlighted that e-commerce is yet another key area in which Ireland has led digital innovation. In Ireland, online shopping is now commonplace because many businesses can accept digital payments and deliver goods to customers online. Cloud

technology has made it simpler for clients to access their products from any device, regardless of location, which has aided Irish firms. The advancement of artificial intelligence (AI) has also enabled Irish businesses to automate crucial processes like consumer segmentation and supply chain management. Companies have been able to give clients speedier and more personalised services because of AI technology, which has resulted in greater customer happiness and loyalty.

According to Karnitis, Virtmanis, and Karnitis (2019), mobile technology has emerged as one of Ireland's most significant advancements during the previous decade. A growing reliance on smartphones and tablets to access services and goods has emerged from their rise. This has empowered the improvement of portable apps, which may be obtained in a hurry, empowering speedier and more productive client cooperation. Companies in Ireland have been able to take advantage of this by producing mobile applications that make it easier for customers to access information and items. Companies in Ireland have also been able to benefit from the development of 5G technology, which has made it possible to have quicker internet connections and better mobile networks. Innovative mobile applications like augmented reality (AR) applications, which allow users to experience things digitally, have been made viable by 5G. Technological innovations have empowered Irish firms to supply innovative and inventive computerised merchandise and services to clients. Yet, there has also been a focus on strengthening the Irish context's existing digital techniques. Companies, for instance, have been able to profit from the development of blockchain technology, which has made it easier to store data safely and boosted digital security in Ireland. This has been especially critical for firms that manage a lot of sensitive data and financial institutions. Furthermore, Irish firms have the alternative to exploit the improvement of computerised monetary forms, for example, Bitcoin, which has offered more prominent degrees of monetary security.

Tan and Wright (2022) emphasised that Ireland has been highly effective in its execution of computerised procedures and developments. Ireland has been able to develop cutting-edge digital products and services as a result of its embrace of digitization, propelling it to the forefront of digital transformation. This has been accomplished through the development of new digital technologies like mobile applications and blockchain technology, in addition to employing current digital approaches like the digitalization of records and the expansion of e-commerce. Irish enterprises can provide customers with one-of-a-kind and personalised

products and services because of these cutting-edge digitization tactics, which played a vital role in making Ireland the European digital capital.

2.2. 6 Dynamics of the Irish Retail Sector in Response to Digitization

Pinto *et al.* (2023) asserted that the Irish retail business, historically made up of primarily small-scale, independent enterprises, has been rocked by a digital revolution over the previous decade. Due to the emergence of new digital technologies and the increase in online retail, the Irish retail industry has had to undertake significant modifications to keep up with the new competition, resulting in a fundamental upheaval in the retail environment.

Cakire *et al.* (2021) stated that traditional retail had been greatly influenced by digital technology, with many smaller, independent enterprises unable to compete. Consumers in Ireland have been able to swiftly and easily compare product quality and cost because of the advent of larger, more well-known stores like Amazon. This has given them more options than they would have had at a local supermarket. The advent of digital marketing and advertising, which has made it possible for well-known companies to reach Irish people in a manner that is both simpler and quicker, has added to the influence that Internet retail has had on traditional retail. This has resulted in the dislodging of more modest shops, as clients frequently choose to buy from a recognised brand because of the comfort and guarantee of value supplied by such firms. The introduction of new digital services like same-day delivery, which further simplify online shopping, has worsened this displacement.

Witschele *et al.* (2019) found that the rise of digital technology had influenced traditional retail's profitability. This is because conventional retail needs to take care of the expenditures connected with actual consumer front facades, for example, lease and staff charges, but the expense of set-up is similarly minimal to run a web-based business. As a result, shoppers are frequently more attracted to acquiring things online because traditional retail must continue to raise prices to meet these costs.

According to Woods, Doherty, and Stephens (2022), the Irish retail business has suffered various challenges as a result of the digital revolution. Traditional merchants' capacity to adapt to the new digital environment to remain competitive has been one of the major difficulties. Conventional retailers have had to adopt tactics to remain integrated into their marketplaces as major internet retailers have increased in popularity. To remain competitive,

many shops, for instance, have built an online presence that enables customers to view and purchase things through their websites. In addition, to attract and retain consumers, traditional businesses have begun offering incentives such as loyalty programmes. Consumers can join these programmes to gain discounts and other incentives for making purchases from a particular brand. Yet, established businesses have also had to adjust their marketing methods, leveraging digital and social media channels to better reach clients.

Companies have also had to respond to the increased demands made by customers in the new digital environment. For instance, numerous clients today anticipate that organisations should sell their things at a sensible price while additionally conveying adequate conveyance dates and client administrations. In addition, as technology progresses, customers increasingly want businesses to deliver an integrated and engaging shopping experience with search tools, tailored product recommendations, and detailed user reviews.

Campos (2022) claimed that the presentation of sophisticated innovations has brought forth new possibilities for the retail region. Because they now have access to a wider spectrum of clients in other nations, businesses have been able to increase their clientele thanks to the growth of digital technologies. This has allowed corporations to reach a worldwide community, working on their bargains and money. Furthermore, the utilisation of sophisticated innovation has made retail jobs significantly more effective because dealers are currently ready to outfit innovations like computerised requesting frameworks and foresight investigation to build the proficiency of their activities. Predictive analytics, on the other hand, helps retailers evaluate customer behaviour and preferences to adjust their product offerings, while automated ordering systems, on the other hand, enable merchants to obtain consumer data by anticipating future orders. Furthermore, computerised innovation has brought a better client experience because clients are now able to access things quickly and fundamentally. Online firms, for instance, make it easy for customers to compare items and pricing, allowing them to choose the best bargain for their needs. In addition, businesses have been able to create relationships with their customers through personalised product offerings, fascinating content, and customer service, thanks to digital technology.

2.2.7 Challenges of Integrating Digitisation in the Irish Retail Industry

McTiernan (2021) claimed that the Irish retail business has been facing increasing pressure to digitise in recent years. As the business continues to expand into new areas and consumer

preferences continue to alter, the necessity to digitise processes is becoming increasingly apparent. The difficulties created by this process of digitization, however, are substantial and must be overcome to allow an effective and successful transition into the digital age. This talk will address some of the biggest hurdles to implementing digitization in the Irish retail industry.

Karimi and Walter (2021) highlighted that one of the primary hurdles associated with incorporating digitization into the Irish retail industry is the cost of employing digital technologies. To make full use of digital technology, shops must invest in new and current computer infrastructure, including updated software and hardware. These investments can be particularly costly for smaller enterprises and may require access to additional financial resources. Thus, organisations desiring to invest in these technologies may struggle to access these funds and may be unable to acquire the finest viable solutions for their unique needs. The changing nature of the retail industry also poses an obstacle to implementing digitization in the sector. With consumers searching out new modes of buying, such as e-commerce, retailers must be able to adapt to the changing market and deliver a service that meets the expectations of their customers. This demands a shift in operations, which may be costly and complex, meaning that merchants must ensure that their investments are acceptable and are likely to pay off in the long term.

Lorentz *et al.* (2021) stated that the retail business is very competitive, meaning that retailers must exploit the most advanced technologies available to remain competitive. Digital technologies are now vital to both operational efficiencies and staying ahead of the curve, and merchants who neglect to invest in new technologies may struggle to remain competitive. This is particularly the case in smaller markets, where the rivalry is severe and where each shop may make or destroy a firm. Furthermore, preserving digital security is another difficulty for shops wanting to integrate digitalization into their operations. The secure storage of customer and financial data is crucial for protecting the business, as well as its consumers, from the hazards of cybercrime. Retailers must invest in proper digital security processes and technologies, such as firewalls and encryption, to secure the safety of their customer data. Without the right technology and practises in place, a corporation may be unable to adequately protect client data, leading to potential legal and financial implications.

Anderton *et al.* (2020) stated that employee training represents yet another challenge facing companies embracing digitalization in the retail industry. Digital technologies demand the

adoption of new skills and abilities to be effectively employed. As such, merchants must ensure that all staff members are sufficiently trained in the usage of such technologies and are aware of any potential hazards or problems that may develop. Furthermore, the evolving nature of the retail business demands personnel consistently gain new technical and interpersonal skills to appropriately respond to client requests and deal with any problems that emerge.

Acquila-Natale et al. (2020) stated that the consumer experience must also be addressed while incorporating digitalization into the Irish retail industry. Businesses must guarantee that the consumer experience is not compromised during the transition process. This involves offering customers an easy-to-navigate digital interface that is both intuitive and straightforward. Furthermore, shops must also guarantee that customers are supplied with alternative customer support methods, such as telephone and online chat, to deliver an effective customer experience amid any technology delays. Incorporating digitalization in the Irish retail industry is a challenging undertaking. The multiple problems highlighted in this paper must all be addressed for digital transformation to be effective and successful. Thus, it is vital for retailers to properly examine their operations, consumer expectations, and financial resources to ensure the most suitable digitization approach.

2.2.8 Impact of Irish Retail Sector's Supply Chain Operations in the Overseas Cheap Market

Zeb, Soininen, and Sozer (2021) stated that the Irish retail sector's supply chain operations had a considerable impact on the foreign cheap market. In recent years, the rise of global trade and the prevalence of low-cost items have led to an influx of goods and services arriving in Ireland from nations with significantly lower production costs.

Trzaska et al. (2021) stated that the outsourcing of suppliers is a crucial component of Irish supply chain operations as companies seek to source goods or services in nations with lower costs. This strategy helps them boost their productivity, limit their investments in staff costs, and focus on the retailing element of their organisation. Outsourcing is typically used in combination with other approaches, like the implementation of automated supply chain procedures and the introduction of new technology, all of which aim to cut costs and boost efficiency. The employment of cheap labour overseas has had a considerable impact on the Irish retail sector, with businesses being able to decrease their expenses and boost their

profits. Businesses that grow significantly reliant on outsourcing tend to see better profit margins than those that do not outsource. Furthermore, the influx of cheaper goods helps enterprises cut their prices, thereby expanding their market share and boosting their competitive edge.

Madanayake (2021) stated that the rising use of cheap offshore labour in the Irish retail sector has also hurt workers in these nations. Workers in nations with lower costs are generally exposed to terrible working conditions and lower earnings, while they are also excluded from the benefits of social protection granted by their government. Moreover, the surge of low-cost items may lead to job losses in the Irish retail industry as businesses can replace personnel with cheaper goods. Additionally, the employment of imported goods has also had an unfavourable influence on the local economy. Local firms tend to suffer due to the influx of goods that have been created using cheap labour abroad. These commodities often undercut the pricing of goods that are produced domestically, leading to an overall reduction in demand for the things produced locally. Moreover, the use of overseas labour may lead to an increase in poverty, as local workers may be excluded from the benefits of higher wages and a better work-life balance provided by the local economy.

