

APPLICATIONS OF TECHNOLOGY IN BUSINESS IN DIGITAL AGE

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Abstract- This paper examines the key applications of information systems in e-commerce, focusing on their role in improving operational efficiency and decision-making processes. These applications encompass enterprise management, supply chain management, customer relationship management, collaboration, e-commerce platforms, and decision support systems. The integration of technology with e-commerce operations is vital for long-term success. The automation of manual processes through information systems is prevalent, and technology serves as a solid foundation for innovative e-commerce models. Enterprises that comprehend and meet customer demands effectively gain a competitive advantage in the market. To achieve this, the adoption of contemporary technologies is imperative, enabling e-commerce businesses to deliver high-quality products and services. By leveraging these technologies, enterprises can adapt to the dynamic e-commerce landscape and meet evolving customer expectations. Ultimately, the effective utilization of information systems in e-commerce is pivotal for sustained growth and success in the highly competitive digital marketplace.

Keywords: Digital Transformation, Information Systems, E-Commerce, Entrepreneurship.

1. INTRODUCTION

E-commerce is the electronic buying and selling of products and services online. It relies on technologies like mobile commerce, online payments, and inventory management systems. The internet has experienced significant development, with the introduction of the World Wide Web and search engines like Google and Yahoo making information more accessible to users. The role of information technology and communication in business is crucial for stability, efficiency, and productivity. Globalization has interconnected technology and business on a global scale. Technology is now an integral part of businesses, impacting culture, efficiency, security, and relationships. E-commerce has revolutionized trade, enabling contactless purchasing and influencing various aspects of the economy.

Analyzing the data provided for the period 2014-2023 in Figure 1, [30], [20] reveals a clear upward trend in the e-commerce industry. From 2014 to 2016, the sales figures show a consistent growth pattern.

Starting at \$1,336 billion in 2014, the sales increased to \$1,548 billion in 2015 and further rose to \$1,845 billion in 2016. This indicates a steady and gradual increase in e-commerce sales during this period. The years 2017 to 2019 witnessed a more significant growth rate. Sales jumped from \$2,382 billion in 2017 to \$2,982 billion in 2018, demonstrating a substantial increase. In 2019, the sales reached \$3,535 billion, indicating a continued upward trajectory with a notable surge in sales. The year 2020 experienced a remarkable spike in sales, reaching \$4,206 billion. This substantial increase can be attributed to the global COVID-19 pandemic, which accelerated the shift towards online shopping as consumers sought safer alternatives to traditional retail [1], [3], [14], [18].

In the following years, from 2021 to 2023, the sales continued to rise steadily. Sales figures climbed from \$4,927 billion in 2021 to \$5,695 billion in 2022, and are projected to reach \$6,542 billion in 2023. These figures indicate sustained growth, although at a slightly moderated pace compared to the exceptional surge observed during the pandemic. Overall, the data showcases a consistent upward trend in e-commerce sales, with significant growth observed throughout the years. The remarkable increase in sales during the pandemic highlights the industry's resilience and its ability to adapt to changing consumer behaviors. The projected growth in the coming years suggests a continued expansion of the e-commerce market, reflecting the increasing importance and popularity of online shopping.

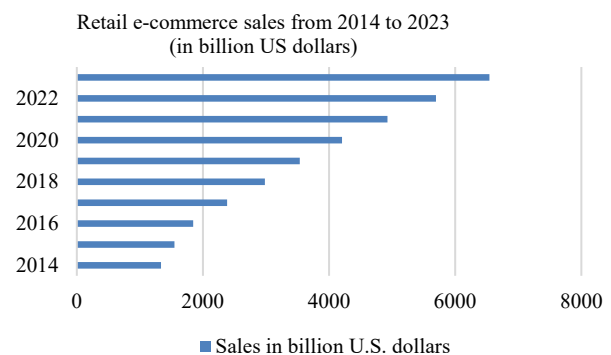


Figure 1. Global Wholesale E-commerce Sales from 2014 to 2023 [20, 30]

