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# Impact of wholesale trade digitalization on Saudi economic growth: Reality and prospects

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## Abstract

Digitalization concerns almost all economic spheres, significantly changing their operational methods. It has become highly necessary to enhance competitiveness and contribute to economic growth. This study aims to evaluate the digitalization rate of the wholesale sector and identify its impact on economic growth in Saudi Arabia. It contributes to the recent scarce literature analyzing specifically the effectiveness of the digital transformation of the wholesale trade sector in the economy. This research work highlights the importance of digitalization in achieving economic objectives, investigates the digitalization of Saudi wholesale trade, and provides a comparative study before and during the adoption of digitalization in the Saudi wholesale sector. The evolutionary impact of digitalization in the Saudi wholesale sector on economic growth, assessed by GDP, has been stated and analyzed. The findings show that the wholesale trade sector is undergoing a continuous digital transformation, changing its business operating model, whereas the impact on economic growth remains moderate. The considerable efforts deployed by the Saudi government in the field of digitalization, as well as the implementation of suggested measures, constitute an advantageous framework for the economy to achieve the targeted growth objectives.

**Keywords:** Digital tools, Digitalization, Saudi economic growth, Wholesale trade.

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## 1. Introduction

Wholesale trade, also called wholesaling, inter-company commerce, or trading, includes all company categories (VSEs, SMEs, or large groups) carrying out an intermediary activity of commerce (purchase and/or sale) of products, specifically in B2B (Business to Business). These companies, wholesalers, or distributors are positioned between the producer and the

retailer within the supply chain. Furthermore, wholesaling involves purchasing goods in large quantities; hence, the term 'wholesale'.

In a world characterized by rapid technological progress, including the digital transformation that sweeps across industries, the wholesale sector has even benefited from this evolution. It has achieved significant digitalization, contributing to a "revolution" in the wholesale landscape and catalyzing the economic development of countries. In Saudi Arabia, the role of wholesalers is important, creating a continuous dynamism between local retailers and businesses. In the objective of achieving the 2030 Vision, KSA has boosted the usage of advanced digitalization technologies to confirm the role of these actors in the accomplishment of economic aims. This research work underscores a fundamental shift in business activity and highlights the crucial role of technology in reshaping wholesale trade and driving economic progress. The results of the present work could identify the thoughtful significance of digitalization in revolutionizing the wholesale landscape and its impact on Saudi economic development.

## 2. Context and Literature Review

In the framework of a new era, marked by perpetual technological evolution and substantial interconnectivity, the wholesale industry is facing various challenges to update to the new market requirements. With the evolution of traditional business models and the tendency towards digital transformation across all economic sectors, the need for wholesale companies to adapt becomes essential.

Wholesalers play a key role in ensuring that retailers obtain the products needed at the right time. This is important, especially in industries where inventory turnover is high, and it is critical to have the necessary stock available at the right time. Due to their expertise in logistics and inventory management, wholesalers assist retailers in maintaining optimum stock levels, avoiding over-ordering or running into shortages. This can directly impact the retailer's ability to meet customer demand [1]. While wholesalers may not always be at the forefront, they are the backbone of many industries, enabling smoother and more efficient market operations. In order to clearly expose the wholesale role in the economy, the traditional roles of the wholesaler will be analyzed, and the eventual needs for modernization will be pointed out.

Wholesalers fulfill a number of critical roles within the supply chain, not only for manufacturers but also in helping retailers to meet consumers' demand. They are primarily bulk purchasers and distributors. Providing this type of large purchasing capacity to manufacturers allows them to devote their time and attention to their core competency-manufacturing without the distraction of selling in small batches. This bulk purchasing streamlines operations, reduces costs, and allows wholesalers to pass over the savings on the supply chain [2].

In addition to bulk purchasing, wholesalers are crucial in inventory management. By maintaining a well-stocked inventory, they allow retailers to balance between supply and demand. This proactive approach minimizes the stockouts risks, generating a run out of essential items, or the overstock situations, where they have excess inventory that ties up capital [1].

The traditional wholesale model is characterized by several distinct features that outline the wholesalers' operating way within the supply chain. One of the most prominent characteristics is the reliance on personal relationships. Businesses dealing with this model are often grounded on long-term trust and rapport with face-to-face meetings and personal interactions, which was the norm. This relationship-building fosters loyalty and facilitates smoother negotiations and collaboration between wholesalers and their partners [3]. Another significant aspect of the traditional wholesale model is the reliance on manual operations. Processes such as ordering, invoicing and payments are typically handled through paper-based systems, which involve considerable manual effort and losing time. This reliance on traditional methods can lead to inefficiency and is prone to human error, making operations less streamlined compared to methods and models using advanced technology [4].

As the wholesale industry is facing new challenges and changing consumer expectations, the implementation of digital technologies becomes crucial for staying competitive and becomes among the essential pillars of economic growth.

## 3. Digitalization Impact on Economic Activity

The speedy advancement of digital technologies is escorting the fourth industrial revolution. In fact, digitalization has conquered almost all economic activities, leading to a "digital economy". The excessive use of digital technologies has modified the traditional concept of economic growth and has introduced significant changes to business models [5, 6]. It transforms industries from production modality to the delivery services process. Sectors like healthcare, retail, manufacturing, tourism, finance, and businesses are using tools like artificial intelligence (AI), cloud computing, and the Internet of Things (IoT) to work faster, smarter, and more efficiently [7]. Particularly, the retail sales sector witnesses an increased digitalization. Figure 1 proves the continuous rise of e-commerce as a percentage of total worldwide retail sales, progressing from 7% in 2015 to 25% in 2025. These transformations have raised several inquiries about the real effect of digitalization on economic growth.