EmmenQuirós (2019) stated that the increase in cheap imports from overseas has also hurt the environment. Countries with lower costs often have less stringent environmental regulations, leading to a decrease in environmental protection. Furthermore, the transportation of goods from these countries to Ireland results in more carbon emissions and pollution, further contributing to global climate change and the degradation of the environment. The use of cheap overseas goods in the Irish retail sector has had both positive and negative impacts. While businesses have been able to reduce their costs and increase their profits, workers in these countries have been subjected to lower wages and worse working conditions, while the local economy and environment have also suffered. It is, therefore, clear that companies need to be mindful of the potential ethical and environmental consequences of engaging in such practises.

2.2.9 Digitisation's Upsurge in Automation and Robotics in the Supply Chain of Ireland retail sector

Viale and Zouari (2020) stated that the application of robotics and automated processes in the supply chain of the Irish retail sector has been experiencing a steady rise in the past several years. This technology helped corporations drastically improve their manufacturing, storage, and distribution operations, ultimately leading to a more efficient and cost-effective supply chain.

Sarcet *et al.* (2019) stated that with developments in technology, the usage of robotics grew more cost-effective and simpler to utilise, therefore allowing smaller enterprises to start using them in their supply chains. Deep learning and AI have substantially impacted the level of automation in the supply chain of the Irish retail sector. This allows industries to make their supply chains more efficient, faster, and more precise through the adoption of automated technology. One of the most advantageous elements of automation in the Irish retail sector was that it helped manufacturers eliminate errors and boost accuracy in their production and distribution operations. By employing automated technologies, corporations were able to dramatically cut down on manual expenses and lower the possibility of mistakes in the supply chain. This helped them be more productive and cost-effective in their production and distribution operations.

Szalavetz (2019) stated that AI-powered robots also dramatically increased the speed and accuracy of order picking. Businesses adopted automated order-picking procedures to drastically cut the time taken to complete orders, thereby resulting in speedier delivery times. Businesses were able to correctly track their inventory in real-time through the use of automated systems, thus enabling them to successfully manage their inventory levels and limit the possibility of stockouts. Better warehouse management also led to more efficient storage solutions, therefore allowing corporations to cut their overall storage expenses.

Furthermore, Menon and Shah (2019) stated that the deployment of automation and robots enabled the Irish retail sector to adapt to more sustainable practises. Businesses were able to employ automated systems to correctly track their energy usage and reduce their carbon footprint.

Agrawal and Narain (2023) mentioned that AI-enabled robots also assisted enterprises in reducing their waste generation and enhancing sorting procedures, thereby leading to a more

efficient and sustainable supply chain. The application of automation and robots in the supply chain of the Irish retail sector has proven to be extremely successful. By employing automated technologies, organisations were able to dramatically lower their expenses and waste while simultaneously boosting the efficiency and precision of their operations. This enables enterprises to better serve their consumers and shift to more sustainable practises, resulting in improved customer happiness, cheaper costs, and an overall better-operating Irish retail industry.

2.3 Literature Gap

In recent years, it has seen substantial modifications, partly attributable to the advent of cutting-edge digital technologies. Nonetheless, despite the industry's penchant for advancement, there is a paucity of comprehensive data regarding the effects of these changes on supply chain performance and international commerce. The traditional retail industry's failure to promptly respond to the surge in consumer demand and the volatility of the entire value chain has been emphasised by earlier research. The sector's instability has made it impossible to obtain the necessary resources in a short period of time, which has had a detrimental influence on the Irish retail sector's profitability in the short and long term. In addition, a complex landscape of factors has arisen as a result of the introduction of digital technology into the industry's conventional operations, which has not yet been extensively investigated. As a result, I am unaware of any studies about the full impact of digitization on Ireland's retail industry's international business functions and supply chain optimization. This knowledge gap emphasises the necessity for an extensive study that objectively examines the influence of new digital technology systems on the Irish retail industry's capacity to compete internationally.

2.4 Chapter Summary

Digitization's impact on the Irish retail supply chain's worldwide business is the topic of this chapter. The effects of digitization in this area are analysed objectively, taking into account profitability, customer satisfaction, and delivery fulfilment. The utilisation of e-commerce, online advertising methods, and interactive technology are just a few of the main components that are put through their paces. The chapter also looks at how the Irish retail business uses supply chain management in the context of structure and organisation. The chapter concludes

that digitalization has a favourable influence on the retail industry's supply chain and international business in Ireland. The ramifications of the study are examined.

Chapter 3: Methodology

3.1 Chapter Introduction

This chapter offers an overview of the survey research technique utilised in this quantitative research to analyse the influence of digitization on increasing the international supply chain business of the Irish retail industry. The poll was specifically created to investigate the impact of digitalization on Ireland's retail enterprises in terms of customer experience, usage of technology, and innovations in supply chain management. The purpose of this quantitative research is to gain an understanding of the role of digitalization in the worldwide operations of Irish retailers.

3.2 Research Method

The quantitative research method is one of the main research approaches that involves deductive reasoning, hypothesis testing, and data collection and analysis with quantifiable variables (Vu, 2021). In this regard, a quantitative research approach is proposed for this study to examine the impact of digitization on strengthening the supply chain and international business of the Irish retail industry. For this particular research, the primary data will be obtained through a survey that includes *100 participants who are actively engaged in the retail sector in Ireland*. This study uses an online survey method. The participants for the survey will be selected based on their experiences in the retail business and the execution of international supply chain operations. After that, the survey's results will be examined statistically by the *statistical data analysis method* to gain a thorough picture of how digitization improves international business procedures in the Irish retail industry's supply chain. Illustrative insights, connection investigation, and relapse evaluation will be utilised to break down the facts obtained. In addition, in-depth interviews will be performed with some of the participants to better appreciate their viewpoints on the topic. The study technique intends to give a detailed and thorough assessment of the impact of digitalization on the international supply chain operations of the Irish retail industry. Through this study, the researcher aimed to appropriately assess the role of digitization in enhancing the Irish retail industry's supply chain and international business practises. By using the information

acquired and statistically examining it through the survey methodologies, the researcher will be able to develop a full evaluation and study of digitization's significance for international supply chain companies.

3.3 Research Philosophy

The purpose of this research is to analyse the influence of digitalization on increasing supply chain international business for the retail industry in Ireland. The research is guided by *positivist philosophy*, which claims that reality is rooted in external, objective facts and logical explanations, which may be determined through the observation and measurement of events. Hence, the positivist approach is utilised to study the facts linked to this topic and draw conclusions. The *positivist approach* values facts and empiricism, as it strives to explain what is real and true in the real world rather than relying on faith or opinion (Marsonet, 2019). Furthermore, it values the validity and reliability of the data gathered, as well as its capacity to be precisely and reliably measured. Positivism gives a methodical, quantitative, and logical approach to assessing the function of digitization in boosting the efficiency of supply chains in international business. It enables the collection of data objectively and methodically. This approach reveals underlying numerical patterns and trends in the data acquired, offering an in-depth insight into the causes and impacts of digitization in this field. Furthermore, it also enables comparison studies between different portions of the supply chain to determine how digitalization affects international commerce. The positivistic research framework can provide a greater understanding of the function digitalization plays in boosting the supply chains of international enterprises in the retail industry in Ireland. With this quantitative and logical method, the researcher will be able to uncover trends or correlations in the data, which can explain the link between digitization and the diverse parts of international business. This research is thought to provide useful insight and knowledge of the influence of digitalization on multinational companies and their supply chains.

3.4 Research Approach

To either develop a research model or assess the veracity of already existing models, this quantitative study employed a *deductive approach*, applying already established theory to the subject at hand. Thus, the motivation behind this exploration was to use quantitative examination procedures to examine and assess the function of digitization in improving the

worldwide company production networks in the Irish retail sector. The focus of the study was on the current status of digitization in the retail industry in Ireland and its effect on the supply chain of foreign enterprises. The concept that digitization improves the international business supply chain in Ireland's retail industry was the primary assumption of this study. As a result, the purpose of this study was to evaluate whether or not digitalization had a good influence on the supply chain of the retail business in Ireland and its economic effects. The researcher was able to quantitatively test a hypothesis because of the deductive strategy they used in this investigation. The researcher was able to identify and assess the role that digitalization plays in strengthening the supply chain of international business in the Irish retail industry through the quantitative study that was carried out through the survey and interview. In the end, this study's findings indicated a deeper knowledge of the sector's potential for digitization. Another reason why this strategy is reasonable is that it takes into consideration a trustworthy and dependable technique for testing assumptions by combining both quantitative and subjective research. The study did not lay as much emphasis on qualitative analysis because its primary focus was on the retail industry in Ireland's quantitative statistics. The deductive approach also makes it possible to do the research with control and precision (Grinchenko and Shchapova, 2020). This is crucial for this concentration as it breaks down massive informational collections to make exact assumptions about the general business.

3.5 Research Design

The most suited and effective design for studying the influence of digitalization on supply chain international business in the Irish retail industry is this *quantitative research design*. A quantitative research design is most suitable for statistical interpretation (Mohajan, 2020). Surveys will be employed in the study design to gain an emotional awareness of how digitization influences customers' purchasing patterns and improves the Irish retail industry's supply chain operations worldwide. For the investigation plan, crucial information acquired through studies will be utilised. This will be the ideal approach for obtaining relevant data on the issue, as the overviews may be specifically grouped to home in on the influence of digitization on the purchasing behaviours of clients and the effect on the worldwide production network of the Irish retail business. The survey is paired with qualitative data collection to boost comprehension and make the study more complete. Allowing the researcher to ask more in-depth questions that may be adjusted to the material presented will provide a deeper understanding of the issue. Quantitative exploration was picked as the most

acceptable examination plan for the test subject, as it will give an entire outline of the point. It is capable of precisely monitoring the influence of digitization on client purchasing behaviours and multinational supply chain operations in the Irish retail business (Sileyew, 2019). By presenting the gathered results objectively, this research design might assist in clarifying the research topic. This research topic's research design was chosen for its ability to provide a comprehensive view of the effects of digitization on customer buying patterns and the Irish retail industry's international supply chain. The research will be able to accurately measure the changes caused by digitization in the retail industry by utilising quantitative research methods like surveys. This will give important insights into the subject, which will then, at that point, be utilised to additionally break down the impacts of digitization on the global inventory network of the Irish retail industry.

