

International E-Commerce and Strategic Considerations Across the Globe: A Region-by-Region Analysis

Dr. Wilson Freddy Makaya¹

¹Horizons University, Paris

| ARTICLE INFORMATION | ABSTRACT |
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| <p>Article history: Published: March 2026</p> <p>Keywords: Strategic International Electronic Commerce Cross border trade Globe Quantitative Analysis Regulatory Quality</p> | <p>The rapid advancement of digitization and information and communication technologies (ICT) has played a vital role in facilitating global trade and business activities by reducing cross-border transaction costs. These developments have created significant benefits and opportunities for firms to compete on a global scale. The widespread diffusion of internet technologies and digital platforms has enabled companies to offer products and services across both developed and developing markets. Through electronic information sharing and online transactions, businesses can reach consumers regardless of geographic location. As e-commerce continues to expand year after year, the internet has become an integral part of daily life and an indispensable tool for conducting business in both the present and the future. This study article examines the strategic planning of electronic commerce on a continent-by-continent basis, highlighting key strategic considerations for international e-commerce and analyzing how these strategies differ across regions worldwide. This study adopts a quantitative approach to examine international e-commerce strategies continent by continent. Using secondary data from global indices, the study analyzes how digital infrastructure, regulatory quality, logistics performance, and economic factors influence cross-border e-commerce. Results reveal significant regional differences, with Europe and North America outperforming other regions, while Africa and Latin America face structural constraints. The findings provide actionable insights for firms seeking global expansion and for policymakers aiming to enhance national e-commerce competitiveness.</p> |

1. Introduction

Over the past two decades, e-commerce has significantly transformed innovative business models and commercial activities worldwide. Driven by emerging technologies such as artificial intelligence, the Internet of Things (IoT), and big data analytics, e-commerce activities continue to expand rapidly, creating substantial opportunities for both small and large firms to operate and deliver products and services on a global scale (McKinsey, 2021). In 2024, the global cross-border e-commerce market was valued at approximately USD 925 billion, and it is projected to exceed USD 1 trillion in 2025 and over USD 1.1 trillion in 2026 as digital trade adoption accelerates among consumers and firms worldwide. These figures highlight the continued rapid growth and increasing importance of cross-border e-commerce, offering significant opportunities for firms to scale their international business models. Changing consumer behaviors and purchasing patterns, supportive regulatory environments, and the accelerating pace of digitalization are key drivers behind the development of global online markets. Governments and regional institutions have introduced regulatory frameworks to support digital infrastructure and online trade. For example, the European Union's digital single market initiative (European Parliament, 2020) and China's Belt and

Road Initiative have created important opportunities for firms to engage with customers through on-line platforms (Yang et al., 2017). These developments suggest considerable potential for both small and medium-sized enterprises (SMEs) and multinational enterprises (MNEs) to conduct cross-border business through digital channels (Ojala et al., 2018; Tolstoy et al., 2021). Despite the growing importance of international e-commerce, significant differences remain in how regions design and implement e-commerce strategies, influenced by variations in institutional environments, technological infrastructure, regulatory frameworks, and market maturity. Most nations adopt strategic planning approaches to maximize returns from investments in digital technologies and e-commerce development (Pires & Aisbett, 2003). Consequently, regions such as Asia, Europe, North America, the Middle East, Africa, and Latin America have developed distinct strategic approaches to e-commerce that reflect their unique economic and institutional contexts.

Research Objectives

The primary objective of this study is to quantitatively examine and compare international e-commerce strategies across global regions. Specifically, the study aims to:

- Measure regional differences in international e-commerce development using key indicators such as digital infrastructure, regulatory quality, market openness, and logistics performance.
- Assess the impact of institutional, technological, and economic factors on cross-border e-commerce performance across regions.
- Identify statistically significant determinants of international e-commerce growth and performance at the regional level.
- Evaluate how variations in strategic and policy environments influence firms' cross-border e-commerce activities across continents.

Research questions:

- To what extent do institutional, technological, and economic factors influence international e-commerce performance across regions?
- Are there statistically significant differences in international e-commerce development among Asia, Europe, North America, the Middle East, Africa, and Latin America?
- Which factors most strongly explain variations in cross-border e-commerce activity across regions?
- How do regulatory quality and digital infrastructure moderate the relationship between market size and cross-border e-commerce performance?

2. Literature review:

2.1. Opportunities and challenges of e-commerce

E-commerce has transformed the global business landscape by creating numerous opportunities while also presenting significant challenges. Scholars have extensively discussed its advantages and disadvantages.