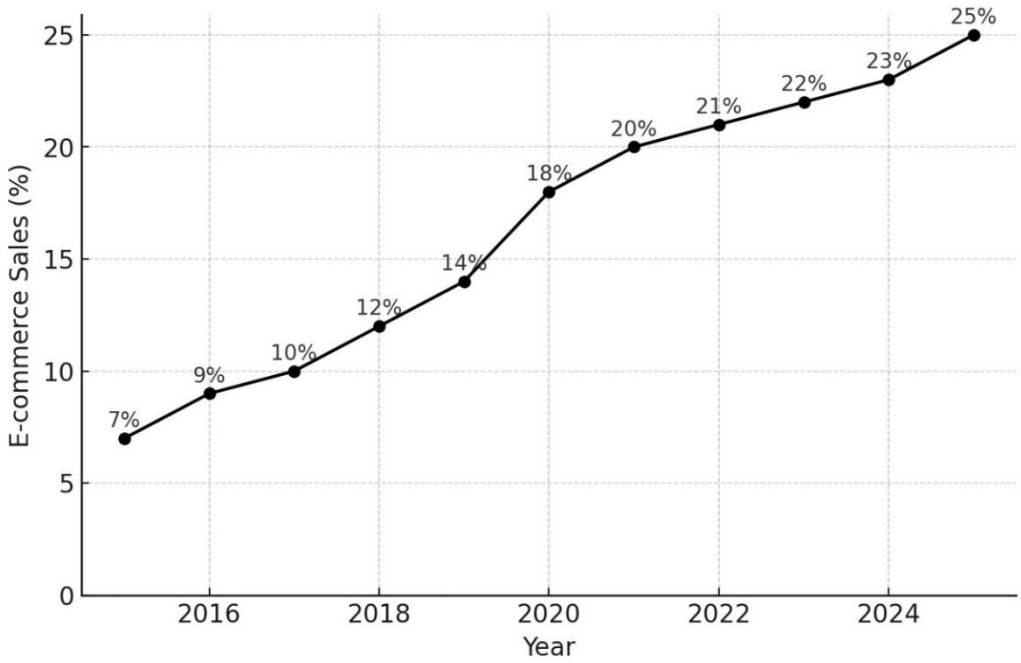


**Figure 1.**
E-Commerce as percentage of total retail sales worldwide from 2015 to 2025.
**Source:** Statista [8].

The expected effect of digital transformations is to promote economic growth, reduce operating costs, maximize financial and banking profitability, and improve efficiency and productivity [9, 10]. However, the use of new tools and technologies requires special care in order to benefit from their advantages while minimizing operational, financial, and banking risks [11]. Moreover, the speed of adoption varies between countries, with some leading the way in digital innovation, which may cause significant unevenness of this digitalization effect on economic growth between countries, as confirmed by Bukht and Heeks [12]. The US, Germany, China, and South Korea are at ahead of the curve when it comes to digital transformation. In the US, a 2022 [13] survey revealed that 93% of companies are working on digital initiatives, especially in AI and cloud technology. Ardito et al. [14], conducting studies on a sample of North American SMEs, stated that digital transformation could generate the acquirement of new competences and skills, and they found that digital orientations positively affect the performance of the innovation process and product, which can promote economic growth. Indeed, the digital economy contributed by 9.6% of the US gross domestic product (GDP) in 2019 [15].

Germany is a leader in smart manufacturing. Its Industry 4.0 strategy implies the use of robots, automation, and IoT to make factories more efficient. As for 2023, and according to the German Ministry of Economic Affairs, 82% of German manufacturers were already using these technologies. The transition from direct to online trade on Germany generated an increase in GDP by €5bn in 2019 [16]. The impact on SMEs performance is still ambiguous. The study carried out by Radicic and Petković [5] on German SMEs demonstrates that the degree of the digitalization effect varies according to the size of companies, and it is still moderate. This might be due to the scarcity of financial resources and the inadequate of personnel capacity and skills to adopt properly the digital technologies in these firms. Pfister and Lehmann [17] suggest focusing on the ways of acquiring digitalization skills and technology adaptability to benefit from the advantages of technological transformation.

Deeming the Asian countries, China conquers the first position in key technology investments and the second in the world in fintech, virtual reality, autonomous driving, wearables, education technology, 3D printing, robotics and drones as mentioned by Yao [18]. China is a digital heavyweight too, especially in e-commerce and mobile payments. Figure 2 confirms that China is a leader in e-commerce and shows that the share of e-commerce sales on total retail sales increases significantly, achieving a growth of 44% between 2014 and 2020. Additionally, more than 900 million people in China use the internet, and platforms like Alipay and WeChat Pay are global leaders in digital payments. Due mainly to technological transformation and digitalization, China has achieved considerable economic success, reaching the top position in terms of several macroeconomic variables, especially the GDP, labor force, exports... [9, 19]. In this context, Beier et al. [20] have conducted studies on the effects induced by the digitalization of German and Chinese industries and they affirmed that technological transformations can affect the economic growth in addition to the environmental and social aspects. Arsić [21] predicted that the most important economic impact of digitalization is the rise of GDP per capita and productivity. In fact, the International Monetary Fund (IMF) predicts that by the end of 2025, nearly 45% of China's GDP will come from the digital economy [22].

