

DOI: <https://doi.org/10.23857/fipcaec.v7i1>

Digital business ecosystem: Bibliographic analysis in globalization

Ecosistema empresarial digital: Análisis bibliográfico en la globalización

Ecosystema empresarial digital: Análise bibliográfica na globalização

José Fernando López-Aguirre ^I

josef.lopez@epoch.edu.ec

<https://orcid.org/0000-0001-9706-5115>

José Luis López-Salazar ^{II}

josel.lopez@epoch.edu.ec

<https://orcid.org/0000-0003-1012-4472>

Diego Marcelo Almeida-López ^{III}

diego.almeida@epoch.edu.ec

<https://orcid.org/0000-0001-5860-8308>

Correspondencia: josef.lopez@epoch.edu.ec

* **Recepción:** 25/06/2022 * **Aceptación:** 1/07/2022 * **Publicación:** 26/07/2022

1. Ingeniero en Industrias Pecuarias, Maestría en Administración de Empresas, Docente Investigador Escuela Superior Politécnica de Chimborazo (ESPOCH), Riobamba, Ecuador.
2. Licenciatura en administración de empresas, Maestría en Administración de Empresas, Docente Investigador Escuela Superior Politécnica de Chimborazo, (ESPOCH) Grupo de Investigación Ideas Factory, Riobamba, Ecuador.
3. Ingeniero en marketing, Magíster en gestión empresarial, Docente Investigador Escuela Superior Politécnica de Chimborazo (ESPOCH), Riobamba, Ecuador.

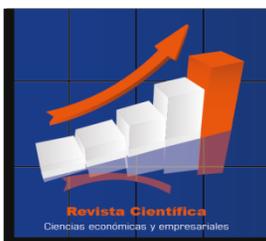
Resumen

La globalización, el flujo internacional de tecnología, información, bienes y servicios a través de diversos vínculos, como los negocios, los medios, la cultura, la geopolítica, los viajes y la tecnología, ha tenido un impacto en los negocios y ha mejorado vidas. Sin embargo, la globalización ha asociado desafíos globales debido a las diferencias culturales a medida que las empresas crecen internacionalmente. Diferentes académicos han destacado los desafíos que enfrenta la globalización digital y el ecosistema de negocios digitales. Estos desafíos varían de una región a otra, con países africanos como Kenia y Mauritania enfrentando más desafíos que las naciones europeas o norteamericanas. No obstante, algunos de los desafíos generales en el ecosistema de negocios digitales incluyen grandes corporaciones que crean barreras de entrada comercial dentro de los ecosistemas digitales y crean monopolios en el mercado. Otro desafío importante es la falta de interoperabilidad en el ecosistema debido a obstáculos tecnológicos y desafíos por el alto grado de incompatibilidad de las tecnologías de la información, especialmente en el almacenamiento, intercambio, procesamiento, presentación y comunicación de la información. Las empresas de aplicaciones digitales enfrentan desafíos únicos durante la expansión global de sus plataformas de negocios en términos de estrategias de adquisición de usuarios, implementación de estructuras organizacionales efectivas y desafíos asociados con "ignorar" las regulaciones locales.

Palabras Claves: Negocio digital; ecosistema; globalización; organización; geopolítica.

Abstract

Globalization, the international flow of technology, information, goods, and services through various ties such as business, media, culture, geopolitics, travel, and technology, has impacted businesses and improved lives. However, globalization has associated global challenges due to cultural differences as enterprises grow internationally. Different scholars have highlighted the challenges faced in digital globalization and the digital business ecosystem. These challenges vary from region to region, with African countries like Kenya and Mauritania facing more challenges than European or North American nations. Nonetheless, some of the general challenges in the digital business ecosystem include large corporations creating business entry barriers within digital ecosystems and creating monopolies in the market. Another major challenge is the lack of



interoperability in the ecosystem due to technological obstacles and challenges due to information technologies' high degree of incompatibility, especially in the storage, exchange, processing, presentation, and communication of information. Digital platform companies face unique challenges during the global expansion of businesses platform in terms of user acquisition strategies, implementing effective organizational structures, and challenges associated with 'ignoring' local regulations.

Key Words: digital business; ecosystem; globalization; organization; geopolitics.