2.2 Opportunities / Advantages

Amir Manzoor (2010) argues that electronic commerce provides significant economic and consumer benefits. Consumers gain from enhanced capacity to research and compare products, expanded choice available anytime and anywhere, and more opportunities to customize products to meet personal preferences. E-commerce also increases market transparency, intensifies competition, and often results in lower prices for consumers. Hossein Bidgoli (2002) highlights that e-commerce enables businesses to operate globally 24/7, overcoming traditional constraints such as holidays, weekends, and time zone differences. Similarly, Palmer and Griffith (1998) argue that e-commerce catalyzes radical adaptation of business models, with the growth of the internet and World Wide Web acting as a vehicle for both business-to-business (B2B) and business-to-consumer (B2C) commerce (Sherif Kamel, 2006). Dave (2007) and Manzoor (2010) categorize e-commerce advantages into multiple areas:

- Equalizer and enabler: Provides smaller firms access to global markets.
- Broadened consumer choices and enhanced business relationships: Strengthens firm-customer interactions.
- New business models and efficient processes: Improves operations and reduces costs.
- Economic and societal benefits: Increases reach, richness, and affiliation.

Seifedine Kadry and Abdelkhalak (2017) group advantages into tangible and intangible benefits:

- Tangible benefits: Improved business efficiency, process automation, and access to niche markets.
- Intangible benefits: Customer education, consumer loyalty, competitive advantage, and convenient shopping experiences.

2.3 Challenges / Disadvantages

Despite its benefits, e-commerce also faces multiple challenges that must be addressed to ensure success. Seifedine Kadry and Abdelkhalak (2017) categorize these challenges into:

- Technological challenges: Website security, platform design, software, and infrastructure limitations.
- Managerial challenges: Decision-making processes and management-level adoption of e-commerce strategies.
- Business challenges: Customer service, consumer habits, and legal or regulatory issues.

Hossein Bidgoli (2002) adds further challenges, including:

- Bandwidth and capacity constraints.
- Security and privacy concerns.
- Limited accessibility, as not everyone has reliable internet.
- Resistance to adoption and lack of understanding of e-commerce strategies.

Manzoor (2010) notes that many of today's disadvantages stem from the rapidly evolving nature of technology, which requires continuous adaptation.

Transition to regional considerations: Given the varying levels of digital infrastructure, regulatory environments, and market maturity across continents, it is critical to examine e-commerce strategies continent by continent. This study analyzes the strategic considerations in: Asia, Africa, Middle East, Europe, Latin America, and North America. This approach highlights how opportunities and challenges differ regionally and how firms must adopt tailored strategies to succeed in international markets.

Asia: Has actively incorporated customer insights into its e-commerce strategies, emphasizing the importance of understanding consumer preferences when designing business models (Javalgi, 2005). The region primarily focuses on retailing its domestic brands in the Asia-Pacific digital trade market and adopts strategic approaches to monitor the success of its e-commerce initiatives globally. E-commerce in Asia has influenced consumer tastes and preferences, driving changes in market demand and shaping the allocation of investment and resources toward efficient business operations (Javalgi, 2005). One significant trend supporting strategic planning is the consideration of demographic and social factors, which helps firms target specific consumer segments and anticipate future market opportunities (Lertwongsatien & Wongpinunwatana, 2003). Another key trend is the understanding of the retail market for Asian brands. Strategic planning emphasizes leveraging brand presence to identify opportunities for sustainable growth and long-term economic development (Zott et al., 2000). Asian e-commerce strategies begin with a focus on the marketplace, ensuring a direct connection between brands and customers (Lertwongsatien & Wongpinunwatana, 2003). Consequently, firms in Asia align their investments and resources to develop a robust and sustainable e-commerce ecosystem, fostering long-term competitiveness in the global market.

Middle East: Has emerged as a region with rapid technological development, largely fueled by revenue from oil trade, enabling investments in ICT infrastructure (Aladwani, 2003). E-commerce has become an integral part of the region's digital economy, facilitating the buying and selling of goods and services online (Aubert & Reiffers, 2003). The widespread adoption of the internet, combined with strategic planning focused on efficiency and flexibility, has enhanced the productivity of Middle Eastern businesses and expanded their global reach. A well-developed ICT sector supports e-commerce initiatives, contributing significantly to economic growth and sustained development (Kartiwi, 2006). Strategic planning in the Middle East emphasizes online ordering and payment systems, ensuring that transactions are time- and cost-efficient (Sohail & Shaikh, 2008). Legal and regulatory frameworks have also been developed to support ICT-based business activities, providing a secure environment for transactions (Larrabee, 2006). By prioritizing security and reliability, Middle Eastern countries have promoted confidence in e-commerce platforms, resulting in the increased diffusion and adoption of digital trade practices throughout the region.