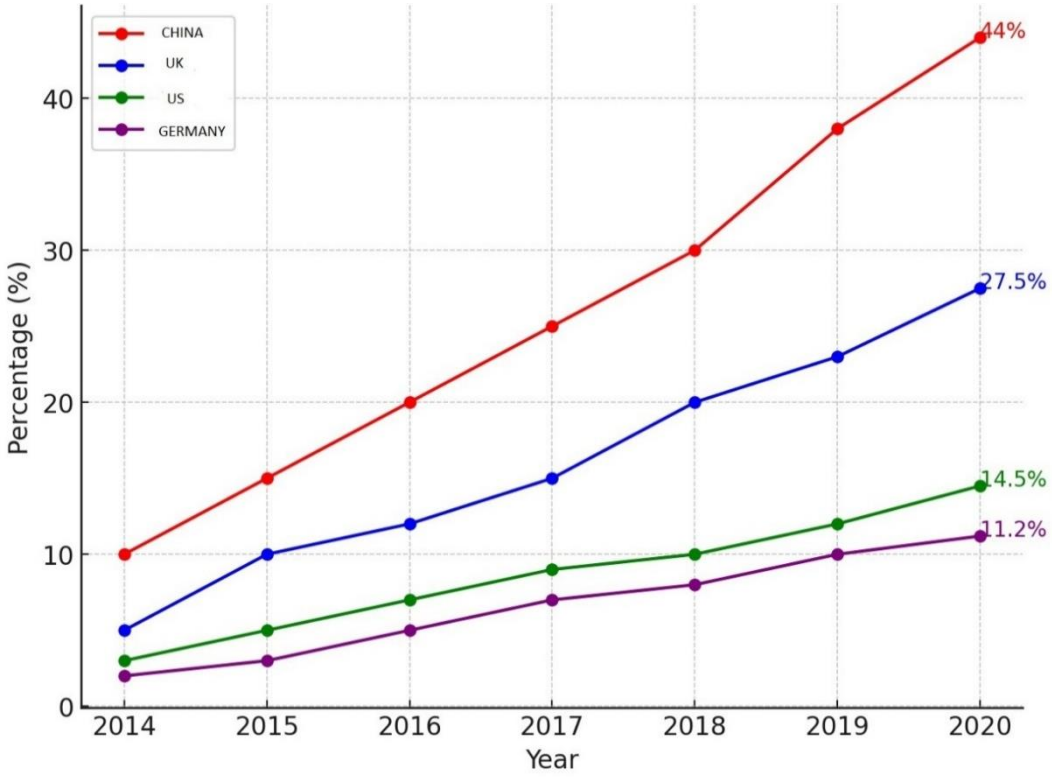


**Figure 2.**
E-commerce growth in selected countries: China is the fastest
**Source:** Statista [23].

Yoon et al. [24] have studied the digital transformation in South Korea and confirmed the significant contribution of the digital industry in economic growth. They stated that the digital industry accounts for 11.4% of GDP in 2020. The digital industries, particularly electronic, computer and optical sectors, have realized the greatest productivity growth, reaching more than 6.7% as annual average growth against 0.1% approximately for the manufacturing industry. The government has made substantial investments to create a robust digital infrastructure, occupying the second largest position spender by GDP on research and development among OECD countries, according to the KISTEP [25]. To achieve economic growth objectives (stimulated by digitalization), South Korea has applied a rigorous plan to implement digitalization through the government-driven infrastructure-first approach. It aims the socializing of the digital transformation by encouraging all economic stakeholders (involving consumers and SME) and assisting them to adopt digital technologies.

Habibi and Zabardast [26] and Myovella et al. [27] have analyzed the impact of ICT (information and communication technology) on different development economy levels. The analysis has been performed on Middle East Countries, OECD countries, and Sub-Saharan Africa countries and OECD countries. They found a positive effect of ICT technologies on economic growth, whatever the countries' development level.

For the Saudi market, and according to the General Authority for Statistics [28] use of digital technology in wholesale activity was around 19% of the entire amount realized by the economy in 2022. This confirms the character of such practice in the Saudi economy. Moreover, 61% of the Saudi companies specialized in the wholesale activity used programs or engines connected to the internet during 2022. This feature is a part of the gross amount of 60.1% of the total economy used connected programs in 2022.

## 4. Investigations on the Saudi Market

The Saudi Arabian wholesale market has shown a rapidly transforming business that regularly adopts technology to enhance their efficiency. In line with the government's 2030 Vision initiative to diversify the economy, there has been a significant push towards digitalization across various economic sectors, including wholesale. E-commerce platforms have gained attraction, with local players such as Souq.com (now a part of Amazon) providing wholesalers with an opportunity to reach broader customer bases. Additionally, the integration of AI and data analytics assists wholesalers in optimizing their supply chains and customer engagement strategies. A study performed by Deloitte Report [29] indicated that companies employing technology in Saudi Arabia have reported an average of 25% improvement in operational efficiency. Moreover, the adoption of Enterprise Resources Planning (ERP) systems is in the rise, enabling businesses to streamline their processes and gain insights into inventory management and sales trends. As the Saudi economy continues to involve technological advancements, wholesalers are willing to improve their competitiveness in the global marketplace. Figure 3 indicates that the Saudi Arabia e-commerce market size is estimated to pass from 13.6 billion USD in 2024 to 23.37 billion USD in 2029.