Resumo

A globalização, o fluxo internacional de tecnologia, informação, bens e serviços através de várias ligações, tais como negócios, meios de comunicação social, cultura, geopolítica, viagens e tecnologia, teve impacto nos negócios e melhorou as vidas. No entanto, a globalização tem associado desafios globais devido às diferenças culturais à medida que as empresas crescem internacionalmente. Diferentes estudiosos têm destacado os desafios que a globalização digital e o ecossistema empresarial digital enfrentam. Estes desafios variam de região para região, com países africanos como o Quênia e a Mauritânia a enfrentarem mais desafios do que as nações europeias ou norte-americanas. No entanto, alguns dos desafios gerais no ecossistema empresarial digital incluem grandes empresas que criam barreiras à entrada comercial nos ecossistemas digitais e que criam monopólios no mercado. Outro grande desafio é a falta de interoperabilidade no ecossistema devido a barreiras tecnológicas e desafios devido ao elevado grau de incompatibilidade das tecnologias de informação, especialmente no armazenamento, troca, processamento, apresentação e comunicação de informação. As empresas de aplicações digitais enfrentam desafios únicos durante a expansão global das suas plataformas empresariais em termos de estratégias de aquisição de utilizadores, implementação de estruturas organizacionais eficazes e desafios associados à "ignorância" dos regulamentos locais.

Palavras-chave: negócios digitais; ecossistema; globalização; organização; geopolítica.

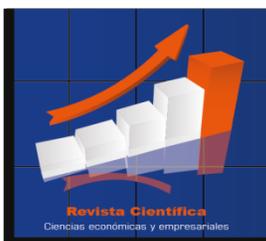
Introducción

Globalization, as we know it today, involves the open international flow of technology, information, goods, and services through various ties such as business, media, culture, geopolitics, travel, and technology. Due to technological advancements, the world is deeply connected as it gets 'smaller' every day. Thus, enterprises that do not integrate globalization into their strategies risk losing a competitive edge within the global market. However, despite improving lives, globalization has associated challenges as enterprises grow internationally. Due to cultural differences worldwide, enterprises must adapt to the global market. Therefore, this bibliographic analysis describes critical challenges in the globalization of digital businesses.

According to Stommen-Bakhtiar and Razavi (2008), the current internet technology research and developments have created new opportunities and threats for all businesses, SMEs and large. The authors state that SMEs perceive the digital ecosystem as a unique opportunity to participate, innovate, and compete equally with large corporations. The paper highlights the role of large enterprises in the digital ecosystem and examines two significant problems in the global networks. One of these emerging problems is caused by large corporations.

These corporations have a history of creating business entry barriers within digital ecosystems, creating monopolies in the market. These keystones regulate and determine the number or type of other SMEs in the market. The other problem in the digital ecosystem is the present structure of scale-free networks. The current structure facilitates the natural development of super-nodes that can dominate global networks in the future. Besides, the existing structure will enable the development of future oligopolies or monopolies and SMEs' loss of local anatomy.

The paper by Lenkenhoff et al. (2018) examines the main challenges in the digital business ecosystem. It highlights interoperability challenges and actor-related problems by comparing two situations- one from Germany and the other from China. It also proposes various ways of coping with these challenges. The findings from the study highlight the specific challenges of digital business. First, there are challenges in interoperability due to technological barriers and challenges. Information technologies' high degree of incompatibility, especially in storage, exchange, processing, presentation, and communication of information and collected data, becomes an obstacle. Besides, organizational challenges arise from different organizational structures, cultures, and communication styles. This affects decision-making coherency. Secondly, there are actor-



related challenges due to the attitude, behavior, competence, and engagement of individuals involved in the digital business ecosystem. Actors in digital networks are hieratically organized. Therefore, keystone actors define standards of interoperability for SMEs. The findings of the study show limitations in the design and testing processes of the digital business ecosystem.

Development

Rapid digitalization affects all aspects of our lives, such as work, social interactions, shopping, and delivery of services. However, there are vast differences between and within nations on their readiness to utilize available data; the data-related divide. Therefore, countries without the capacity to harness data into digital intelligence are disadvantaged. The “Digital Economy Report 2021” examines the challenges surrounding international data and data flows. It also stresses the regulation of global data flows. According to the United Nations (2021), one of the challenges in the digital ecosystem is the difficulty in measuring the fast-growing data flows.

Data traffic measurement is difficult, coupled with the steep upward trend in internet use prompted by the Corona Virus pandemic. Also, the substantial cross-border data volume flows increase the challenge of measuring data flows. Secondly, data-dependent economies have large imbalances. For instance, only twenty percent of citizens in developing countries can access low-speed internet. The UN also states that there is a lack of understanding of international data flows and that it should be handled differently from the conventional trade of products and services.