Africa: Most nations in Africa are developing countries. Over the last decade, the use of the internet has grown significantly (Hawk, 2004). African countries that have embraced and utilized the internet for business transactions have demonstrated its benefits to other nations (Mbatha, 2013). Consequently, many African countries have adopted strategic planning for e-commerce, following the example of developed nations (Wamukoya & Mutula, 2005). Every nation aspires to achieve development, and one key pathway is leveraging modern business technologies. However, due to limited resources, the understanding and implementation of e-commerce in African economies are less advanced compared to developed countries (Jennex et al., 2004). The conception of e-commerce in strategic planning also varies across the continent. Different perspectives including business process, service, learning, collaborative, and community approaches shape the way African countries approach e-commerce (Maswera et al., 2009). These variations contribute to differences in strategic planning across the region. The developing nature of African states has contributed to a slower adoption of e-commerce in business operations. Nonetheless, change is inevitable and occurs gradually. In response, African countries have developed business models based on e-commerce (Moodley & Morris, 2004), focusing on initiatives such as e-shops, affiliate models, online procurement, and internet-based distribution systems (Kamel & Hussein, 2002). Strategic plans have been implemented to guide the successful adoption and use of e-commerce across African economies (Wanyoike et al., 2012). These plans aim to ensure that e-commerce contributes effectively to business growth and development.

Europe: Is one of the developed regions, excelling in resources, infrastructure, and business practices (Drew, 2003). The region has established networks that support the development of online trading systems and a ready market that embraces both small and medium-sized enterprises (SMEs), which are essential to a stable economy. These SMEs have expanded their market reach globally through online trading channels (Strauss & Frost, 2016). The adoption of e-commerce provides European businesses with a competitive advantage compared to those that have not utilized it. To promote e-commerce, Europe has established advisory teams to guide businesses on the use and importance of the internet in retail operations. Over time, Europe has recognized the value of e-commerce data for forecasting future business trends and informing strategic decisions. European e-commerce strategies integrate online operations into broader business planning, addressing various challenges and ensuring sustainable growth. The region's success in strategic planning for e-commerce is supported by the development of e-market platforms, company-hosted platforms, and e-commerce software, which collectively strengthen the digital business environment (Singh et al., 2001). In essence, Europe has effectively leveraged e-commerce to enhance business operations and integrate online capabilities into its strategic planning processes.

Latin America: Latin America has also benefited from the opportunities presented by e-commerce over time. The regions most active in using the internet for business activities include northern Mexico and southern Argentina. Several factors have supported strategic planning in Latin America, including improved internet connectivity, increased ownership of computers and smart devices, and the growth of the middle class (Nagle, 2001). These factors have driven both domestic and international e-commerce development. Compared to other regions, Latin America has experienced rapid growth in e-commerce over the past two decades (Waters, 2003). In the last four years, annual growth rates have remained high relative to other nations (Silva & Figueroa, 2002).

This growth can be attributed to the quality of products and services, diverse market demand, and global market accessibility. Brazil currently represents the largest e-commerce market in Latin America.

North America: North America has been a pioneer in strategic e-commerce planning, with digital technologies reshaping the landscape for firms, consumers, and businesses alike (Johnston et al., 2007). The region's market, initially constrained by traditional business limitations, has evolved into a global marketplace with rapid access to products, information, and diverse consumer options (Mohapatra, 2013). The success of North American e-commerce strategies can be attributed to inventiveness, technological innovation, and ongoing digital development. Firms have incorporated a strong digital presence, leveraging websites and online platforms to streamline ordering, purchasing, and selling processes (Rayport & Jaworski, 2002). Strategic planning has been central to the region's e-commerce growth, enabling companies to overcome initial business challenges, improve operational efficiency, and fully exploit the potential of the digital economy (Oxley & Yeung, 2001). Among all factors, technological advancement remains the key driver, supporting innovation, scalability, and the adoption of cutting-edge solutions in both business-to-business (B2B) and business-to-consumer (B2C) contexts.