Advantages of E-commerce include ease of shopping, fast and convenient delivery, global market access, cost savings, availability, transparency, market expansion, and improved business strategies. E-commerce makes purchasing easier with 24/7 availability, fast shipping, and easy returns. With no geographical barriers, consumers worldwide can easily shop online. E-commerce offers a wide range of products and services, lower costs compared to traditional retail, and uninterrupted availability [15], [9]. Disadvantages of E-commerce include security concerns due to cybercrime, potential website downtime, inability to physically test products, shipping delays, challenges in selling certain products, privacy issues, high competition, and the need for effective marketing strategies. Online portals can be vulnerable to hacking, and businesses must prioritize security measures. Website outages can disrupt sales and impact business. Privacy concerns and high competition pose additional challenges, requiring businesses to adapt marketing strategies to stand out.

E-commerce revenue models include:

- 1) Advertising Revenue: Charging advertisers a commission for placing their ads on an online marketing platform based on website popularity and traffic.
- 2) Subscription Revenue: Generating consistent monthly income by charging customers for regular access to products or services.
- 3) Transactional Revenue: Providing secure payment methods for online purchases and charging sellers based on transaction fees.
- 4) Sales Revenue: Selling products directly to customers through e-commerce platforms, reaching a wider audience.
- 5) Affiliate Revenue: Earning commissions by promoting and selling other companies' products through affiliate partnerships.
- 6) Agency Revenue: Working with agencies to create and distribute engaging content, paying for their services to enhance brand visibility and reach.

2. MATERIALS AND METHODS

The study was prepared with Online surveys. In this way we can reach a maximum number of responses compared to other methods.

- Forty companies actively participated in the survey, providing valuable insights.
- The survey comprised of seven sections, featuring four open-ended questions and forty-six closed-ended questions.
- A wide distribution approach was employed, as the survey was electronically sent via email to around 2000 companies.
- Furthermore, the survey was made accessible through all AIDA communication channels, maximizing its reach. Confidentiality was strictly maintained throughout the data collection process, which spanned from February 1st to February 20th, 2023.

The survey is of a quantitative nature and aims to assess the needs and current state of businesses in relation to e-commerce development.

Its findings will play a crucial role in enhancing and fortifying the e-commerce landscape in Albania. Considering the rising significance of e-commerce and electronic business as vital components of business strategies and catalysts for economic advancement, entrepreneurs in Albania recognize the pivotal role of e-commerce in driving their business growth strategies.

3. FEEDBACK FROM THE SURVEY

The survey received responses from a cohort of 40 businesses within the specified timeframe, which spanned from February 1st to February 20th, 2022. Presented below is a condensed overview of the preliminary data categorized according to their respective sections.

3.1. General Data

The data gathered from the survey reveals that the questionnaire received the highest participation rate from businesses operating within the services, manufacturing, and trade sectors.

Table 1. Enterprises in the survey

Service	43%
Production	22%
Commerce	25%
Other	10%

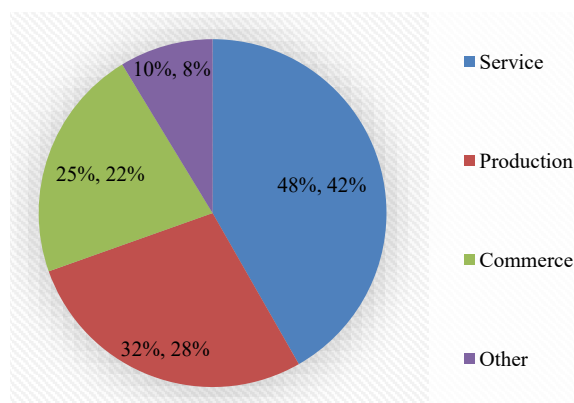


Figure 2. Enterprises in the survey

Conversely, the data analysis indicates that a significant majority (81%) of the businesses that participated in the survey have been actively operating in the market for a duration exceeding three years.