3.6 Data Collection

The determination of a quantitative exploration method was thought fitting to analyse the role of digitization in upgrading the production network worldwide in the Irish retail industry. As a consequence, the most acceptable approach for gathering data was a survey. Owing to their simplicity and potential for collecting a vast amount of data, surveys are widely valued as a method of data collection. The survey approach made it possible for participants to submit a varied range of responses because the goal of this study was to investigate a specific occurrence. This makes it easy to compile a comprehensive data set to assess how digitization has impacted the dynamics of the supply chain in the Irish retail business. *100 people* who were actively involved in the Irish retail industry participated in the research. This ensured that the material acquired was from people who had a direct engagement in the issue of investigation, thus delivering quality replies and significant experiences. Respondents were only permitted to complete particular elements of the survey, which was carried out in an organised manner. This confined the possible inclination among members, letting the information pool to address a more exact translation of the overall condition (Mohammad, Vargas, and ermák, 2022). Participants were allowed to complete the survey at their leisure and convenience because it was digital. Instead of being rushed, this provided the participants with more time to ponder and analyse their comments, which resulted in a greater number of high-quality responses. The timely return of the survey replies makes it feasible for quick data collection and analysis, which is positive (Bergdahlet et al. 2019). This study's data collection method was discovered to be the survey method. That made it possible to collect a

lot of data from a huge number of people without worrying about bias. In addition, the survey's digital nature made it simple to use, encouraged rapid responses, and made data processing easier.

3.7 Data Analysis

Information examination is a vital step towards the exploration cycle, supplying solutions to the exploration questions and aims mentioned before. As a result, adopting a strategy for data analysis that is both precise and capable of solving the study's issue is vital. Thus, a quantitative *statistical data analysis technique* was used for this research investigation. This strategy was chosen because it is one of the most exact strategies for processing and examining the acquired information. This research study's quantitative statistical data analysis approach was chosen for several reasons. Secondly, it makes it possible to handle and evaluate a lot of data, which is especially appealing for a study that collects primary data from a large sample size. Second, it is capable of effectively encoding numerical values, making it simple to express and compare the data. In addition, this type of data analysis is more statistically reliable than more qualitative methods, making it an appealing alternative for analysing the research study (Grigsby and McLawhorn, 2019). Several efforts were made to make the quantitative statistical data analysis method easier to use. To begin, the data were obtained online to ensure that each response was processed and encoded appropriately. Data verification steps were also taken to make sure that every response was real and came from the proper people who did the survey. The quantitative technique was utilised to examine and interpret the data after it had been obtained. This encompassed the usage of recurring circulations, clarifying and correlational examination, information representation techniques, and parametric tests. The results' reliability and validity were examined using a variety of methodologies. To begin, a split-half test was carried out to guarantee the statistical validity and trustworthiness of the acquired data. Second, to guarantee that the techniques utilised and results obtained were substantial, a triangulation strategy was utilised to look at and assess results from various sources. In addition to the quantitative approach, a qualitative analysis was conducted to gain a deeper comprehension of the collected data's meaning, implications, and outcomes (Mehmetoglu and Jakobsen, 2022). This was done so that the assumptions, meanings, and implications of the collected data could be better understood. For this research, the quantitative statistical data analysis method was chosen because it is the most precise, accurate, and dependable method for analysing large collections of data and can effectively

test the various parameters that are being examined in the study. In the end, this method of data analysis gave a complete assessment of the research topic and produced results that were accurate and meaningful.

3.8 Ethical Consideration

The ethical considerations focused on the gathering, use, and control of data. To assure the participants' safety and the confidentiality of their data, ethical and legal criteria were adhered to. The goal of the study and the ramifications of their involvement were communicated to every participant. To guarantee the confidentiality of the obtained data, participants were given a confidentiality declaration before the survey's initiation. In addition, the participants were informed that the collected data would only be used for this research and that their comments would remain anonymous. Secure cloud-based systems were employed to store the participants' responses, and secure protocols were used to process the data for control and storage (Hancock, Naaman, and Levy, 2020). Online security measures, including two-factor authentication and encryption, were also utilised because the research was conducted online. Detailed instructions on how to withdraw from the study were also offered to participants to shield them from any potential detrimental impacts of their involvement. Participants were informed that they were allowed to withdraw from the study at any time without providing a reason (Fiske *et al.*, 2019). All of the participants willingly decided to engage in this research endeavour and gave their permission. Every one of the pieces of information had been anonymized enough before the measurable investigation, and none of the information delivered by this examination has been utilised without consent or potentially made openly accessible.

3.9 Chapter Conclusion

The quantitative investigation of the Irish retail industry was a success. Using primary research via questionnaires, results indicated that digitization plays a large part in boosting the supply chain of international companies. The data received from the survey was useful when assessing current digital transformation trends as well as the prospective prospects that arise from such advantages. Overall, the research was successful in providing a rigorous quantitative evaluation of the impact of digitalization on Ireland's retail business.

Chapter 4: Results

4.1 Chapter Introduction

The quantitative survey's findings and an examination of the Irish retail industry's relationship with foreign supply chain companies will be given in this portion of the research. Through the research, a far-reaching appreciation of the business' views on the utilisation of computerised innovation in its duties was acquired to respond to the examination query.

4.2 Results

Qestion1:

Age group	Percentage of respondents
20-30	62%
31-40	22%
41-50	11%
51-60	5%

Table 1: Response to age question

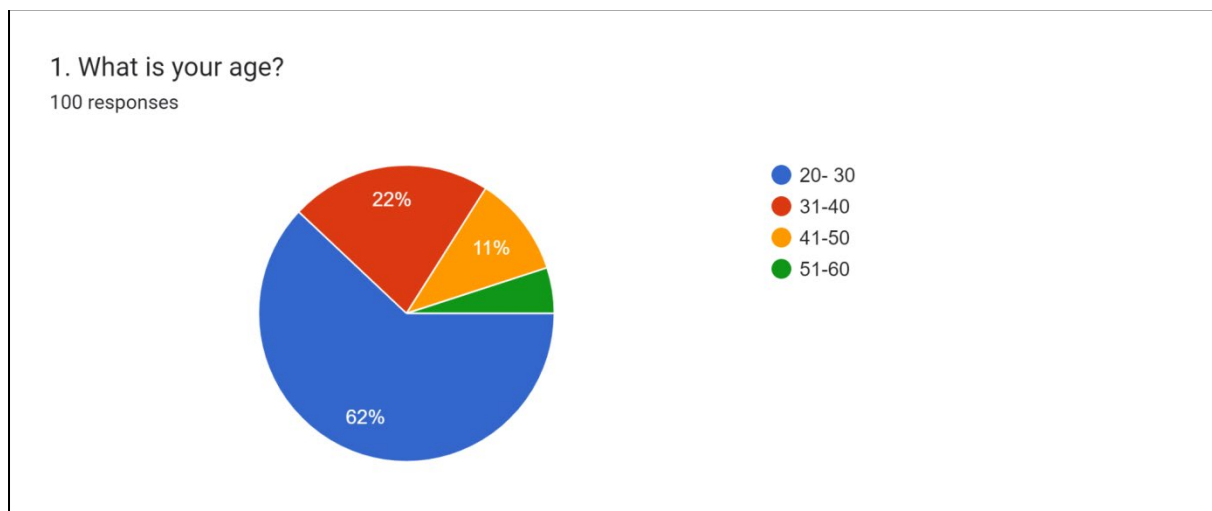


Figure 2: Pie chart showing % of participants in age group
(Source: Generated from survey conducted using Google form)

The first question that was put forward to the respondents of the survey was about their age demographics. In any form of research, age is an important factor that determines the opinion of a particular segment. In response to this particular question, nearly 62% of the participants

of the survey stated that they were between the ages of 20 and 30 years, while 22% of the participants of the surface data were between the ages of 31 and 40 years. Only 11% of the participants in the survey stated that they were between 41 and 50 years of age, while the remaining participants were determined to be over 51 years old.

Question2:

Gender	Percentage of participants in each gender criteria
Male	50%
Female	45%
Other	5%

Table 2: Percentage of participants in each gender group

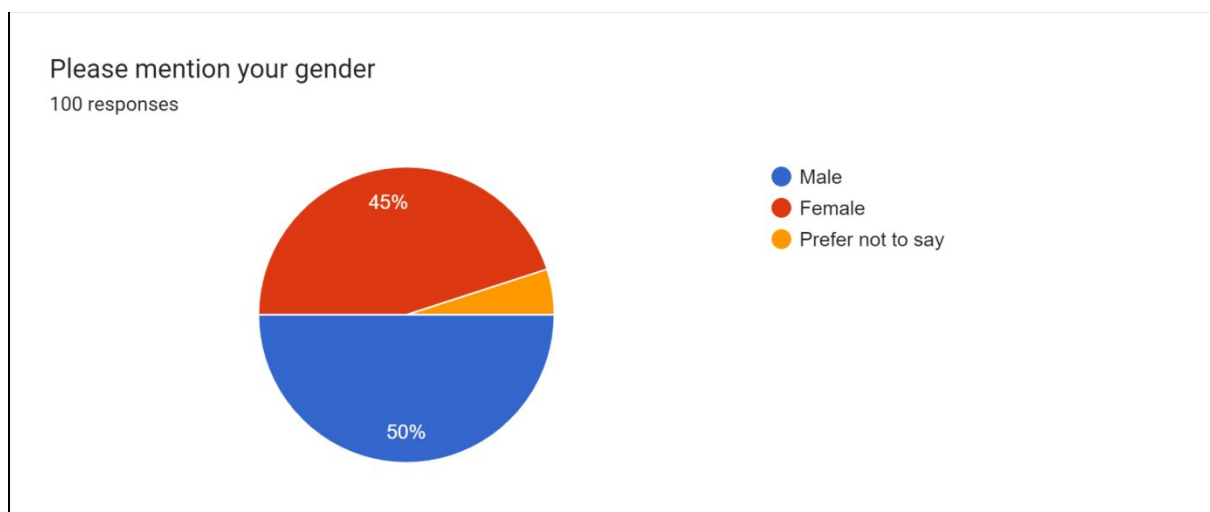


Figure 3: Percentage of participants in each gender group

(Source: Generated from survey conducted using Google form)

Next, the gender of the participants of the survey while being accumulated. The participants of the surveying asked about their gender. In response to this particular question, nearly 45% of the participants of the survey were female, while 50% of the participants of the survey

were male. The remaining participants of the survey didn't give a particular gender revelation.