According to the World Trade Organization (2021), e-commerce varies from one region to another. Digital business is not yet a prominent aspect of trade in most African nations. For example, Mauritius faces challenges in regulating the e-commerce sector. The digital business sector faces significant challenges in the low bandwidth and speed of internet systems. Enterprises also have the inadequate infrastructure, especially in remote areas.

Another African country, Kenya, faces challenges of its own. Although there has been a higher uptake of e-commerce by both the public and private sector due to increasing access to the internet and ICT, Kenya still faces several digital trade challenges. For instance, the limited access to infrastructure and funding reduces the capacity of enterprises and individuals to buy digital technology products and services. SMEs often lack creditworthiness. Besides, broadband services’

high installation and use costs and the limited wireless spectrum hinder digital trade. The high rates of illiteracy and poverty limit participation in e-commerce. Generally, the main challenge in e-commerce especially facing SMEs, is the high cost of broadband and connectivity products.

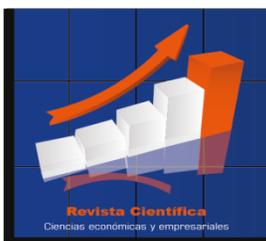
Another study by Lazovic and Durickovic (2014) on the digital trade of emerging countries highlights some of these challenges. The digital business ecosystem offers numerous opportunities but leads to new challenges within the international market. A country that positions itself appropriately on the global stage enjoys benefits such as bridging the gap between poor and rich countries. Developing countries would benefit more from such opportunities offered by digital trade. However, they face numerous challenges in the digital business ecosystem.

Most developing economies cannot meet the demands of the digital business ecosystem and have limited access to the latest digital technology. They also have low computer literacy and complicated telecommunication facilities. Besides, some socio-economic and cultural factors pose significant obstacles to digital trade. Developing countries have not been able to respond adequately to the international market. Such countries must establish clear policies to facilitate the creation of digital economies.

Kraus et al. (2021) highlight digital transformation's significance in helping businesses remain competitive in the ever-digitalizing global market. Digitalization has led to disruptive changes at the organizational level and in society, the environment, and institutions. Digital trade has led to issues with the traditional trading model. The new digital operating model focuses on customer preferences. Thus, there is a need to realign business operating models.

As a result, due to a lack of embracing technological challenges and advancements, most project management projects fail. The shift in consumer behavior has disrupted companies' operating business models, and companies that do not adapt lose their market share. However, not all economic actors have the skills and knowledge to adapt to the disruptive digital changes, making it necessary to train individuals on digital trade. The digital business ecosystem poses a risk of automation. This has led to several public and economic debates on technologies like AI and robotics replacing human labor.

Digital platforms play an undeniable role in the digital business ecosystem. However, these platforms face obstacles due to growth, new technologies, and regulation (Parker et al., 2019). Digital platforms were innovated when challenges appeared straightforward as strategists focused



mainly on cutting transaction costs and providing solutions to fundamental business problems. As these digital platforms grew, giants such as Apple, Facebook, Uber, and Google had to invest in governing their platforms. Today, digital media have several potential challenges, such as new regulatory constraints. There are growing antitrust concerns and restrictions on data acquisition. Secondly, there are increasing pressures as the explosive digital era is declining. Thus, these platforms need to identify new development areas like moving to adjoining markets. Also, platforms in the digital business ecosystem face challenges in creating trust and transparency and constantly have to update their technologies due to technological disruptions.

Although technological progress has increased the ease of reaching global customers, digital platform companies face unique challenges during the global expansion of businesses platform. Qualitative and quantitative studies conducted by Chen et al. (2022) identified three critical challenges digital platforms face when pursuing international growth. First, there are challenges in user acquisition strategies.

The study revealed that network effects often decline when crossing international borders. Some platforms are unable to attract overseas users. Secondly, digital business platforms maintain a flat organizational structure despite multiplying. This structure is insufficient to address the diverse and volatile global market. Besides, each market has its unique challenges. The flat form also leads to duplication of work and internal competition. Finally, digital enterprises enter markets faster than traditional enterprises; therefore, they often 'ignore' local regulations and evade scrutiny from local partners. The disruption of established enterprises leads to pushbacks from government regulators and other stakeholders.