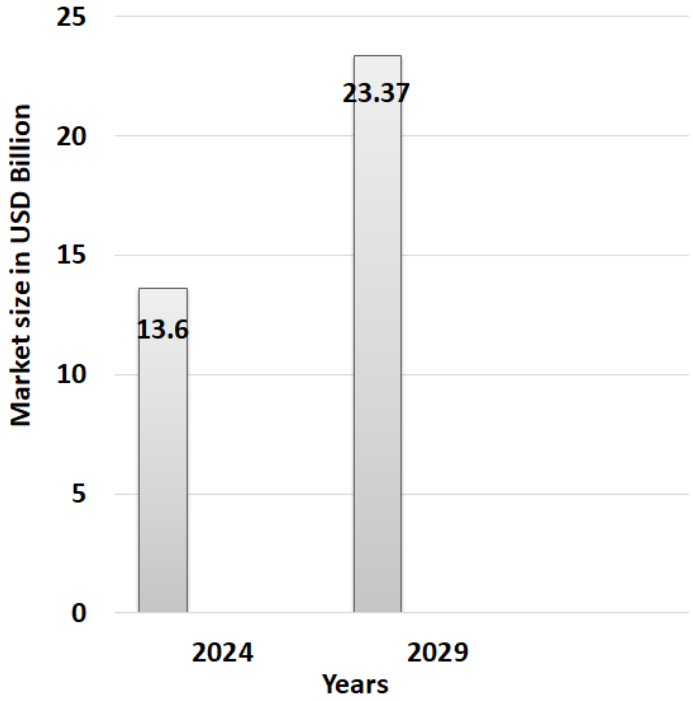


**Figure 3.**
Saudi Arabia E-commerce Market Size.
**Source:** [30].

According to the International Trade Administration (ITA) in the annual report of commerce and international trade [31] Saudi Arabia displays its dedication to create a top-tier digital economy through ongoing investments in ICT, which includes initiatives such as smart cities and e-government services. A key factor driving the Kingdom's digital transformation is the substantial investment in digital infrastructure. Over the past six years, more than $24.8 billion has been allocated to enhance this sector, leading mainly to an improvement in internet quality. This progress in Saudi Arabia is confirmed by achieving 99% internet penetration rate and mobile internet speeds, reaching 215 Mbps - almost double of the global average. These developments have earned the Kingdom the top ten position among the nations worldwide in mobile internet speed. Also, 20,3% of Saudi companies grant digital services via online applications in 2022. Among these companies, ~19,6% are specialized in the wholesale activities. Moreover, ~ 47.5% of wholesale companies purchased online services, making up a significant share of the market. 16.3% of businesses delivered goods online, 17,1% of them received their goods online and 31,3% of these companies tracked their goods online [28].

### *4.1. Illustrations of Saudi Wholesale Digitalization*

Digitalization is reshaping the wholesale sector in Saudi Arabia, offering measurable improvements in efficiency, customer engagement, and market expansion. Figure 4 illustrates the remarkable evolution of online shoppers between 2016 and 2022, giving rise to an increase from 10.5 to 19.3 million.

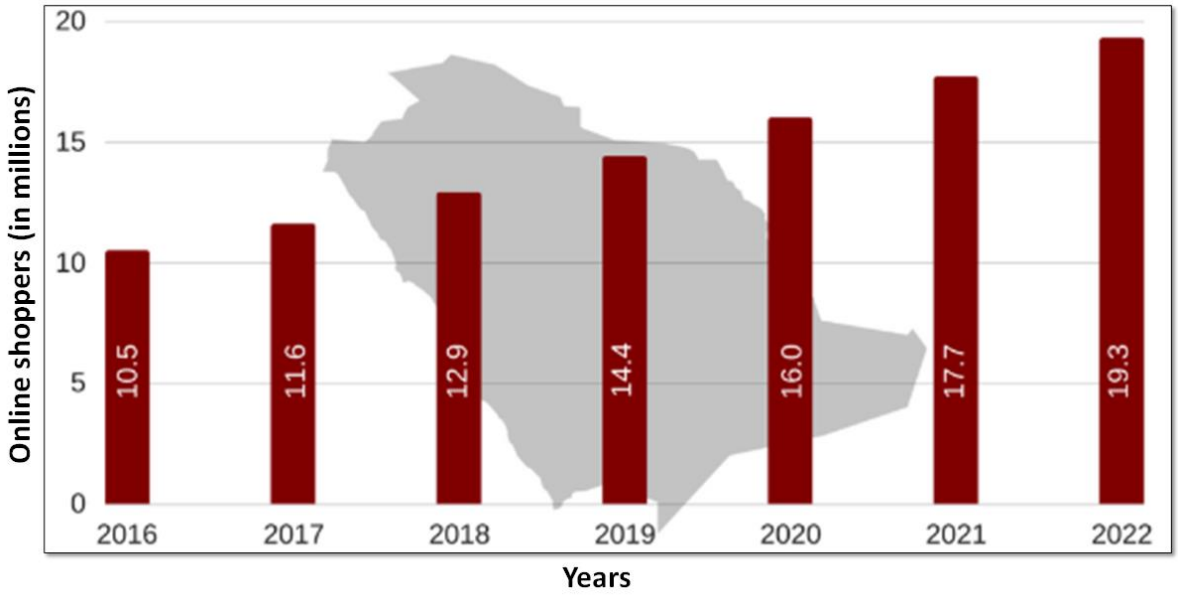


**Figure 4.**
Number of online shoppers in Saudi Arabia (in millions) from 2016 to 2022.
**Source:** Statista [32].

This evolution demonstrates that digitalization is driving growth and efficiency within the wholesale sector in Saudi Arabia. As the Kingdom continues to invest in ICT infrastructure, the benefits for wholesalers will continue to expand, enabling them to operate more effectively in a digital world, which positively affects economic growth. These benefits for wholesalers are mainly manifested in the following bridges:

- Automation and Efficiency: According to Panigrahi et al. [33], the shift toward automation in wholesale activities is driven by digital tools that streamline operations and reduce errors. With 99% of internet coverage and 215 Mbps mobile internet speeds in Saudi Arabia, wholesalers can implement real-time inventory management, cutting down on human errors and improving overall efficiency. This shift contributes to a 10-15% reduction in operational costs through the optimization of stock management and order fulfillment.
- E-Commerce integration: According to the International Trade Administration [31], e-commerce is a game-changer for wholesalers in Saudi Arabia, expanding their extend to global markets. In 2024, e-commerce sales in the Kingdom exceeded $8 billion, due to the spreading use of digital platforms by wholesalers to connect with customers and retailers. This is bolstered by Saudi Arabia's $24.8 billion investment in ICT infrastructure over the past six years, which has made online business opportunities more accessible.
- Data-driven decision-making: Digital tools like AI and big data analytics are enabling wholesalers to make smarter decisions and helping businesses to optimize inventory, predict market trends, and enhance decision-making processes, which have considerable repercussions on economic growth. In Saudi Arabia, the AI sector is expected to contribute by almost $133 billion to GDP by 2030. Additionally, around 82% of medium-to-large businesses in the Kingdom adopted IoT solutions in 2024, improving operational insights and wholesalers' forecasting capabilities [34].
- Supply chain visibility and management: Real-time tracking and visibility in the supply chain become more efficient thanks to digital technologies. Saudi Arabia's 5G networks cover over 95% of urban areas, enabling wholesalers to monitor shipments in real time and reduce logistics delays. This increased visibility has already led to 12-15% savings in logistics costs, with faster and more reliable deliveries [34].
- Customer engagement and personalization: Wholesalers are nowadays able to engage customers in more personalized ways, due to digital platforms like customer relationship management (CRM) systems. In Saudi Arabia, 60% of customers prefer receiving personalized offers, and the adoption of CRM tools is annually rising by 15%. This evolution allows wholesalers to better target customer needs, increasing satisfaction and loyalty while driving higher sales.
- Logistics and delivery optimization: Logistics and delivery processes are significantly more efficient with the integration of digital tools such as route optimization software. Saudi wholesalers benefit from a 25% reduction in delivery times, with cost savings up to 20% in certain regions. This optimization is further supported by the Kingdom's investments in advanced 5G networks and IoT-enabled tracking systems, making deliveries faster and more cost-effective.

Subsequently, Saudi Arabia is rapidly becoming a digital powerhouse owing to its ambitious 2030 Vision. The digital transformation is among the main levers of the Kingdom's economy diversification objectives. According to the International Data Corporation [35], Saudi Arabia plans to spend over $34.5 billion on digital initiatives by the end of 2025. This includes the achievement of giant projects like NEOM, a futuristic city designed from the ground up with AI and IoT technology. In addition, the Saudi healthcare sector involves digital tools, with telemedicine and electronic health records (EHRs) providing a considerable repercussion on the sector's efficiency. Amar et al. [36] stated that 76% of healthcare providers in the country are using digital solutions to improve patient care and streamline operations. In finance, digital payments are overwhelming as indicated by the Saudi Central Bank [37], showing a 45% growth in digital payment transactions in 2022.

Overall, the global orientation towards digital technology is growing rapidly. Statista [38] projects that businesses worldwide will spend $3.4 trillion on digital transformation by 2027. Companies in various sectors like retail, manufacturing, and finance are requested to invest in these tools to stay competitive. According to the World Economic Forum [39], around 70% of the new value created in the economy over the next decade will come from digital platforms (practices, activities, etc.).

The afterwards sections investigate the transformation of the Saudi market in view of the digitalization process, focusing on two distinct phases: before and after the digital era. The comparison between these periods highlights the evolution path of the traditional wholesale practices into more streamlined and technology-driven processes, which can positively affect economic growth.

### *4.2. Comparative study Before and post Digitalization*

#### *4.2.1. Before Digitalization (Pre-2010s)*

Before the 2010s, Saudi Arabia's economy was predominantly dependent on oil exports, with a limited diversification into other sectors. Wholesales, while important, have operated mostly on traditional models which are based on outdated practices and characterized by high dependence on manual processes, lack of technological integration, and fragmented supply chains. Wholesale activities were confined largely to traditional methods of business, which hindered efficiency, growth, and competitiveness on a global scale. In this period, the wholesale trade sector contributed by ~ 4.7% of Saudi GDP (an estimated value of $13 billion). The operational inefficiency, such as reliance on paper-based management systems and the lack of automation technologies, have limited the growth of the industry [40]. The wholesale sector in Saudi Arabia was not assisted by advanced technologies for tracking inventory, managing orders, or forecasting demand. Inventory management was often handled manually, which led to inefficiencies such as overstocking or stockouts, creating troubles in the supply chain. This traditional approach has resulted in a business facing challenges with both cost control and logistical efficiency. It has also limited their ability to promptly react towards market changes. Wholesalers operated mainly within the local market framework, relying heavily on direct relationships with buyers and sellers, and most transactions were conducted face-to-face. Paper-based documentation was the standard, and cash transactions were prevalent, especially in smaller, family-owned businesses. This manual way of conducting business was slow and prone to errors, contributing to a lack of scalability for businesses that might, otherwise have been able to reach broader markets. This period also witnessed a lack of centralized databases and real-time information systems. As a result, wholesalers had limited visibility on inventory levels, market trends, or customer preferences, preventing them from forecasting demand or managing stock effectively. Saudi wholesalers were furthermore unable to access to global supply chains or modern logistics technologies, such as automated warehouses or real-time tracking systems.