Question 3:

Tenure as operations manager	Percentage of participants in each tenure
2-4 years	31%
5-7 years	42%
7-9 years	18%
More than 9 years	9 %

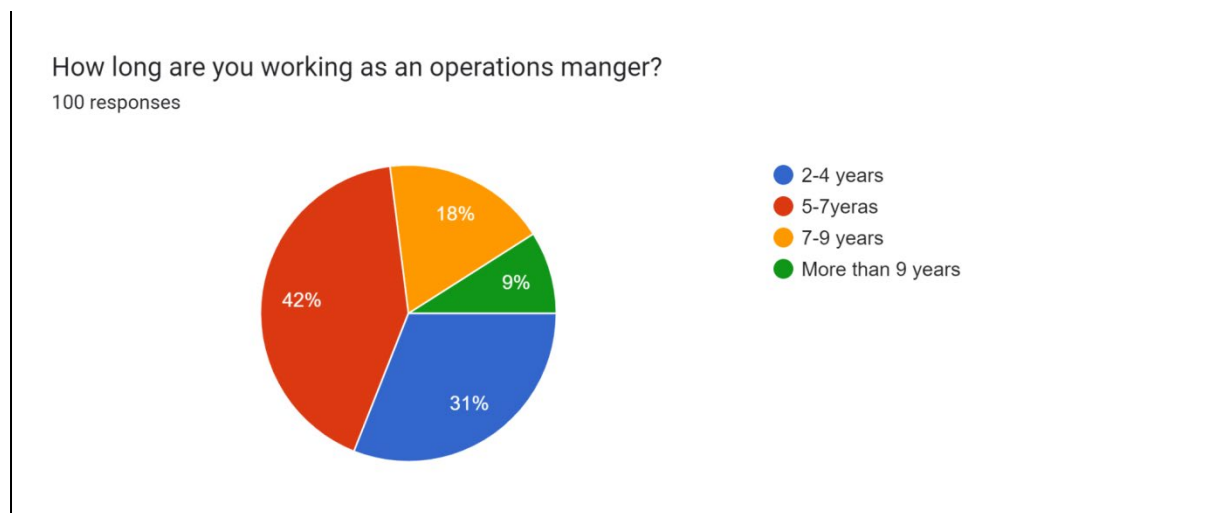


Figure 4: Percentage of tenure as a operations manager
(Source: Generated from survey conducted using Google form)

To gain information about their experience related to demographics, the participants of the survey were asked how long they have been employed as operating managers. In response to this particular question, nearly 42% of the participants of the survey stated that they had experienced more than 5 to 4 years, while 31% of the participants stated that they had experienced 2 to 4 years. Nearly 18% of the participants in the survey stated that they have experience ranging from 7 to 9 years, while the remaining 9% stated that they have more than nine years of experience.

Question 4:

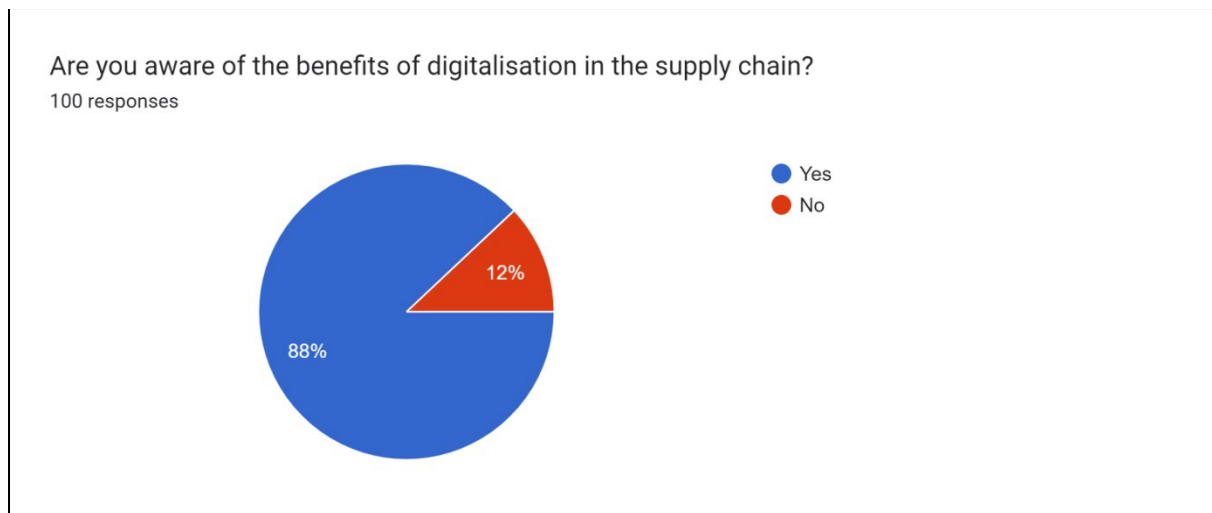


Figure 5: Percentage of participants who are aware of benefits of digitalisation
(Source: Generated from survey conducted using Google form)

The participants in the survey were asked whether they were aware of the benefits of digitization in the supply chain. This is a predominantly important question since it prominently points out the knowledge of the participants regarding the effect of digitization on supply chain operations. In response to this particular question, the majority (88% of the participants in the survey) said yes, while only 12% of the participants said no.

Question 5:

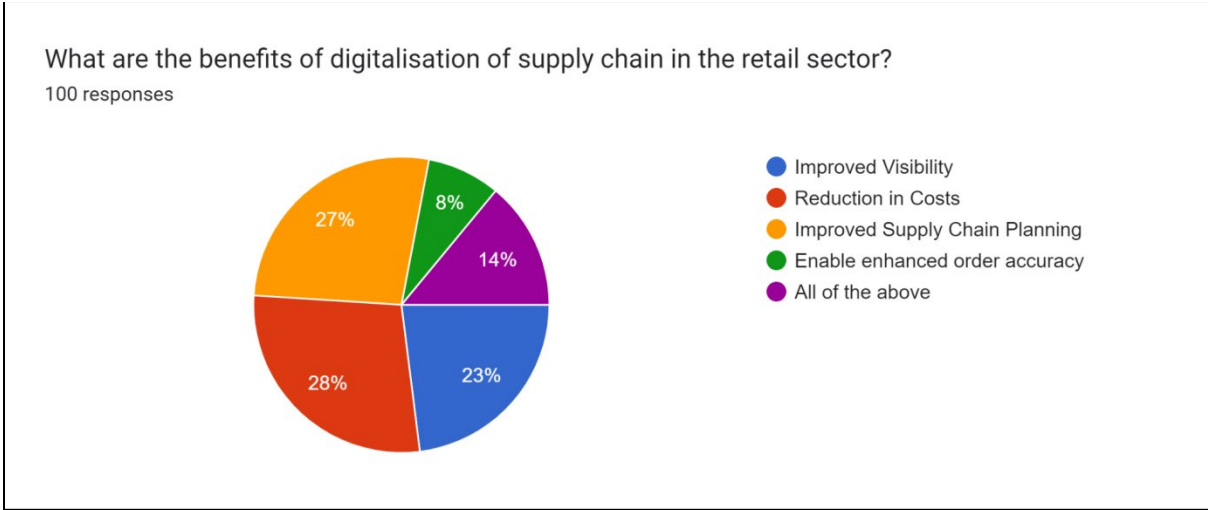


Figure 6: Opinion on benefits of digitalisation
(Source: Generated from survey conducted using Google form)

The next question that was put forward to the participants of the survey was, "What are the benefits of digitising the supply chain in the retail sector?" In response to this particular question, nearly 28% of the participants in the survey said that they feel that there is a reduction in cost, while 27% of the participants stated that they have the fitness to improve supply chain planning. Nearly 23% of the participants in the survey stated that there is an improvement in visibility, while 8% of the participants said that it enables and enhances order accuracy. The remaining participants in the survey stated that all of the options were justified in the case of the question.

Question 6:

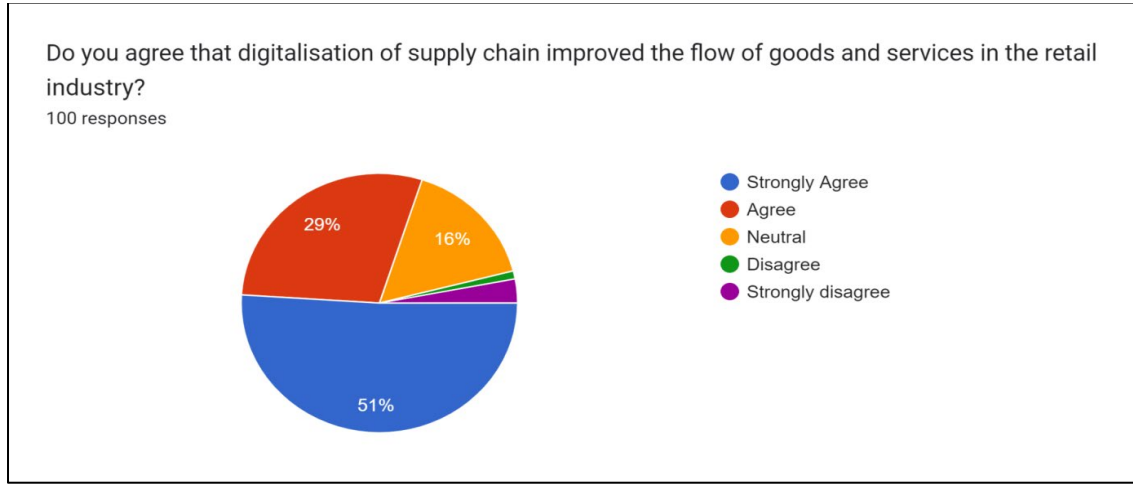


Figure 7: Percentage of participants who are aware of benefits of digitalisation
(Source: Generated from survey conducted using Google form)

The participants of the survey were asked if they agreed that the digitization of the supply chain had improved the flow of services and goods in the detailing industry. In response to this particular question, nearly 51% of the participants strongly agreed, while 29% of the participants in the survey just agreed with this particular context. Nearly 16% of the participants in the survey remained neutral as they were not able to give a clear viewpoint, while the remaining participants strongly disagreed with this particular context.

Question 7

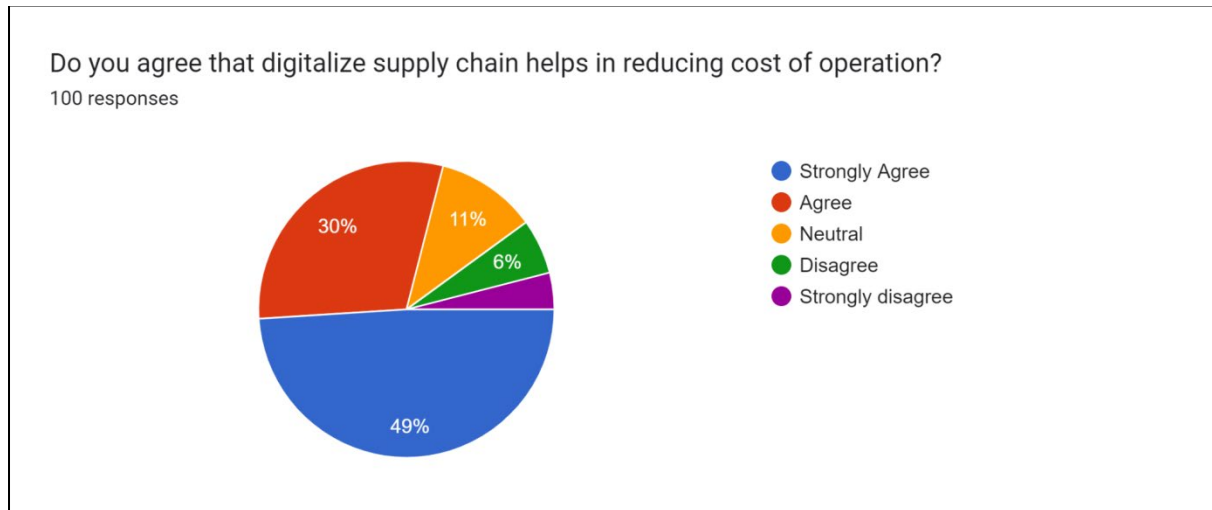


Figure 8: Participant opinion on whether digitalisation reduces cost of operation

(Source: Generated from survey conducted using Google form)

The next question that was put forward to the participants of the survey was whether they agreed that the digital supply chain helps in the reduction of operation costs. In response to this particular question, the majority (49% of the participants strongly agreed), while 30% of the participants in the survey agreed with this particular context. Nearly 11% of the participants in the survey remain neutral, able to provide a clear viewpoint, while 6% of the participants disagree with this particular context. The remaining participants in the survey strongly disagreed.