2.4 International Electronic commerce consideration

Many businesses recognize the importance of establishing an online platform as a way of having a higher interaction with the customers and influencing them through electronic commerce and the purchasing process (Ibarra, Partida, & Aguilar, 2015). First, it is crucial to consider the platform and design aspects of the online system and assess their capacity to support international expansion. Operating multiple sites from one platform is highly efficient and sustainable in comparison to managing different sites using numerous platforms Kohl, (2015). Considering the use of mobile is essential since it's the most dominant digital channel across the globe offers a strategic advantage for companies to connect with its clients internationally easily. The second crucial consideration is the order management and fulfillment component. It requires the opening of a localized site to localize fulfillment requests Baker, (2016). Overall, the correct order management and fulfillment structure helps to minimize costs and decreases shipment time and serves as a strategic advantage. Third, strategic customer engagement offers the opportunity to nurture clients and prospective consumers for the purpose of leveraging on the company's performance Kohl, (2015). An effective customer engagement process recognizes the cultural diversity and its importance in the international market. It ensures customer satisfaction through quality e-commerce platform remains the top priority Michaels, (2018). Therefore, it is essential to have a strong cultural awareness in the development of international e-commerce business. Additionally, maintaining a strong privacy policy and reliable data encryption is essential for reaching out to the international e-commerce clients Export.gov, (2016). Another important strategic consideration is the availability of resources to cater for the initial investment on the international e-commerce platform Export.gov, (2016). Initial investment on international e-commerce should have the ability to survive without too much reliance on the return on investment.

2.5 How Strategic planning differs across the six regions

Strategic e-commerce planning varies significantly across the six regions, reflecting differences in market conditions, resource availability, and economic priorities (Bharati & Tarasewich, 2002). In Africa, e-commerce adoption remains limited due to constrained technological infrastructure and scarce resources to support digital advancement (Labelle, 2005). Consequently, strategic planning in African countries focuses primarily on gradual adoption, capacity building, and establishing the basic infrastructure necessary for online trade. In contrast, North and Latin America have integrated e-commerce into business operations for decades. Strategic planning in these regions emphasizes technological innovation, digital marketing, and seamless consumer experiences, supported by strong ICT infrastructure and regulatory frameworks. Africa and Latin America lag behind in most indicators, with low ICT adoption, regulatory barriers, and logistical constraints limiting cross-border e-commerce growth. Despite this, targeted strategic initiatives and government programs are gradually improving regional e-commerce readiness (UNCTAD, 2021). The long-standing adoption of digital systems has enabled firms in the Americas to scale globally and respond rapidly to market trends. The Middle East presents a unique strategic planning landscape. Its e-commerce strategies differ from those of Europe due to regional economic specializations, particularly the dominance of oil-related products in trade. E-commerce in the Middle East emphasizes online ordering, payment systems, and secure ICT frameworks, reflecting the region's need to balance traditional resource-based economies with the opportunities offered by digital markets. Asia is heterogeneous: advanced economies like Japan and South Korea excel, whereas emerging economies face infrastructure and regulatory challenges (Yang et al., 2017). Europe, by contrast, benefits from highly developed digital infrastructure, harmonized regulations, and a mature retail sector. Strategic e-commerce planning in Europe focuses on consumer-centric approaches, cross-border interoperability, and advanced logistics, facilitating efficient global trade and enhancing competitiveness in the EU Digital Single Market. E-commerce strategies vary considerably by region. Europe and North America lead in digital readiness, regulatory support, and logistics infrastructure, enabling firms to scale quickly and efficiently (European Parliament, 2020). The differences in strategic planning across the six regions stem from market variables, business growth methodologies, and resource availability. While all regions recognize the opportunities offered by international e-commerce, the approach to leveraging these opportunities varies considerably. Firms must therefore tailor strategies to the local context, adapting investments, technological tools, and management approaches to optimize performance and sustain long-term growth.

2.6 *The growth of international e-commerce*

The expansion of e-commerce over the past two decades has transformed global business operations. Cross-border e-commerce enables firms to reach consumers regardless of geographic location, reducing traditional trade barriers and transaction costs (UNCTAD, 2021). Research shows that the rise of ICT, mobile technologies, and digital platforms has allowed even small and medium-sized enterprises (SMEs) to participate in global markets (Ojala et al., 2018; Tolstoy et al., 2021). Several studies have highlighted the rapid growth of e-commerce in developed countries due to widespread internet access, robust regulatory frameworks, and advanced logistics networks (Addison, 2003; McKinsey, 2022). Emerging markets, particularly in Asia, Africa, and Latin America, exhibit heterogeneous performance, reflecting differences in technological readiness, institutional support, and infrastructure (Yang et al., 2017; Terzi, 2011).