Table 2. Experience of enterprises in the market

Less than 1 year	3%
1-2 years	5%
2-3 years	11%
More than 3 years	81%

This finding implies that these businesses have surpassed the preliminary stages of the business cycle [11], [4] and may now be contemplating strategies to foster growth and advancement within their respective markets.

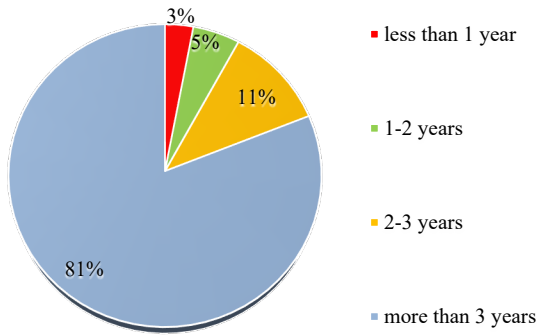


Figure 3. Experience of enterprises in the market

Furthermore, 58% of the participating businesses in the survey have employed 0-9 people, 30% have 10-49 employees, while 10% have 50-249 employees.

Table 3. The number of employees in enterprises

0-9	58%
10-49	30%
50-249	10%
250 or more	2%

Out of these enterprises, 54% are oriented towards the B2B business model, while 46% are oriented towards the B2C model.

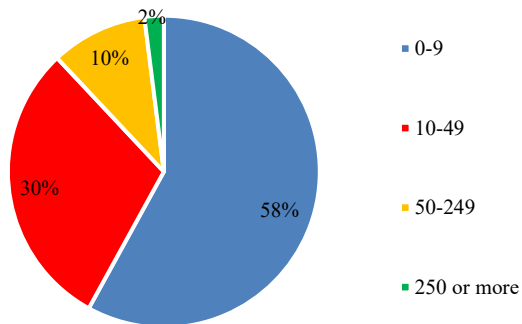


Figure 4. The number of employees in enterprises

3.2. E-Commerce in Businesses

Regarding of the questionnaire focused on e-commerce in companies, 69.5% of participants report that 0-24% of their total sales come from e-commerce; 12.6% report that 25-49% of total sales are attributed to e-commerce, and 11.6% of enterprises indicate that 75-100% of total sales come from e-commerce.

Table 4. Awareness of the importance of E-commerce

Very important	37.60%
Important	26.50%
Little important	18.40%
I don't know/I'm not sure	14.30%
Not important at all	4.20%

Regarding the importance of e-commerce as a sales channel in companies, 63.2% of participants consider e-commerce to be important or very important as a sales channel, 14.3% of businesses are unsure about the

importance of e-commerce, indicating the need for more detailed information and training on this topic.

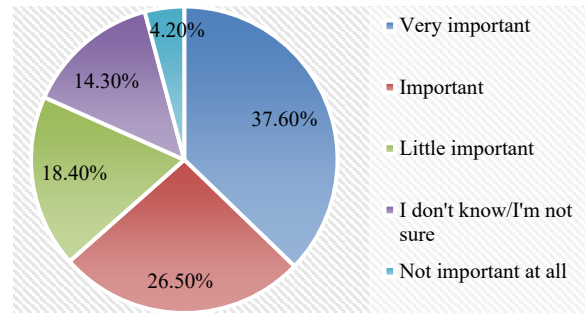


Figure 5. Awareness of the importance of e-commerce

At the same time, 69.4% of enterprises believe that e-commerce as a sales channel will grow more globally than in Albania. Lastly, 38.2% of businesses have plans to open an e-commerce sales channel, with almost 35% expressing interest but hesitating due to issues such as lack of financial resources, complex processes, and a lack of understanding of the benefits.

Table 5. E-commerce adaptation plans in enterprises

yes, I have a plan to do this	38.20%
yes, but I don't understand the benefits	3.50%
yes, but it is expensive	15.70%
yes, but it is complicated	11.20%
yes, but I don't know how	4.40%
no, i didn't consider it	13.50%
other	13.50%

This reaffirms the need for information dissemination and accurate knowledge about e-commerce.