Question 8

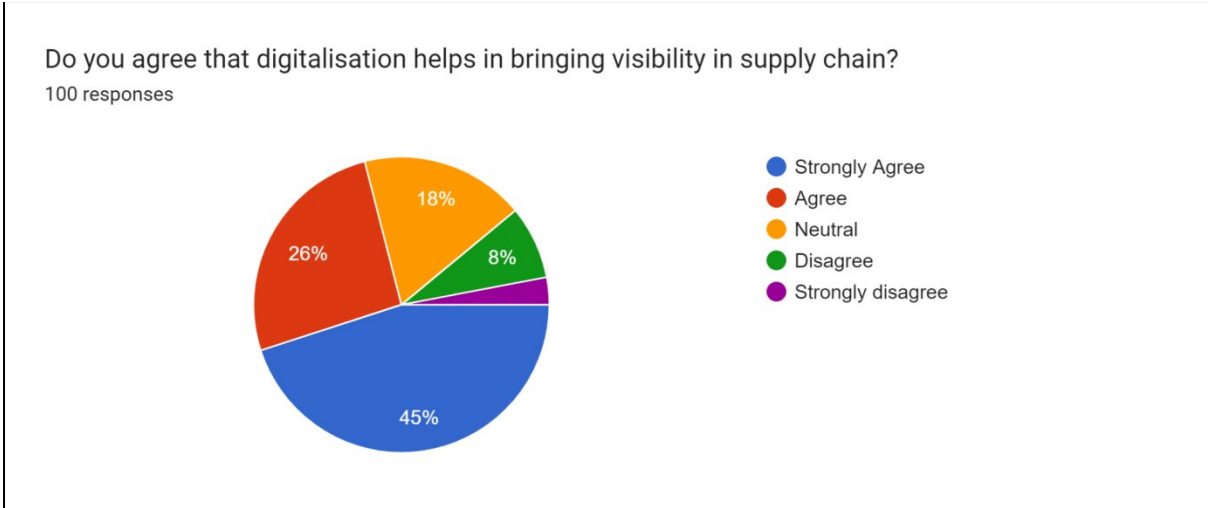


Figure 9: Opinion on whether digitalisation brings visibility in supply chain
(Source: Generated from survey conducted using Google form)

The participants of the survey were asked whether they agreed that digitization has enabled visibility in supply chain operations. In response to this particular question, the majority of the participants of the survey strongly agreed, while 26% of the participants of the survey just agreed with this particular context. On the surface, nearly 18% of the participants stayed neutral as they were not able to give a clear viewpoint, while 8% of the participants disagreed with this particular context. The remaining participants in the service strongly disagree with this.

Question 9:

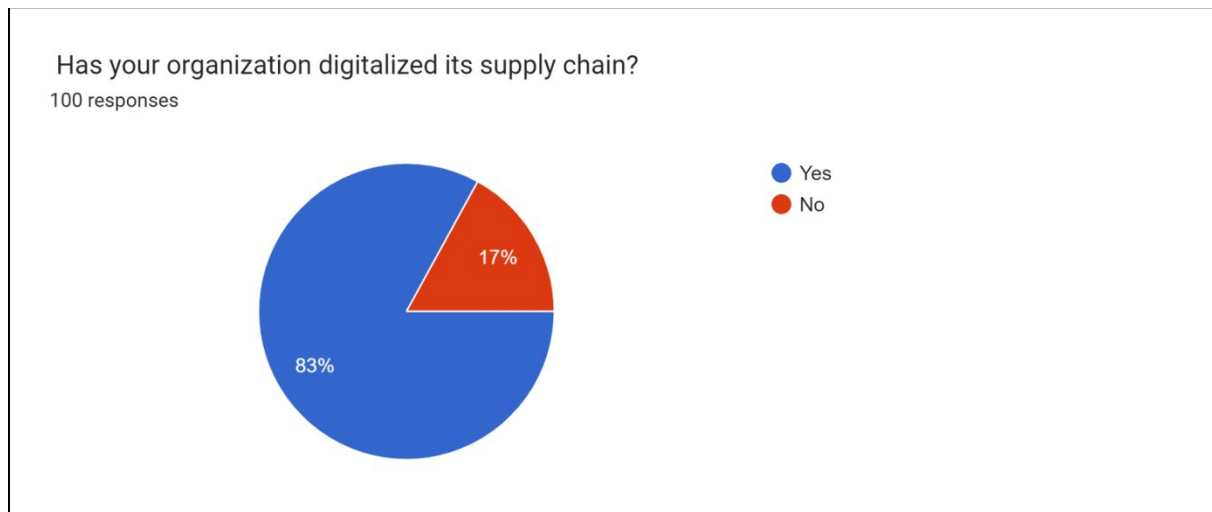


Figure 10: Opinion on whether the participant's organisation has digitalised the supply chain
(Source: Generated from survey conducted using Google form)

The next question that was put forward to the participants of the survey was whether they felt that their organisation had digitised its supply chain. In response to this particular question, nearly 83% of the participants in the survey said yes, while 17% said no. It can be concluded from this particular result that the majority of the participants in the survey filled out with their organisation have effectively digitised its supply chain.

Question 11:

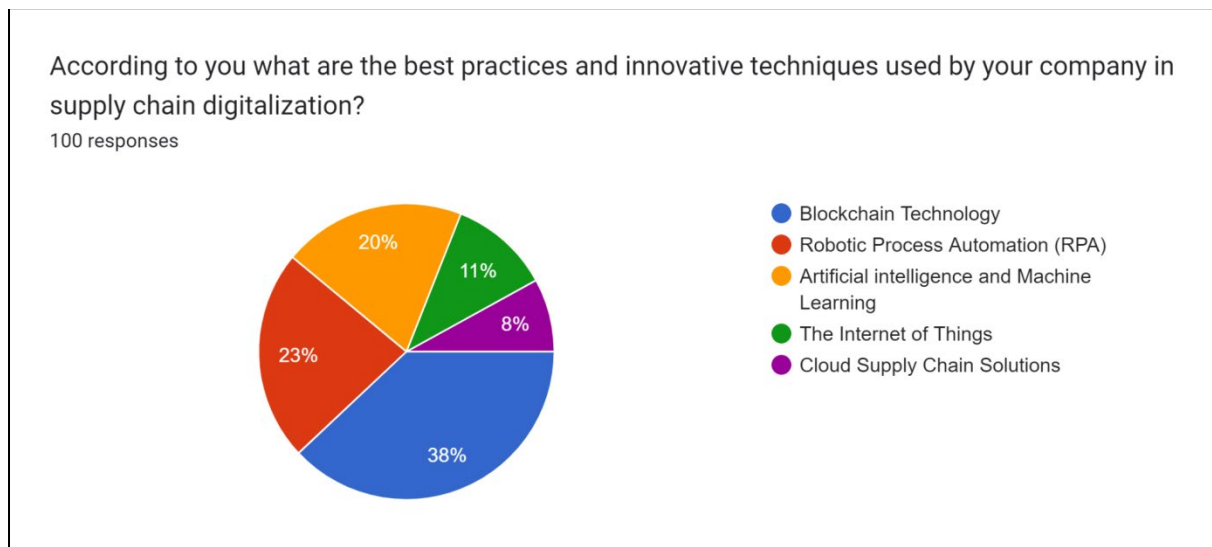


Figure 12: Opinion on best practices and innovative techniques
(Source: Generated from survey conducted using Google form)

The participants of the survey were asked what best practises and innovative techniques are used by the organisation for the digitization of the supply chain. In response to this particular question, nearly 38% of the participants of the survey stated that blockchain technology is one of the best practises in supply chain digitization, while 23% of the participants of the survey stated that robotic process automation is one of the techniques that are used for the digitization of the supply chain, and 20% of the participants of the survey listed artificial intelligence and machine learning as the best practises. Nearly 11% of the participants in the survey state that the Internet of Things is the best practise for supply chain digitization, while the remaining 8% state that cloud supply chain techniques are the best and most innovative practises for supply chain digitization.

Question 12

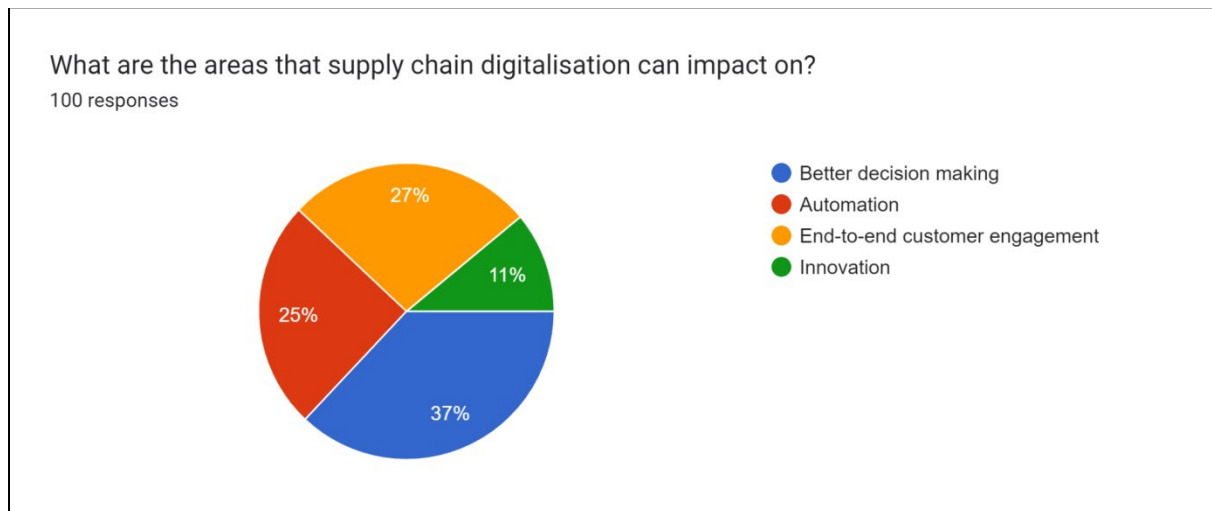


Figure 13: Opinion on what are the areas that supply chain digitalisation impacts
(Source: Generated from survey conducted using Google form)

The survivors were asked what areas of the supply chain distillation can impact. In response to this particular question, nearly 37% of the participants state that better decision-making is one of the areas that supply chain digitization can impact, while 25% of the participants in the service state that automation is the area. 27% of the participants in the survey state that end-customer engagement is the area that supply chain digitization can impact, while 11% of the participants in the service state that innovation is the area that supply chain digitization can impact.