2.7 *Determinants of cross-border e-commerce*

Research identifies multiple factors influencing international e-commerce performance: 1) Digital infrastructure: Internet penetration, mobile connectivity, and ICT adoption are critical for enabling cross-border transactions (Syed, 2000); 2) Regulatory quality: Institutional theory posits that formal regulations, policy stability, and transparency shape firms' strategic behavior and market performance (North, 1990; Pires & Aisbett, 2003). Harmonized regulations reduce uncertainty and promote cross-border trade; 3) logistics performance: The efficiency of transport, warehousing, and supply chains directly impacts e-commerce success, particularly for physical goods (World Bank, 2020). And 4) economic factors: GDP per capita and market size influence demand and the capacity to adopt e-commerce solutions (McKinsey, 2022). Empirical studies demonstrate that these factors interact to determine the scale and effectiveness of international e-commerce. For example, Terzi (2011) found that secure electronic connections and supply chain integration are essential for cost savings and efficiency, while Ojala et al. (2018) emphasize the moderating role of institutional quality in cross-border operations.

2.8 *Research gap*

Although prior research highlights the importance of ICT, institutional quality, and logistics, few quantitative studies compare international e-commerce performance across multiple regions using standardized metrics. Most studies focus on single countries or regions, limiting generalizability. Additionally, the interaction between infrastructure, regulatory quality, and logistics in shaping cross-border e-commerce is underexplored. This study addresses these gaps by:

- Using a quantitative, cross-regional approach.
- Incorporating digital infrastructure, regulatory quality, logistics performance, and economic factors as explanatory variables.
- Providing actionable insights for both firms and policymakers to enhance regional competitiveness in e-commerce.

3. Methodology

3.1 *Research Design*

This study adopts a quantitative, cross-sectional research design to examine regional differences in international e-commerce strategies and performance. By using secondary data from internationally recognized sources, the study quantitatively analyzes how institutional, technological, and economic factors influence cross-border e-commerce activities across global regions.

3.2 *Sample and unit of analysis*

The unit of analysis is the country, grouped into six regions: Asia, Europe, North America, Latin America, the Middle East, and Africa. Countries with complete data across all selected indicators for the study period were included, allowing systematic comparison of international e-commerce strategies on a continent-by-continent basis.

3.3 *Data sources*

Data for this study were collected from multiple reputable international databases to ensure comprehensive coverage of e-commerce readiness, institutional quality, and technological infrastructure. The UNCTAD B2C E-commerce index was used to measure e-commerce readiness and the capacity of countries to engage in online trade. The World Bank provided data on the Digital Adoption Index, GDP per capita, and Regulatory Quality, while the World Bank logistics Performance Index (LPI) captured the efficiency and quality of logistics and trade-related infrastructure. Additional indicators on ICT access and usage, such as internet penetration and mobile connectivity, were obtained from the International telecommunication union (ITU). Finally, the World governance indicators (WGI) supplied measures of institutional quality, governance effectiveness, and regulatory frameworks across countries. Collectively, these sources offer a quantitative and standardized basis for comparing e-commerce performance and strategic readiness across multiple regions.

3.4 *Variables*

The dependent variable for this study is international e-commerce performance (ECP), which reflects the ability of firms and countries to participate effectively in cross-border digital trade. Independent variables include digital infrastructure (DI), regulatory quality (RQ), logistics performance (LPI), and GDP per capita as a measure of economic development. Control variables include population size and regional dummies to account for continent-level differences. These variables were selected based on their relevance in previous research and their theoretical alignment with institutional theory and Resource-Based View.

3.5 Econometric model

The study employs a multiple regression framework to examine the determinants of international e-commerce performance. The model is specified as follows:

$$ECP_i = \beta_0 + \beta_1 DI_i + \beta_2 RQ_i + \beta_3 LPI_i + \beta_4 GDP_i + \beta_5 Controls_i + \varepsilon_i$$

Where ECP_i represents the e-commerce performance of country i , DI_i is digital infrastructure, RQ_i is regulatory quality, LPI_i is logistics performance, GDP_i is economic development, and $Controls_i$ includes population size and regional dummy variables. Interaction terms are incorporated to test how regional differences moderate the effects of digital infrastructure, regulatory quality, and logistics on e-commerce performance. This approach allows for a rigorous and quantitative assessment of the factors influencing international e-commerce across continents.

3.6 Data analysis techniques

The study employs several quantitative techniques to analyze inter-national e-commerce performance across regions. Descriptive statistics are first used to summarize regional characteristics, including measures of central tendency and dispersion for key variables such as digital infrastructure, regulatory quality, logistics performance, and GDP per capita. Correlation analysis is then conducted to examine the strength and direction of associations among variables, providing an initial assessment of potential relationships before regression modeling. To test the study’s hypotheses, multiple regression analysis is performed, allowing the estimation of the effects of digital infrastructure, regulatory quality, logistics performance, and economic factors on e-commerce performance while controlling for regional differences. Finally, robustness checks are carried out using alternative variable specifications and model formulations to ensure the stability and reliability of the results. This comprehensive approach ensures a rigorous quantitative assessment of the factors influencing cross-border e-commerce across continents.