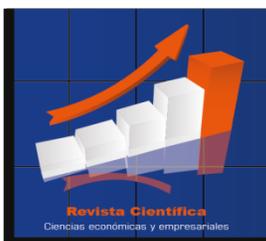
According to Patel and Foda (2018), the declining trends in productivity growth and increasing trends in income inequality that shape the global economy are attributed to the decline in competition in the digital business ecosystem. The effects of increased market concentration increased the market power of large corporations, and slow business dynamics indicate a weakening competition among firms. The growth of large corporations could hinder the spread of technology and increase income inequality. Besides, the digital economy presents two other concerns; the growing significance of intangible capital and the scale potentials offered by digital platforms. The ever-increasing importance of intangible capital like branding, procedures, ideas,

and software favors larger firms than SMEs. SMEs will have a more challenging time sourcing funding and investors, unlike large corporations with social relationships and economies of scale. Secondly, more giant corporations have a higher potential for scale than SMEs on digital platforms due to the high capital expenditures. The network effects favor the more significant investment by big firms.

In an article in “The Economic Times,” Pagan Chandra (2017) highlights six significant challenges facing contemporary e-commerce. Chandra suggests that although the current \$2.1 trillion spent in India’s digital business ecosystem is expected to surpass \$5 trillion, there are numerous challenges in the sector. To begin with, digital enterprises are faced with blurred economic boundaries. Companies must balance providing the best services and dealing with government regulations. Digital enterprises face challenges in building trust and brand. This often leads to the loss of online clients and failure to retain them.

Another major challenge facing digital businesses is the vast differences in digital systems’ architecture and usage. Outdated systems lead to economic stagnation. There is also a lack of corporation between departments of digital enterprises. Digital enterprises also struggle to deliver personalized experiences and face costly technical issues running digital infrastructures like bandwidth, server, and security and data privacy issues.

As Muggah et al. (2020) suggest, the digital revolution has changed every aspect of human life, but it is neither equitable nor sustainable. Besides, the Covid-19 pandemic has significantly accelerated global internet traffic. Over decades, the international IP traffic has increased from 100 GB per day to nearly 150,000 GB per second (Muggah et al., 2020). The digital economy has resulted from the innovation of AI and cloud computing. However, the digital economy has its negatives. For example, the digital divide in e-commerce is still growing between rich and developing nations due to a gap in data, code, and infrastructure ownership. Thus, the returns of the digital business ecosystem are unevenly shared. Many manufacturers and retailers have been extinguished due to digital globalization. Besides, the digital economy contributes significantly to negative externalities like climate change due to increased mining activities and vast amounts of electronic waste. The internet also consumes almost a tenth of the total global electricity produced (Muggah et al., 2020).



According to Schilirò (2018), digital globalization is defined by data and information flows. It results in significant changes concerning how business is carried out internationally, broadening participation and the flow of economic gains. However, emerging issues such as pandemics and financial crises are affected. Although people cannot be isolated from the global economy, the globalization pattern is changing. In 2008, for instance, the global financial flows and goods trade flattened due to the recession.

Additionally, the financial crisis resulted in a slowing down of international investments, that is, global direct investment. This, in turn, arose fears of globalization slowdown. Later, the US government tariffs imposition drove the adverse protectionism wind contributing to a slowdown in global trade.

The Corona Virus disease pandemic negatively affected the global economy resulting in withdrawal from easy-going global supply chains. In the twenty-first century, digital technologies Foster digital globalization while the increasing and accelerating data and information flow characterize it. Despite the advantages of digital globalization, several challenges are associated. Despite the ability to enter new markets, the digitalized global companies encounter disruptive digital models, aggressive international competition, and pricing pressures. Data is exposed to cybercrime. Although social media forms global communities, it links extremist networks. Most of these issues can only be solved through international coordination. The current globalization version is fast-paced and complex.

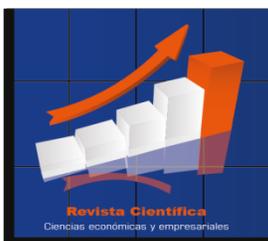
Moreover, the growing nationalism encourages different forms of digital wars and hinders trade, thus slowing down the digital globalization process (Schilirò, 2018). Digital globalization is also characterized by Artificial Intelligence, which is associated with difficulties. Some AI problems could be its adoption widening gaps between workers, companies, and countries. AI can foster economic activity; however, it will likely impose non-uniform benefits. Additionally, AI is associated with risks based on unethical or poor digital practices that rise rapidly and raise concerns, including the loss of personal privacy and the economic and social cost of gig economy jobs having inadequate protections.