Question 13

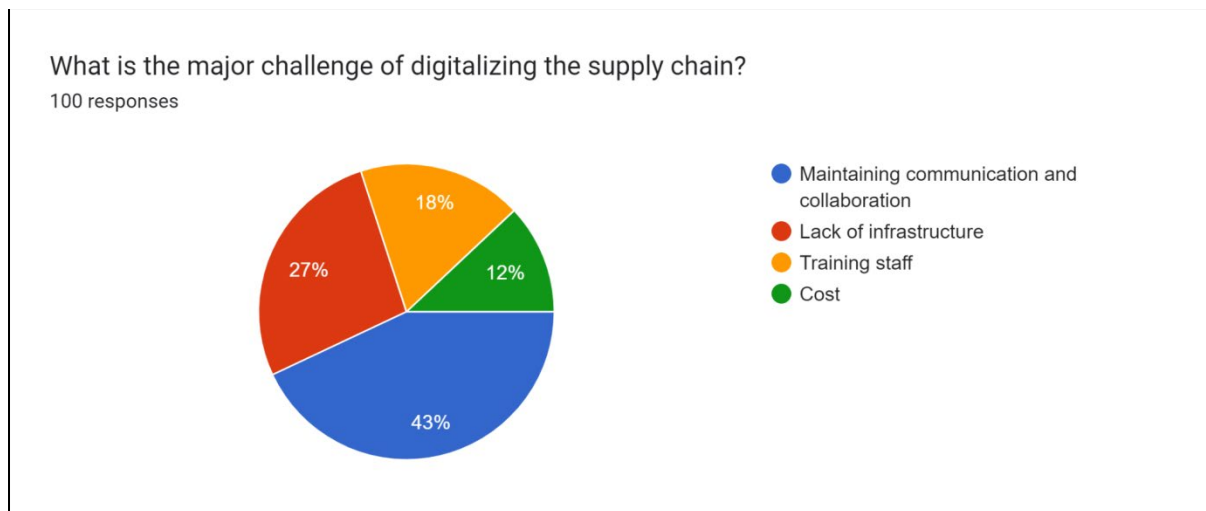


Figure 14: Opinion on digitalising the supply chain
(Source: Generated from survey conducted using Google form)

The final question that was put forward to the participants of the survey was, "What are the major challenges of digitization that the supply chain has an impact on?" In response to this particular question, nearly 43% of the participants in the survey stated that maintaining communication and collaboration is one of the areas that the supply chain can have an impact on, while 27% of the participants said that the lack of infrastructure is one of the major challenges of supply chain operations. 18% of the participants in the survey said that training is one of the areas that has posed a major challenge. The remaining participants in the survey state that cost is one of the major challenges faced by supply chain operations.

4.3 Chapter Conclusion

The use of digitization tactics and techniques to increase store network international business inside the Irish retail industry is useful. According to the research, respondents who employed digitization methods indicated that they had improved contact with partners, customers, and the management of the supply chain process. In conclusion, this study backs up the premise that digitalization technologies can help drive multinational supply chain companies.

Chapter 5: Discussion

5.1 Chapter Introduction

This chapter provides a discussion of the quantitative review studied in the prior section. The research intends to study how digitization helps international supply chain operations in the Irish retail sector. The survey's findings are presented and examined, with a focus on the consensus among individuals who answered the questions, which has consequences for digitization and the Irish retail sector. The focus of the debate in this section will be to analyse the aggregate arrangement inside the respondent gathering of the overview and the repercussions of this understanding for future activity and improvement of the Irish retail industry.

5.2 Discussion

The Impact of the supply chain of the retail industry in Ireland

The findings from the literature study and the outcomes of the research imply that digitalization has had a major impact on the supply chain of retail businesses in Ireland. The computerised turmoil seriously affects the retail business by supplying more things of identifiable quality and streamlining workouts. Digitization has taken into mind a more smoothed-out production network procedure, taking into consideration a further expanded client experience and cost investment funds.

The sector has been able to drastically lower costs while also increasing efficiency because of the adoption of computerised purchasing systems and automated procurement processes (Polyaninova, 2021). This trend has been witnessed not only with the adoption of robotic systems but also with the advent of technologies like ERP systems and artificial intelligence (AI). Retailers have been subjected to a higher number of automated processes as a result of the deployment of these technologies. This has resulted in a reduction in paperwork and an improvement in the process of selecting vendors. Retail enterprises now have more freedom to compare prices, place orders, and securely pay vendors.

Not just has digitization improved the effectiveness of the manufacturing network method, Nevertheless, it has likewise considered an expansion in the perceivability of the retail industry. Technology has made it feasible for retailers to better track orders and guarantee

that providers meet their delivery deadlines. Moreover, the digitization of the inventory network has opened up a universe of chances for customization, letting merchants focus on unique consumers and their necessities. It is abundantly obvious that digitization has had a substantial impact on the retail industry's supply chain in Ireland. Digitization has greatly contributed to the sector's measurably increased efficiency, decreased costs, and global expansion through improved consumer experiences and cutting-edge technology. The Irish retail industry will remain competitive and reap the benefits of this new business model as merchants continue to embrace the digital age.

Benefits of the free flow of trade in the Irish retail market due to the digitization

Numerous beneficial outcomes were discovered by the literature analysis and quantitative investigation on the function of digitization in strengthening supply chain international business in the Irish retail industry. As set out by Schilir (2020), digitalization has brought about an enlarged contest and purchaser decision by working with the simple sharing of item data, pricing, and accessibility among shops. This expanded contention has constrained enterprises to change to be more innovative and effective to stay competitive, prompting work on the nature of things accessible in the Irish retail industry. According to Chang et al. (2019), customers have also been able to shop online and benefit from greater convenience as a result of the free flow of trade. The presentation of conveyance benefits additionally eliminates clients' necessity to visit store locations, therefore making the shopping system much smoother.

Polyaninova (2021) examined how firms have improved their efficiency as a result of digitization. The innovation has made it easy for stores to watch stock and deal levels, empowering them to attempt not to overload and understock stuff. Businesses can make the most of their resources and provide their clients with the finest possible service as a result. The country's better economic growth is evidence of these advantages, making it a good demonstration of how digitalization might assist retail marketplaces elsewhere in the world. Businesses have been able to become more innovative, competitive, and efficient as a result, and it has also made shopping for goods and services easier for customers. Because of this, shops worldwide must embrace digitalization and make full use of its possibilities.

Best digitising practises and innovative techniques in the Irish environment

The Irish retail sector is utilising distinct digitization practises and imaginative processes to further develop the inventory network and international company operations. These incorporate the utilisation of electronic information exchange (EDI), online frameworks, radio frequency identification (RFID), and versatile applications. Web-based systems let clients access product information, place orders, and track shipments, while EDI technology is leveraged to streamline the interchange of purchase orders and invoicing (Connolly *et al.*, 2022). Throughout the entire supply chain, RFID technology is utilised for inventory and shipment tracking. Versatile programmes are employed to deliver continuous information to consumers concerning their orders and shipments. Additionally, predictive modelling and analytics are being utilised by the Irish retail industry to gain a deeper understanding of customer preferences and behaviour. They are able to better anticipate demand, recognise patterns, and optimise the supply chain as a result of this. Man-made brainpower is also being utilised to mechanise the cycles associated with the store network, for example, stock administration, request dealing, and shipment following (Ciruela-Lorenzo *et al.* 2020). The utilisation of digitization has likewise empowered the Irish retail industry to participate in the cross-line exchange, as clients can presently buy products from global providers all the more easily without any trouble (Karnitis, Virtmanis, and Karnitis, 2019). Customers now have access to more products, and retailers can enter new markets as a result. Moreover, digitization has empowered the Irish retail industry to lessen desk work and smooth out tasks. This has brought about cost savings and further expanded client help.

Digitization has greatly benefited supply chain and international business in the Irish retail sector, according to this quantitative study's conclusions. The fundamental advantage of digitalization was that it allowed firms to increase customer service while simultaneously speeding up and cutting waste in their supply chains. According to the report, digitization has helped businesses manage their supply chains more effectively and minimise expenses connected with manual labour and logistics operations. Digitization has likewise permitted firms to access a wider pool of prospective clients and providers, as well as lower-functioning threats. The study also concluded that digitalization has made it easier for businesses to obtain data more rapidly, helping them to make better decisions and better satisfy the demands of customers. The study also showed that firms have been able to grow their international footprint as well as their presence in new and emerging areas thanks to

digitalization. Companies have been able to expand their worldwide reach and access new markets and customers owing to digitalization. The researchers likewise discovered that digitization has empowered firms to lessen the expense of arriving at consumers, augment their productivity, and minimise the expense of staff and merchandise. Overall, this study's findings demonstrate that digitization has greatly enhanced the Irish retail supply chain's overseas business. Digitization has empowered organisations to speed up and improve proficiency, decrease charges linked with difficult jobs and coordinated component activities, access new business sectors and consumers, and diminish functional risks. Companies have also been able to increase their global reach and presence as a result of digitization, which has also made it easier for them to obtain data and make decisions with more information.

Impact of the Irish Retail Sector's Supply Chain Operation in the Overseas Cheap Labour Market

The introduction of digitalization has resulted in considerable upheavals in the retail sector in Ireland. Digitization has empowered the Irish retail sector to turn out to be more cutthroat in the global market, permitting them to get less expensive work and components from outside (Zeb, Soininen, and Sozer, 2021). This has brought about cost-effective investment funds for the Irish retail area, with their general inventory network tasks turning out to be more proficient. The Irish retail business has been able to minimise expenses by better controlling and monitoring its supply chain activities thanks to digitization. The Irish retail business is able to track and trace things from their source to their final destination by deploying digital technologies like RFID tags. This helps them spot flaws in their retail network and make modifications to further enhance proficiency and save costs (Trzaskaet *et al.*, 2021). Additionally, the Irish retail industry can use analytics to monitor the performance of their supply chain operations, allowing them to make educated decisions regarding operations enhancement. In addition, the Irish retail business has acquired access to cheaper labour from abroad because of digitization. The Irish retail industry has access to the lowest-priced workforce by analysing labour costs from other nations with the use of digital technologies. As a result, the Irish retail business has been able to profit from the enhanced productivity and quality of labour in foreign markets while also decreasing labour expenses.