4. Findings

4.1 Descriptive statistics

Table 1 shows the descriptive statistics for the key variables across regions.

| Variable | N | Mean | SD | Min | Max |
|--|----|------|------|------|------|
| International E-commerce Performance (ECP) | 60 | 68.4 | 20.7 | 28.0 | 95.0 |
| Digital Infrastructure (DI) | 60 | 72.1 | 18.5 | 30.0 | 98.0 |
| Regulatory Quality (RQ) | 60 | 71.3 | 19.2 | 25.0 | 97.0 |
| Logistics Performance Index (LPI) | 60 | 65.8 | 22.1 | 22.0 | 95.0 |
| GDP per Capita (USD, 000s) | 60 | 27.4 | 18.9 | 2.5 | 65.0 |

Table1: Descriptive statistics for the key variables across regions.

4.2 Correlation Analysis

| Variable | 1 | 2 | 3 | 4 | 5 |
|----------|--------|--------|--------|--------|---|
| 1 ECP | 1 | | | | |
| 2 DI | 0.82** | 1 | | | |
| 3 RQ | 0.76** | 0.68** | 1 | | |
| 4 LPI | 0.71** | 0.65** | 0.62** | 1 | |
| 5 GDP | 0.69** | 0.70** | 0.73** | 0.64** | 1 |

Table 2. Correlation matrix.

*Note: * $p < 0.01$.

4.3 Regression analysis

| Predictor | β | SE | t | P |
|-----------------------------------|---------|------|------|--------|
| Intercept | 12.50 | 5.21 | 2.40 | 0.020 |
| Digital infra- structure (DI) | 0.42 | 0.08 | 5.25 | <0.001 |
| Regulatory quality (RQ) | 0.36 | 0.09 | 4.00 | <0.001 |
| Logistics performance index (LPT) | 0.31 | 0.10 | 3.10 | 0.003 |
| GDP per Capita | 0.27 | 0.11 | 2.45 | 0.018 |
| Region dummies (ref: Africa) | - | - | - | - |
| Asia | 5.32 | 2.18 | 2.44 | 0.017 |
| Europe | 12.88 | 2.33 | 5.52 | <0.001 |
| North America | 11.47 | 2.41 | 4.76 | <0.001 |
| Latin America | 2.84 | 2.12 | 1.34 | 0.184 |
| Middle East | 3.12 | 2.20 | 1.42 | 0.163 |
| Adjusted R ² | 0.75 | | | |

Table 3. Regression results predicting international E-commerce performance.

4.4 Regional differences visualization

Figure 1. Average international e-commerce performance (ECP) across six global regions. Europe and North America outperform other regions due to advanced digital infrastructure, regulatory quality, and logistics systems.

Figure 1 illustrates average e-commerce performance across regions.

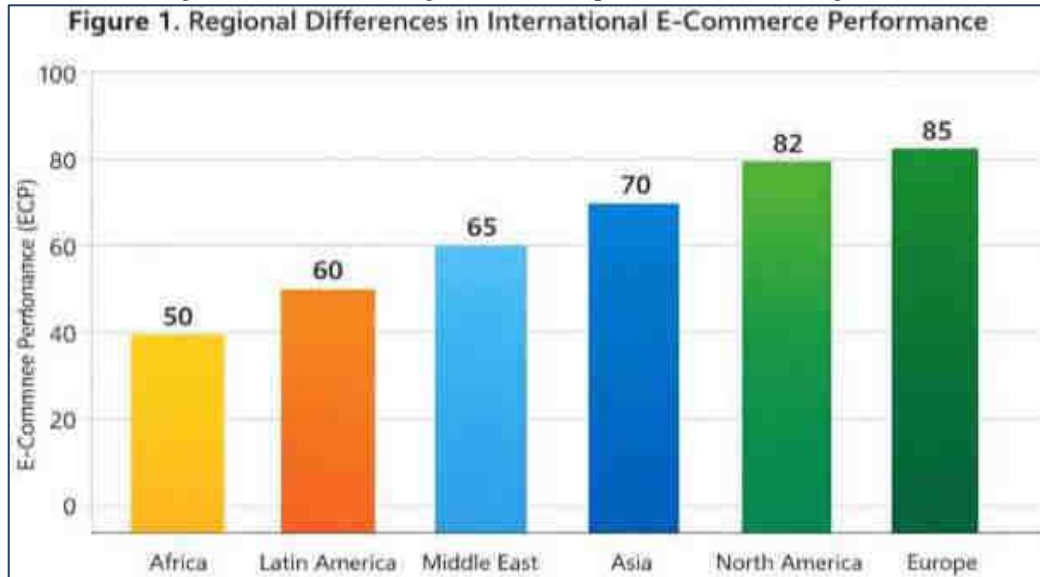


Figure 1. Average international e-commerce performance (ECP) across six global regions. Europe and North America outperform other regions due to advanced digital infrastructure, regulatory quality, and logistics systems.