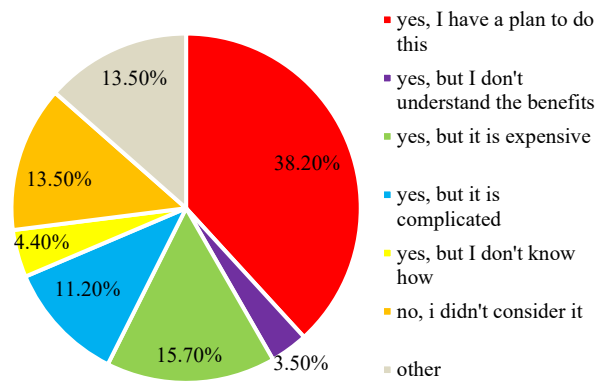


Figure 6. E-commerce adaptation plans in enterprises

3.3. Digital Transformation

A substantial proportion of the enterprises surveyed (83%) have identified digital transformation as a key priority within their strategic agendas. Furthermore, an overwhelming majority (88.8%) perceive digital transformation as very important for their organizations. It is worth noting that a notable 20% of the businesses evaluate the current state of digital transformation as very good and nearly 60% of the enterprises assess their current digital transformation status as average.

Table 6. Evaluation the current state of digital transformation

Very good	20%
Good	59%
Bad	8%
Very bad	1%
I do not know	12%

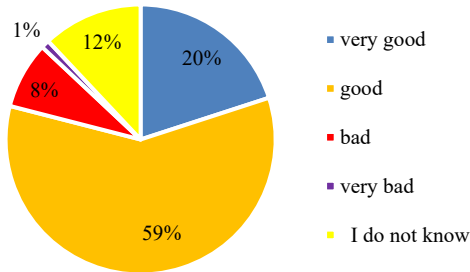


Figure 7. Evaluation the current state of digital transformation

The main organizational barriers to digital transformation are identified as lack of financial resources, limited IT systems, and lack of inclusive digital vision and strategy [5], [20], [21]. However, businesses also believe that through digitization, they can provide added value to their customers by increasing the variety of choices (62.6%), ease of use (64.6%), personalization (27.3%), as well as cost reduction (46.5%). The data indicates that only half of the enterprises surveyed in Albania currently utilize ERP, CRM, or cloud software services. This suggests that e-commerce, in its consolidated form, is still in its early stages of development in the country.

3.4. E-Commerce Planning

This section focuses on e-commerce planning in businesses. The data indicates that 83.9% of them already have a website, while 74.3% of those without a website are willing to start their e-commerce activities. Although 36.3% of businesses have been using a website for more than 5 years, 56.1% of them state that their websites were built within the last 5 years. Furthermore, 75% of businesses have a comprehensive description of their business and products on their website, and 57.1% regularly update the content of their pages. Similarly, search engine optimization (SEO) is performed at a similar frequency, specifically 67%, while 33% of enterprises report not using this service. It is observed that 28% of enterprises have an internal IT department, while 30.1% utilize the services of others. The remaining portion uses a combination of services or other methods.

Table 7. Enterprises with an internal IT department

We have certain people within the company	28.00%
Services of others	30.10%
Combination	23.70%
Others	18.30%

Furthermore, almost 90% of enterprises consider it important or very important for their employees to have basic digital skills. When asked about their plans to enter new markets, businesses report that 62.6% plan to expand

their markets, while 16.2% are already satisfied with their presence in foreign markets.

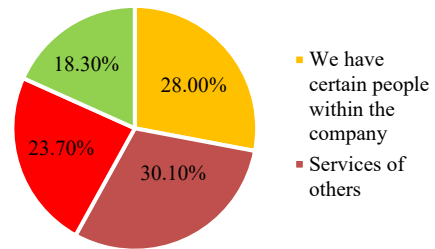


Figure 8. Enterprises with an internal IT department

Table 8. The opportunity of Digital transformation

Totally successful	35.40%
Mostly successful	28.10%
Partially successful	26%
I do not know	10.40%

Despite the opportunity for expansion into new markets, nearly 85% of businesses see digital transformation as an opportunity for their business, and the application of new technologies as either fully or predominantly successful to a rate of 63.5%.