According to the study's findings, the retail industry in Ireland's supply chain has seen an increase in overseas orders as a direct result of the integration of digital technologies. The data also imply that operations have been automated as a result of the digitization of the

supply chain, cutting costs associated with order processing. In addition, the findings imply that the deployment of digitalization in the supply chain has resulted in a process that is more efficient and requires less manual involvement, lowering the amount of time it takes for products to reach consumers. The results of this dissertation reveal that the retail industry in Ireland has been able to take advantage of the overseas cheap labour market by employing low-cost foreign workers, in addition to the good benefits of digitization. This has permitted the area to minimise expenditures linked with the manufacture of items while as yet preserving an enhanced degree of value. Additionally, it has led to an increase in the sector's profitability due to an increase in the number of international orders and customers. As a consequence of this, the outcomes of this dissertation suggest that the incorporation of digitization into the supply chain of the retail industry in Ireland has had a beneficial effect not only on the speed and efficiency of the supply chain but also on an increase in international orders, which in turn has led to an increase in the sector's profit.

5.3 Chapter Conclusion

This discussion demonstrates that digitization has considerably enhanced the supply chain of international businesses. It has lowered expenses, boosted efficiency, expanded access to various markets, and enhanced the customer experience. This shows that the Irish retail sector should further research and apply digitalization because it offers considerable advantages for international supply chain operations.

Chapter 6: Conclusion and Recommendation

6.1 Chapter Introduction

The study's conclusion implies that the retail industry's global reach and supply chain efficiency have increased as a result of digital technology adoption. In addition, the studies reveal that digitization has resulted in a better customer experience, greater customer loyalty, and decreased costs. Additionally, the study shed light on the industry's difficulties in implementing digital technologies. It is abundantly evident that additional research is required to investigate the long-term implications of digitalization for the retail industry in Ireland.

6.2 Summary of Findings

Digitization's impact on supply chain international business is the subject of this quantitative research on Ireland's retail sector. This study indicates that digitization has greatly enhanced supply chain performance and efficiency, expanded market reach, and enhanced consumer happiness. The study concluded that the adoption of digital technology has decreased the costs of logistics, inventory, and other supply chain-related activities in terms of efficiency. Profits have increased as a result of retailers' enhanced access to a broader worldwide market. In addition, the supply chain's accuracy, speed, and dependability have been strengthened through the employment of digital technologies like tracking and tracing systems, online payments, and automated ordering procedures. This has resulted in quicker delivery times and better client satisfaction. The survey also revealed that the shops' usage of digital technologies had improved the quality of their products and services. Products and services that exceed customer expectations and adhere to industry standards have been secured by the use of automated systems to monitor quality standards. As a result, client happiness and loyalty have improved. The survey revealed that merchants have been able to produce new products and services that are personalised to their customers' demands thanks to the use of digital technologies. This has helped them stay serious in the global industry by supplying fresh and imaginative arrangements. In addition, the application of digital technologies has made it simpler to build novel business models, such as e-commerce, which has made it feasible for merchants to enter new markets and increase the number of clients they serve. Lastly, the survey showed that merchants have been able to access fresh data and insights that can be used to drive decision-making processes thanks to the use of digital technologies. This has helped businesses to differentiate consumer demands and answer them in an opportune style. As a result, consumer satisfaction has increased, and service to customers has improved. Overall, this study's findings imply that the retail business in Ireland has profited from the adoption of digital technology, resulting in enhanced efficiency, quality, innovation, and consumer satisfaction. The industry has been able to maintain its competitiveness in the global market as a result of this, which has resulted in greater profitability and sustainability.

Linking with Objectives

Linking with Objective: To assess the trend of digitization in the Irish retail sector supply chain

The worldwide supply chain of international retail firms is becoming increasingly dependent on digitization. By providing an automated and effective platform for a number of tasks, such as purchasing, delivery, and customer service, this technology is altering the way firms function. Companies have been able to raise productivity, save expenses, and improve performance by employing digital technologies for supply chain and international business. Companies may now watch and monitor their supply chain activities in real-time thanks to the advent of IoT (Internet of Things) technologies. Companies have been able to properly control their inventory levels, minimise expenses, and respond swiftly to client requests as a result of this. Additionally, businesses have been able to better manage customer relationships and increase customer satisfaction thanks to the utilisation of digital platforms like e-commerce and CRM systems. Companies can also lessen their environmental impact by migrating from paper-based procedures to digital platforms thanks to digital technologies. As businesses are increasingly required to adhere to environmental regulations, this is especially significant. Digital technology also promotes transparency, allowing firms to better manage their supply chains and lower the possibility of fraud and other illicit acts.

Linking with Objective: To examine the effect of digitization on the smooth flow of goods and services in the retail industry supply chain.

The retail supply chain's interchange and management of goods and services have been revolutionised by digitization. The supply chain has become more cost-effective and efficient thanks to digital technology. The movement of products and services has improved as a result of digitization, resulting in lower transaction costs. Businesses have been able to streamline the entire supply chain process thanks to digitization. It has made it feasible to communicate data in real-time, which enables firms to plan, track, and manage their inventory more effectively. Additionally, it has made it easier for businesses to access and share pertinent information with suppliers and customers, allowing them to make more informed decisions. Additionally, businesses can now automate the entire supply chain process thanks to digitization. Robotization has worked on the exactness and dependability of the information gathered and disseminated along the production network. It has also empowered companies to lower the number of manual tasks linked to the inventory network, therefore decreasing related charges. Digitization has likewise permitted firms to further enhance their client support. For instance, queries and concerns from customers can now be easily tracked and

swiftly answered by firms. This superior client support has permitted businesses to increase customer steadfastness and fulfilment, bringing about expanded bargains and benefits.

Linking with Objective: To analyse the use of technology and the effects of digital services on supply chain international business.

The current research, which looks at how technology is used and the effects of digital services on the international supply chain in the Irish retail sector, has shown that the adoption of computerization has produced positive results for the sector. The study's conclusions indicate that automated procurement methods and computerised buying systems have significantly improved operational efficiency in the sector. Technology breakthroughs such as robotics, enterprise resource planning (ERP), artificial intelligence (AI), and the Internet of Things (IoT) have all had an impact on the development in question. The use of this technology has made it easier for businesses to monitor orders and ensure prompt delivery, while also providing consumers with the ease of convenient online shopping. As a result of merchants being able to share information about product specifications, costs, and stock levels, the study's results imply that digitization has increased competition and improved possibilities for customers. Enterprises have been forced to adopt creative strategies and improve their business processes to stay competitive as a result of the heightened degree of competition. Additionally, the digitization process has made it possible for retailers to customise their offerings to the unique needs of their clientele, resulting in a more individualised experience.

In conclusion, the current research offers proof that the digitalization process has produced positive results for the area of international commerce in the supply chain of the Irish retail sector. The use of this technology has made it possible for businesses to save costs, improve operational efficiency, and increase customer happiness. Retailers must implement digitization and make use of its potential advantages to preserve their competitiveness and profitability. Additionally, it has allowed businesses to widen their reach and enter new market categories.

Linking with Objective: To examine best practises and innovative techniques in the Irish context

Investigations into the most effective methods and creative strategies used in Ireland's retail sector have revealed several insights. Irish merchants have been spotted using cutting-edge digital technologies, such as electronic data interchange (EDI), online frameworks, radio frequency identification (RFID), and mobile apps, as a way to expand their inventory networks globally. Customers may make orders, track shipments, and get product information thanks to this system. Additionally, using RFID technology gives businesses the ability to track shipments and inventory through the supply chain.

According to the study, retailers are using predictive modelling and analytics to understand the preferences and behaviours of their consumers. This makes it easier to predict demand, spot trends, and improve supply chain effectiveness. Artificial intelligence is also being used to automate several supply chain procedures, including order processing, inventory management, and shipment tracking.

In general, this research focuses on the best practises and creative strategies used in Ireland's retail sector. Retailers have learned that using digitization and cutting-edge methods makes it easier for them to expand their inventory networks globally. Predictive modelling and analytics are also used to learn more about the preferences and behaviours of customers. Artificial intelligence is also being used to automate supply chain procedures, which improves customer service, lowers costs, and increases effectiveness. It follows that adopting these ideal procedures and creative approaches is essential for retailers if they want to maintain their competitiveness and financial success in the retail industry.

6.4 Recommendations

Considering digitalization as a strategic approach to the retail industry, it appears that Irish retailers may increase their level of profitability and competitiveness. Retailers could consider investing in a range of technologies, such as electronic data interchange (EDI), online frameworks, radio frequency identification (RFID), and mobile applications, as a way to enhance their inventory networks. Additionally, it is strongly advised that businesses use analytics and predictive modelling to gain insight into the preferences and behaviours of their clientele. In addition, automating the processes of store networks may benefit from the application of artificial intelligence.

Additionally, it is suggested that retail companies hire workers from other nations who are willing to accept lower pay in exchange for longer hours by taking advantage of the

availability of low-cost offshore. As a result, it will be feasible to reduce manufacturing costs while also raising the product's value. Additionally, it is strongly advised to use digitization to lower costs related to order processing, increase efficiency, and require less human effort.

Retailers must routinely monitor and assess the impact that digital services have on their supply chain to effectively capitalise on the advantages that digitization has to offer. As a result, stakeholders will be able to identify and fix any potential weaknesses, ensuring ongoing profitability and competitiveness.

6.5 Limitations of the Study

This research article has a narrow scope and concentration. The conclusions from this publication cannot be applied to other nations since the research was limited to Ireland. Additionally, because the research was done in the retail industry, the results won't apply to other sectors. The study also used a limited sample size and was completed in a short amount of time, which might have caused some errors in the results.

Additionally, the study has some methodological flaws. For instance, since the poll was done online, some respondents may not have completed it or could have provided incomplete information. Furthermore, because the study was conducted in English, people who do not speak or understand English may not be able to use the results. Additionally, the study's quantitative methodology may have introduced some biases in the data it gathered.

The analysis of the information gathered has also been restricted in this study report. The research focused on how digitization affected Ireland's retail supply chain but did not look at potential side effects on the country's retail industry. Additionally, neither the potential advantages or disadvantages of supply chain digitization, nor the potential risks and difficulties related to it, were examined in the research.

6.6 Chapter Conclusion

This study analysed the effects of digitization on Ireland's retail supply chain in its conclusion. The study discovered that Ireland's retail business has been considerably influenced by digitization, leading to better customer service, cost reductions, and more effective operations. The study also discovered that merchants can now access data more quickly and readily thanks to digitalization, as well as cheaper supplies. The study also discovered that digitization has enhanced productivity, decreased manual labour, and boosted

foreign orders and profitability. Despite the research's limitations, the results offer important new information about how digitalization is affecting Ireland's retail supply chain. To remain competitive and reap the rewards of digitization, it is advised that shops continue to adopt and use the technology.