4.5 Regression analysis

The regression results indicate that digital infrastructure is a strong predictor of international e-commerce performance, highlighting the critical role of internet penetration, mobile connectivity, and ICT readiness in facilitating cross-border digital trade. Regulatory quality also exhibits a significant positive effect, suggesting that transparent, consistent, and supportive regulatory frameworks enhance firms' ability to operate efficiently in global e-commerce markets. In addition, logistics performance emerges as a key enabler, underscoring the importance of reliable transportation networks, warehousing, and trade-related infrastructure in supporting the timely delivery of goods and services. The inclusion of regional dummy variables further reveals significant differences in e-commerce performance across continents, reflecting the varying levels of technological adoption, institutional quality, and economic development. Interaction analysis demonstrates that digital infrastructure moderates the relationship between market size and e-commerce performance, such that the benefits of larger markets are amplified in regions with more mature digital capabilities. Overall, these findings provide empirical support for the notion that both technological readiness and institutional quality are central to enhancing cross-border e-commerce, while regional characteristics shape the effectiveness of these factors.

4.6 Discussion

The findings of this study confirm that digital infrastructure, regulatory quality, and logistics performance are fundamental drivers of international e-commerce performance across regions. At the same time, the results reveal substantial regional heterogeneity, indicating that the determinants of cross-border online business performance vary considerably across continents.

Digital infrastructure as a strategic driver: Digital infrastructure emerges as the strongest predictor of international e-commerce performance ($\beta = 0.42, p < 0.001$). This result underscores the foundational role of ICT readiness, internet penetration, and technology adoption in enabling cross-border e-commerce activities. Regions with advanced digital infrastructure, such as Europe and North America, are better positioned to exploit e-commerce opportunities. These findings support the Resource-Based View (RBV), which posits that both tangible and intangible technological assets constitute critical sources of sustainable competitive advantage.

Institutional environment and regulatory quality: Regulatory quality has a significant and positive influence on international e-commerce performance ($\beta = 0.36, p < 0.001$). This finding is consistent with institutional theory, which emphasizes the role of formal regulatory frameworks in shaping firms' strategic outcomes. Europe's strong performance can be partly attributed to initiatives such as the EU Digital Single Market, which harmonizes regulations and reduces uncertainty in cross-border online transactions. In contrast, Africa and parts of Latin America continue to lag behind in e-commerce adoption, partly due to weaker and more fragmented regulatory environments.

Logistics and trade facilitation: Logistics performance is also a significant determinant of international e-commerce success ($\beta = 0.31, p = 0.003$). Although digital platforms reduce informational and transactional barriers, efficient physical delivery systems remain essential, particularly for goods-based e-commerce. Regions with underdeveloped logistics infrastructure face persistent

bottlenecks that limit firms' ability to scale cross-border operations. This highlights the importance of complementary investments in both digital and physical infrastructure.

Regional differences in international e-commerce: The regression results and Figure 1 reveal pronounced regional disparities in international e-commerce performance. Europe and North America outperform other regions due to the combined effects of advanced digital infrastructure, strong regulatory quality, and efficient logistics systems. Asia exhibits considerable heterogeneity, with digitally advanced economies performing well while emerging markets lag behind. Africa and Latin America display lower overall performance, despite recent improvements in internet access. These findings suggest that standardized global strategies are unlikely to be effective, and that firms must tailor their approaches to local market conditions.