Despite Saudi Arabia being the largest economy in the Gulf Cooperation Council (GCC), wholesale activities accounted for a small portion of the country's overall economic output. According to the World Bank [41], Saudi Arabia's GDP was overwhelmingly driven by the oil sector, which contributed about 50-55% of total GDP, while non-oil sectors such as wholesale and retail trade made up only around 16-18% of the national economy. The wholesale trade was concentrated mostly in a few major cities like Riyadh, Jeddah, and Dammam, with most of the activity occurring in brick-and-mortar stores or through distributors, who acted as intermediaries between manufacturers and retailers. The lack of technological infrastructure during this period prevented many businesses from scaling up operations and accessing broader domestic or international markets [42]. Additionally, logistical challenges further hindered the growth of the wholesale sector. While Saudi Arabia's geographic location is strategic, serving as a gateway to both Asia and Africa, its transportation network was not fully optimized for high-efficiency trade, often causing delays and higher operational costs for wholesalers. The retail and wholesale sectors were also constrained by little access to real-time data on consumer demand. Wholesalers were at a disadvantaged situation when they needed to anticipate and respond to frequent changes in the market.

#### *4.2.2. After Digitalization (Post-2015)*

With the launch of Vision 2030 in 2016, Saudi Arabia started to implement the foundation for a diversified economy, where the digital transformation is among the key pillars. In this new era, the Kingdom invested heavily in digital infrastructure, technology, and education. By 2021, Saudi Arabia had allocated more than $15 billion to expand broadband access, promote cloud computing, and enhance the national e-commerce ecosystem [43]. This shift sets a step to a profound transformation in the wholesale sector. Since 2015, digitalization has revolutionized the business models and performance of traditional industries, including wholesale. According to Business Startup Saudi Arabia, the kingdom can achieve the double size of its current economy via continuously supporting digital transformation. It can reach SAR 6 trillion (USD 1.6 trillion) by 2030 [44]. The widespread adoption of digital technologies in wholesale operations led to an enhancement of efficiency and cost-effectiveness. One of the most significant changes was the introduction of e-commerce platforms like Namshi.com, Souq.com (now Amazon.sa), and Noon.com, which allowed wholesalers to reach domestic markets as well as international buyers. Figure 5 shows that these platforms are among the top e-commerce platforms in Saudi Arabia, for example, Namshi.com attains ~126 m USD as net sales in 2020.