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Appendix

Questionnaire

1. What is your age?

25-30

30- 40

40-50

Above 50

2. How long have you been associated with the Irish retail industry?

1-2 years

2-4 years

More than 4 years

3. Do you agree that digitisation has made it easier to communicate between stakeholders in the Ireland retail industry?

Strongly Agree

Agree

Neutral

Disagree

Strongly disagree

4. Digitisation has helped reduce the cost of supply chain international business.

Strongly Agree

Agree

Neutral

Disagree

Strongly disagree

5. Do you agree that digitisation has improved the accuracy of order management in the Ireland retail industry?

Strongly Agree

Agree

Neutral

Disagree

Strongly disagree

6. Has digitisation made it easier to detect fraud in the Ireland retail industry?

Strongly Agree

Agree

Neutral

Disagree

Strongly disagree

7. The use of digitisation enabled better inventory management in the Ireland retail industry?

Strongly Agree

Agree

Neutral

Disagree

Strongly disagree

8. Do you agree that digitisation has improved the accuracy of forecasting in the Ireland retail industry?

Strongly Agree

Agree

Neutral

Disagree

Strongly disagree

9. Digitisation has made it easier to manage customer data in the Ireland retail industry?

Strongly Agree

Agree

Neutral

Disagree

Strongly disagree

10. Do you agree that digitisation has enabled the Ireland retail industry to better manage the flow of goods?

Strongly Agree

Agree

Neutral

Disagree

Strongly disagree

11. Did digitisation make it easier to manage supply chain risk in the Ireland retail industry?

Strongly Agree

Agree

Neutral

Disagree

Strongly disagree

12. Has digitisation made it easier to improve transportation efficiency in the Ireland retail industry?

Strongly Agree

Agree

Neutral

Disagree

Strongly disagree

13. Do you agree that digitisation has enabled the Ireland retail industry to better manage its supply chain costs?

Strongly Agree

Agree

Neutral

Disagree

Strongly disagree

14. Digitisation has made it easier to reduce paperwork in the Ireland retail industry?

Strongly Agree

Agree

Neutral

Disagree

Strongly disagree

15. Has digitisation made it easier to reduce costs in the Ireland retail industry?

Strongly Agree

Agree

Neutral

Disagree

Strongly disagree

16. Do you agree that digitisation has made it easier to increase customer satisfaction in the Ireland retail industry?

Strongly Agree

Agree

Neutral

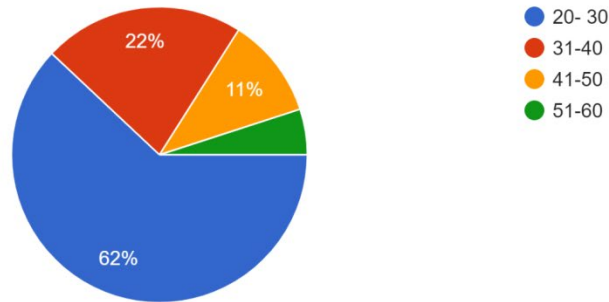
Disagree

Strongly disagree

Results

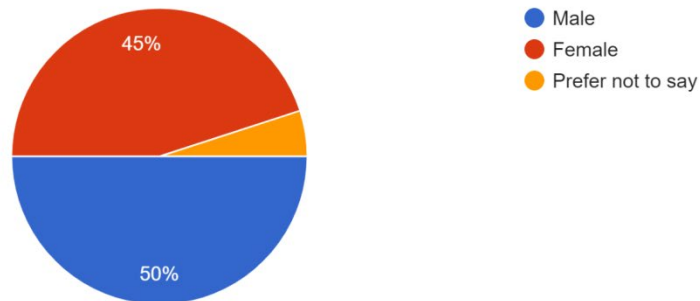
1. What is your age?

100 responses



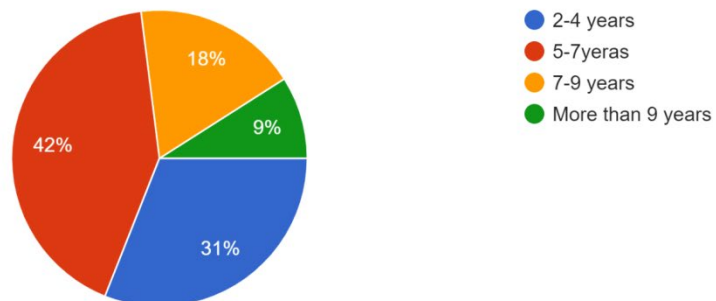
Please mention your gender

100 responses



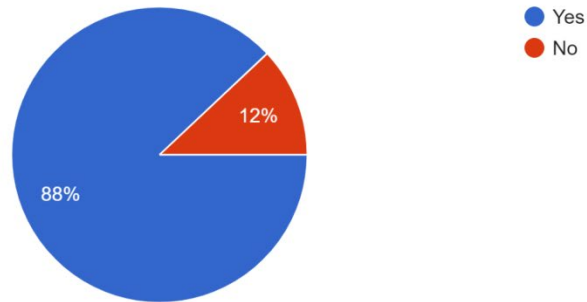
How long are you working as an operations manager?

100 responses



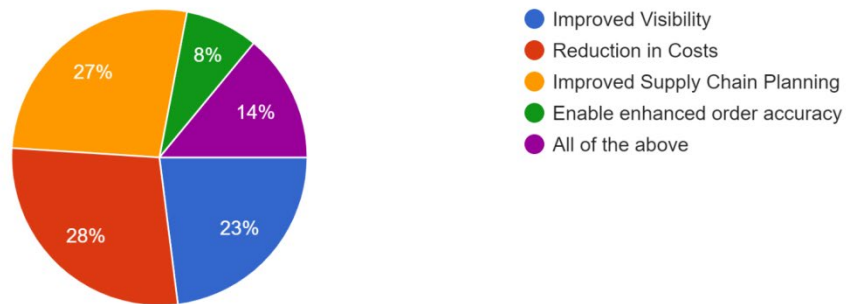
Are you aware of the benefits of digitalisation in the supply chain?

100 responses



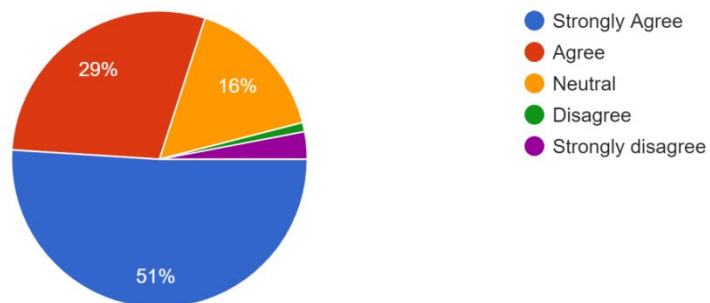
What are the benefits of digitalisation of supply chain in the retail sector?

100 responses



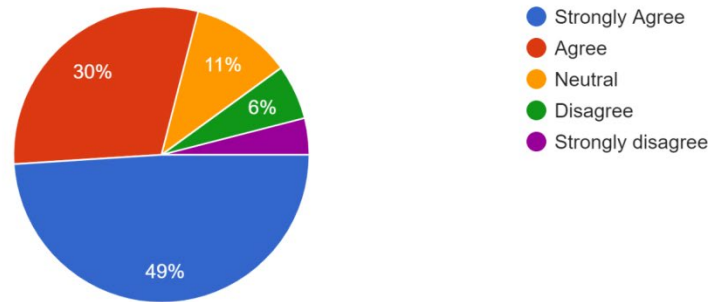
Do you agree that digitalisation of supply chain improved the flow of goods and services in the retail industry?

100 responses



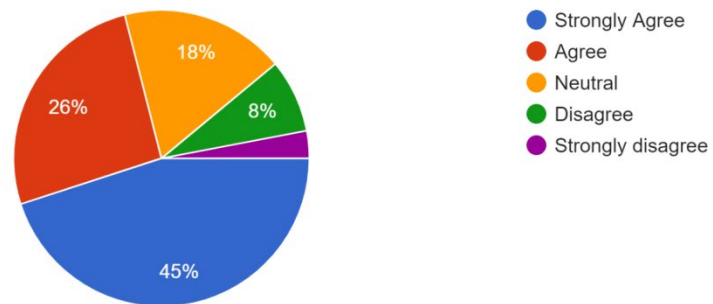
Do you agree that digitalize supply chain helps in reducing cost of operation?

100 responses



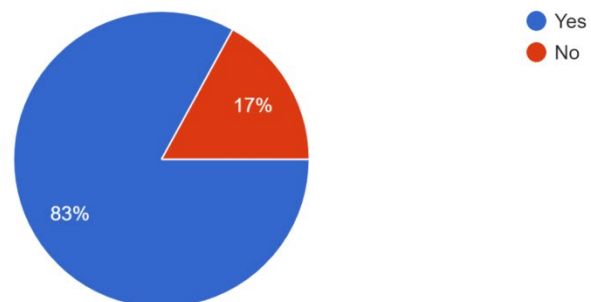
Do you agree that digitalisation helps in bringing visibility in supply chain?

100 responses



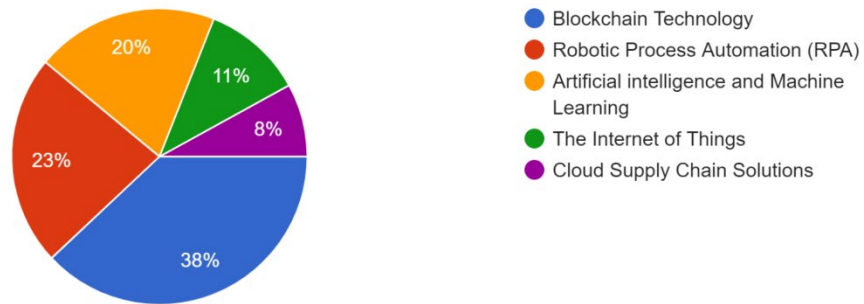
Has your organization digitalized its supply chain?

100 responses



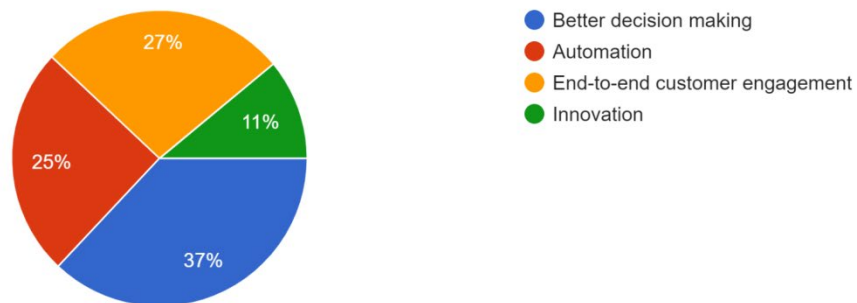
According to you what are the best practices and innovative techniques used by your company in supply chain digitalization?

100 responses



What are the areas that supply chain digitalisation can impact on?

100 responses



What is the major challenge of digitalizing the supply chain?

100 responses