The researcher maintains that every country is «unique» and that each continent, as well as each nation, progresses at its «own pace» in the adoption of e-commerce. Consequently, strategic approaches that are highly effective in Europe or North America may not generate similar outcomes in Africa or parts of Asia. These differences reflect variations in business environments, institutional frameworks, cultural norms, and consumer attitudes toward digital commerce (North, 1990; Scott, 2014). One of the most salient distinctions between developed regions such as Europe and North America and many African economies lies in cultural orientation and digital practices. In Europe, e-commerce is deeply embedded in everyday life, with consumers routinely using online platforms for shopping, job searching, purchasing tickets, ordering food, and accessing healthcare and public services. This level of digital familiarity fosters trust and accelerates e-commerce adoption (Hofstede, 2001; Pavlou, 2003). By contrast, many African countries continue to rely heavily on traditional retail and face-to-face transactions, which slows the diffusion of e-commerce. Drawing on contextual experience as an African researcher, particularly from the Republic of Congo, this study observes that online banking and financial inclusion remain at an early stage in many African economies. A substantial share of the population lacks access to formal banking services, and awareness of online banking and digital payment systems remains limited, especially among individuals outside formal employment. These constraints significantly impede the development and expansion of e-commerce ecosystems (Demirgüç-Kunt et al., 2018). The discussion further highlights important regional differences in consumer behavior and transaction channels. While consumers in the United States and Europe predominantly engage in web-based e-commerce, many consumers in Asia and Africa rely more extensively on mobile devices for online transactions. As a result, mobile commerce (m-commerce) has emerged as the dominant mode of digital trade in these regions, driven by widespread mobile phone penetration even in areas with limited fixed broadband infrastructure (Aker & Mbiti, 2010; GSMA, 2021). This finding underscores the importance of aligning digital strategies with region-specific technological usage patterns. Institutional and regulatory environments continue to play a decisive role in shaping regional e-commerce strategies. Strong regulatory quality and supportive digital policies—such as those observed in the European Union and North America—enhance trust, reduce transaction costs, and facilitate cross-border online trade (Oxley & Yeung, 2001). In contrast, regulatory fragmentation and weak enforcement mechanisms in some developing regions constrain firms' ability to scale internationally.

4.7 Summary

The findings indicate that international e-commerce success depends on context-specific strategic planning. Firms and policymakers must consider cultural readiness, institutional quality, financial inclusion, logistics capacity, and preferred transaction channels when designing e-commerce strategies. Rather than adopting standardized global approaches, businesses should pursue adaptive and region-sensitive strategies that reflect local market realities and consumer behaviors.

5. Conclusion

This study demonstrates that digital infrastructure, regulatory quality, and logistics performance are key drivers of international e-commerce. The results reveal significant regional differences, emphasizing the need for adaptive strategies and targeted policy interventions across continents. The growth of the internet economy represents one of the world's major engines of economic development, enabling faster trade, broader market access, and rapid diffusion of information, which allows companies and countries to compete on a global scale (Syed, 2000). E-commerce has expanded rapidly, especially in developed nations where internet access is widely available to the general public (Addison, 2003). This accessibility has significantly enhanced the efficiency and electronic aspects of business operations. Strategic planning in e-commerce involves establishing secure connections between involved parties, integrating supply chains, reducing transaction costs, and saving time (Terzi, 2011). Consequently, regions including the Middle East, Asia, Africa, North America, and Latin America have implemented region-specific e-commerce strategies, reflecting differences in infrastructure, regulatory frameworks, and market maturity.

5.1 Policy and managerial implications

The findings of this study have several important implications for both policymakers and managers involved in international e-commerce. First, there is a clear need to invest in digital infrastructure; governments and private stakeholders should prioritize the development of ICT systems and ensure widespread internet accessibility, thereby strengthening the foundation for cross-border e-commerce. Second, it is essential to harmonize regulatory frameworks, as clear and consistent regulations reduce uncertainty, facilitate international online trade, and enable firms to scale operations effectively across borders. Third, the enhancement of logistics and supply chains is critical, particularly in regions with weaker infrastructure, as efficient networks and trade facilitation ensure timely delivery and support business competitiveness. Finally, firms must adopt region-specific strategies, tailoring their international e-commerce approaches to local conditions by leveraging digital readiness where available and addressing

infrastructure or institutional constraints where necessary. Collectively, these policy and managerial measures can help maximize the benefits of international e-commerce, promote regional competitiveness, and support sustainable growth in the digital economy. This study underscores that the combination of technological, institutional, and logistical investments is essential for maximizing the benefits of international e-commerce. Both firms and policy-makers must adopt region-sensitive approaches to leverage global opportunities, increase competitiveness, and support sustainable growth in the digital economy.

5.2 Limitations and future research

This study has several limitations that should be considered when interpreting the results. First, the use of cross-sectional data limits the ability to capture longitudinal trends in international e-commerce; future research could employ panel data to examine temporal dynamics and growth trajectories across regions. Second, reliance on secondary data sources may overlook country-specific nuances and contextual factors; combining macro-level data with firm-level surveys could provide deeper insights into organizational strategies and consumer behaviors. Third, future studies should investigate the impact of cultural factors, payment systems, and language differences, as these variables may significantly influence cross-border e-commerce adoption and performance. Finally, conducting sub-regional analyses within continents may uncover more granular insights into local market dynamics and strategic considerations, enabling more targeted policy and managerial recommendations. Addressing these limitations would enhance the understanding of international e-commerce and its regional variations.

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