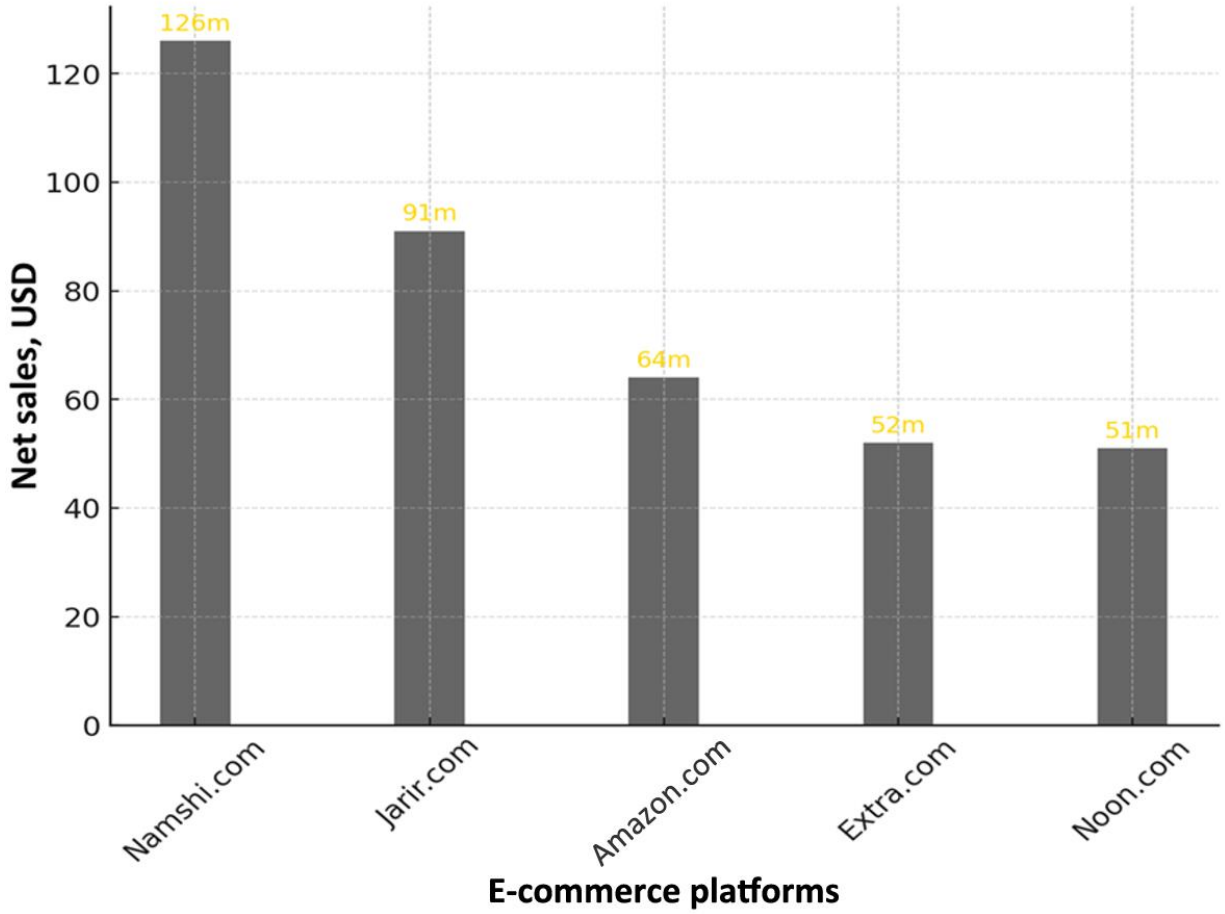


**Figure 5.**
Top E-commerce platforms in Saudi Arabia in 2020 (net sales in USD).
**Source:** Statista [45].

As for 2023, e-commerce accounted for 26% of total retail sales in Saudi Arabia (World Economic Forum) [46]. The increased accessibility of digital markets allowed wholesalers to expand their customer bases beyond traditional boundaries, bringing a more competitive edge to the sector. Moreover, in 2023, the information and communication technology (ICT) sector accounted for 4.1% of Saudi Arabia's GDP, which corresponds to an estimated value of more than $40.94 billion. A significant part comes from the evolution of wholesale trade, where online platforms and digital solutions allow faster and more efficient transactions [47]. Further contribution to the wholesale growth sector was the implementation of cloud computing and AI-driven technologies to streamline inventory management and demand forecasting. The implementation of cloud-based systems for real-time inventory tracking has significantly improved the accuracy and speed of wholesaler operations. This reduces inventory holding costs by 15-20% and improves supply chain efficiency [48]. These systems allowed wholesalers to predict fluctuations in demand and adjust accordingly the stock levels, cutting waste and improving customer satisfaction. Besides, AI spending is expected to reach $1.9 billion by 2027, with an annual growth rate of 40% By 2030. AI could add up to $135 billion to Saudi GDP. In the wholesale sector, AI systems enable predictive inventory management and increase personalization of services, rising productivity and value creation [49].

The Saudi government also focused on improving the digital logistics infrastructure, facilitating faster delivery and reducing operational bottlenecks. In 2020, the Saudi Ports Authority (Mawani) launched "SAUDI E-PORT," a digital platform that simplified port operations and logistics, reducing waiting time and paperwork for wholesalers involved in international trade [50]. This digital advancement was particularly beneficial for Saudi Arabia’s position as a logistics hub for the GCC, linking wholesalers to regional and global markets more efficiently.

A key factor in the digital transformation of wholesale activities was the adoption of fintech solutions. The integration of digital payment systems like Mada and Saudi Payments facilitated smoother, faster, and more secure transactions, which is crucial for both local and international trade. By 2021, digital payments accounted for over 60% of all retail transactions in Saudi Arabia (Saudi Central Bank) [37], reflecting the shift away from cash-based economies. Wholesalers were able to hold these systems, ensuring more streamlined payment processes and reducing fraud, which enhances trust in the marketplace. As the wholesale sector starts to adopt these technologies, the logistics industry also benefits from advancements in blockchain technology and smart contracts, which have minimized transaction delays, reduced fraud, and improved transparency in cross-border trade. According to the Saudi Logistics and Supply Chain Council [51], the implementation of blockchain technology in logistics reduced processing times by 30%, making the wholesale sector more agile and responsive to market needs. One of the most important developments was the establishment of smart cities such as Neom, which aims to leverage cutting-edge technologies, including AI, IoT, and robotics, to create efficient and sustainable business ecosystems.

By the end of 2025, it is expected that the Neom project will involve over than 500 wholesalers, making it a major hub for innovation in the wholesale sector [43].

Overall, the digital transformation has boosted Saudi Arabia's GDP, especially within the non-oil sector. In 2022, the digital economy contributed by ~ 7% of Saudi Arabia's total GDP, corresponding approximately to $70 billion (World Bank) [52]. This number is predicted to rise by 10% in 2030 as digital adoption is expanding further. The non-oil GDP's growth rate also reached 4.2% in 2022, since industries like wholesale trade, manufacturing, banking, and services leveraged digital tools intend to increase productivity and competitiveness [43].

## 5. Future Prospect and Recommendations

The wholesale sector in Saudi Arabia is undergoing a rapid digital transformation driven by government initiatives, technological advancements, and varying business needs. As part of Vision 2030, Saudi Arabia aims to increase the digital activities contribution to GDP from 2.6% in 2022 to over 19% by 2030 (Saudi Ministry of Communications and Information Technology) [53]. This shift is visible in the wholesale sector, where e-commerce transactions grew by 36% in 2023, making Saudi Arabia the fastest-growing digital market in the MENA region (Statista) [38]. The following section develops some key trends shaping the future of wholesale digitalization in the Kingdom.