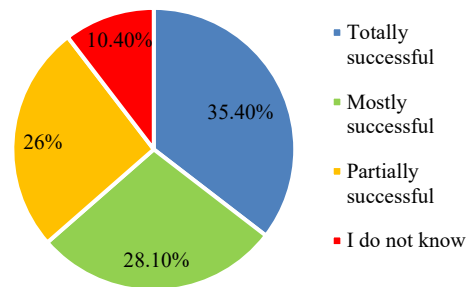


Figure 9. The opportunity of digital transformation

Lastly, a significant majority (75.5%) of the surveyed businesses have reported introducing or developing a new product in the market within the past two years. This finding underscores the dynamic nature of these enterprises, [19], [28], [30] as they actively engage in innovation and product expansion to meet evolving market demands and capitalize on emerging opportunities.

3.5. Transportation and Inventory

In this section, businesses provide information about their transportation and inventory. The data suggests that 56.6% of enterprises communicate the time and cost of shipping goods to customers through their website. Additionally, 52% of these businesses offer various methods for shipping goods, and 62% of them accept returns and facilitate the return shipment of goods. Nearly 72% of enterprises provide competitive shipping rates and offers, and in almost 80% of cases, they understand the tax obligations arising from cross-border shipments. Although having an integrated inventory system is crucial for the success of e-commerce [24], [25], [27], 40% of businesses do not have such a system.

Table 9. Businesses that accept returns

Yes	61.40%
No	38.60%

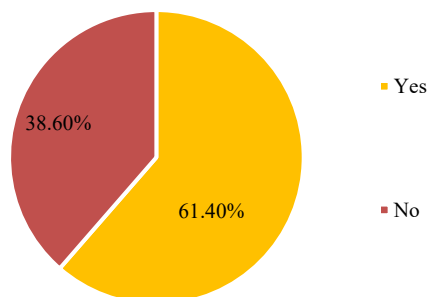


Table 10. Businesses that accept returns

4. CONCLUSIONS

Based on the reported survey data and its implications, several comments and recommendations can be made. Firstly, e-commerce is still in its early stages in Albania, with over 70% of businesses generating only 0-24% of total sales through this channel. This indicates a need for further development and adoption of e-commerce practices in the country. It is crucial to address the hesitations and challenges faced by businesses regarding e-commerce. Around 15% of businesses are uncertain about its importance, while 42% express desires but encounter barriers such as limited financial resources, complex processes, and a lack of understanding of the benefits. This highlights the necessity for reliable information dissemination, as well as organizing informative, advisory, and training events to educate businesses on the advantages and implementation of e-commerce. Businesses recognize digital transformation as an opportunity to enhance advertising, offer personalized customer experiences, and reduce costs.

However, financial limitations, limited IT systems, and a lack of comprehensive digital vision and strategy are perceived as major obstacles to implementing digital transformation and e-commerce in their consolidated form. Digital marketing, particularly through social media platforms, is extensively used by businesses for customer relationship management and expansion. However, only 26.8% of businesses have integrated their social media platforms with e-commerce elements, indicating potential areas for improvement and increased integration. There is a lower understanding among businesses regarding the importance of integrated inventory systems and the benefits of providing customer service through e-commerce. In summary, these insights highlight the opportunities and challenges businesses face in effectively adopting and utilizing e-commerce and digital transformation. Recommendations include addressing hesitations, providing resources and training, promoting integrated approaches, and enhancing understanding of key aspects such as inventory management and customer service.

NOMENCLATURES

Acronyms

AIDA	Awareness, Interest, Desire and Action model
B2C	Business-to-Consumer
B2B	Business-to-Business
SEO	Search Engine Optimization
IT	Information Technology

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