### *5.1. Future prospects*

- AI and machine learning for smarter operations: AI is a powerful tool that the economies rely on to achieve better results. In the wholesale sector, AI-powered analytics are expected to drive efficiency, with global adoption expected to reach $6.2 billion by 2027 [54]. In Saudi Arabia, businesses using AI-driven demand forecasting have already fulfilled a reduction of 15-20% in inventory costs and an improvement of 30% in order accuracy [36].
- Blockchain for transparency and trust: Blockchain is a secure and transparent digital ledger that records transactions such a way to avoid alteration and tampering. In fact, it is confirmed that it can help businesses, including wholesalers, track payments, verify authenticity, and streamline operations without the need of intermediaries. By 2026, over 60% of wholesale businesses in the Kingdom are globally expected to integrate blockchain for secure transactions [55]. In Saudi Arabia, early adopters in logistics and wholesale have reported a reduction of 25% in payment delays and a drop of 40% in fraud-related issues [56].
- Big Data and market insights: Big data refers to the huge amount of information that businesses gather from various sources like customer transactions, market trends, and online activities. Once used effectively, it helps companies in various tasks such as making smarter decisions, predicting demand, and improving efficiency. Thus, in Saudi Arabia, wholesalers are increasingly tapping into big data to track consumer trends, optimize pricing, and improve supply chain management. Additionally, by the end of 2025, over 75% of wholesale companies in the Kingdom are expected to rely on data analytics for their decision-making, boosting competitiveness and profitability [57].
- Advancements in logistics and supply chain management: Logistics include the movement, storage, and delivery of goods. With Supply Chain Management (SCM) solutions, it is possible to coordinate all steps involved in producing and delivering a product, from raw materials to the final customer. At this stage, the Kingdom is investing $133 billion in logistics and transportation infrastructure to improve efficiency (Saudi Press Agency) [58]. Additionally, AI-driven route optimization and drone deliveries are expected to drop the delivery time by 40% and reduce costs by 25% in the coming years.
- Government policies and investment in digital infrastructure: Policies can create an environment that fosters innovation, boosts efficiency, and encourages wholesalers to adapt with the growing digital landscape. In fact, Saudi government is providing incentives for digital transformation, such as interest-free loans for SMEs, tax exemptions for technology adoption, and $1 billion in funding for AI and automation projects [59]. All these measures offer a real opportunity to improve the overall climate of wholesale activity and encourage investment in the sector, positively affecting economic growth.

At this level of investigation, some recommendations could be advanced to assist the digital transformation of the wholesale sector in Saudi Arabia, promoting economic growth.

### *5.2. Recommendations for Successful Digital Transition*

To ensure a seamless digital adoption, Saudi wholesalers should focus mainly on the following key areas:

#### *5.2.1. Training and Digital Literacy*

One of the major challenges facing wholesale businesses in Saudi Arabia is the scarcity of digital skills among employees. In fact, about 60% of wholesale workers in the country do not have the necessary digital skills to operate modern systems effectively [60]. This skills gap can slow down the adoption of new technologies like AI and software systems that could improve efficiency and reduce costs. To address this issue, businesses should invest in comprehensive training programs that focus on building digital literacy. This includes not only training employees to use basic software but also providing more advanced practices on AI, data analytics, and automation tools that are becoming increasingly important in the wholesale industry. Hence, wholesalers can ensure that their workforce is ready to manage advanced technologies, improve productivity, and stay competitive in a fast-evolving market.

*5.2.2. Stronger Cybersecurity Measures*

According to the National Cybersecurity Authority [61], Cyber threats in the region are growing by 35% every year, so wholesalers really need to step up their security. These risks can affect important data like customer details and financial transactions. To be safe, wholesalers should focus on investing in better encryption systems that protect sensitive information. They should also employ fraud detection tools to catch suspicious activity before it causes damage. Applying these measures will help wholesalers to keep their business secure, protect their customers, and avoid the serious consequences of cyberattacks.

*5.2.3. Enhancing B2B E-Commerce Platforms*

The Saudi B2B e-commerce market is expected to reach $12 billion by the end of 2025 [38]. To stay competitive, businesses need to improve their online platforms. This can be achieved by integrating AI-driven personalization, which tailors the shopping experience to each user. Furthermore, the automation of invoices and the addition of smooth payment gateways can make transactions faster and easier for customers. These updates will not only enhance customer satisfaction but also help wholesalers to streamline their operations and boost sales.

*5.2.4. Collaboration Between the Public and Private Sectors*

The Saudi government is dedicating a $5 billion fund in partnership with the private sector to support digital transformation in trade [62]. This collaboration will help both sectors working together to create better infrastructure, improve technologies, and encourage innovation. By joining efforts, the public and private sectors can provide more resources and expertise, making digital transformation smoother and more efficient for wholesalers and the whole economy.

## 6. Conclusion

The digitalization of wholesale activities has brought significant changes, making operations faster, more efficient, and more transparent. Using new technologies such as AI, automatic routines, and data analysis has reshaped this sector and provided new tools for renovation. Our findings show that digital adoption in wholesale can reduce operational costs by up to 30%, and the use of e-commerce platforms has globally increased wholesale sales. This sector is witnessing a deep transformation with online B2B transactions expected to reach $25.65 trillion by 2028. This transition is facing several challenges: businesses must manage cybersecurity risks, ensure workforce upskilling, and integrate digital tools into traditional operations.

This study reveals how several digital solutions can enhance e-commerce through the use of platforms, automated inventory systems, digital payment solutions, and data analytics. With a special focus on wholesale operations, the significant impact of the new digital solutions on the future changes of this sector has been pointed out. Businesses can, in fact, manage supply chains more efficiently, reduce costs, and reach a broader customer base.

The digital transformation of Saudi Arabia's wholesale sector offers valuable opportunities for efficiency, innovation, and economic growth. By prioritizing technology investments, employee training, and robust digital infrastructure development, businesses can optimize their operations and stay competitive in a fast-evolving market. This confirms the orientation of the Saudi economy to rely on non-oil activities. With strong government support and effective public-private collaboration, wholesalers are well-positioned to succeed on a global scale, driving economic growth and industry modernization in alignment with Saudi 2030 Vision.

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