G20 countries' economies' performance varies significantly, which is partly associated with the economy's development stage. The economies that lack robust digital infrastructure have failed to

perform efficiently in many other sectors partly since the digital infrastructure is a foundational element. Digital technologies have some barriers to their access and efficient use, including some combination of lack of affordable and high-quality infrastructure; lack of interoperability of standards; obstacles to resource allocation across firms and sectors; poor access, and high costs to smaller firms' financing, services trade barriers, a less proactive and more reactive approach to internet openness; inadequate skills required for the success of digital economy; and lack of trust in digital activities and technologies(OECD, 2017).

The nature of infrastructure is a significant barrier to high-speed network and services deployment arising of high entry barriers. According to OECD (2017), the changing nature and digital security risk scale are pushing G20 economies to reassess their policies and strategies in digital security. Although there has been a consistent increase in business-to-consumer ecommerce, there's significant untapped potential. Well-tailored competitive markets and consumer protections effectively build the trust required to improve the needs further to suit the business and consumers. According to Cote (2020), language barriers, cultural variation, global team management, currency exchange, inflation rates, and nuances of foreign policy, politics, and regulations are the main challenges facing international businesses. When looking to expand businesses internationally, the major challenge faced is the language spoken in the country of question. It is hard to ascertain whether or not the product messaging can translate well into other languages. Another consideration factor is the languages spoken by one's company's team members in global offices; it poses the challenge of hiring interpreters to ensure smooth business operation. Every culture has its culture or culture consisting of social norms, foods, Traditions, arts, and holidays. Global business requires one to learn about the cultures of the countries where the businesses will be conducted. Thus, one is faced with the challenge of depicting that they've taken time to comprehend the foreign cultures to earn respect and the emotional intelligence needed to carry out their trades.

Managing teams is also a challenge. It is hard to account for varying technological levels, time zones, cultural differences, and language barriers when managing worldwide employees. Pandemics such as Covid-19 make it even harder. Currencies go across the world, and so does the value of goods. Goods can't be worth the exact value of currency globally. This poses the challenge of learning the currency rates between countries involved in the business. The inflation rate is



another factor that varies across countries and puts Pressure on global digital companies (Cote, 2020). International trade is also influenced by inter-country relationships, laws, policies, and politics; the connections can be considerably nuanced. Decisions by political leaders can affect transportation infrastructure, raw material costs, labor laws, and taxes. It is exciting but intimidating that nuance of relations, policies, and international politics can impact one's global business.

Conclusion

Digital globalization faces various challenges, as outlined by different scholars. First, there are challenges in interoperability due to technological barriers and challenges. Information technologies' high degree of incompatibility, especially in storage, exchange, processing, presentation, and communication of information and collected data, becomes an obstacle. Countries without the capacity to harness data into digital intelligence are disadvantaged. Digital business is not yet a prominent aspect of trade in most African nations.

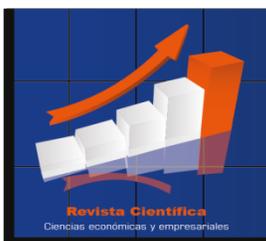
The digital business sector faces significant challenges in the low bandwidth and speed of internet systems. Enterprises also have the inadequate infrastructure, especially in remote areas. Most developing economies cannot meet the demands of the digital business ecosystem and have limited access to the latest digital technology.

Digital platform companies face unique challenges during the global expansion of businesses platform. First, there are challenges in user acquisition strategies. Some platforms are unable to attract overseas users. Secondly, digital business platforms maintain a flat organizational structure despite multiplying. Also, digital enterprises enter markets faster than traditional enterprises; therefore, they often 'ignore' local regulations and evade scrutiny from local partners. The growing nationalism encourages digital wars and hinders trade, thus slowing down digital globalization. Cybercrime is another major challenge.

Referencias

1. Chandra, P. (2017). Six key challenges facing modern e-commerce. The Economic Times. Retrieved 7 may 2022, from <https://economictimes.indiatimes.com/small-biz/marketing->

- branding/marketing/six-key-challenges-facing-modern-e-commerce/articleshow/61503054.cms.
2. Chen, L., Li, S., Shaheer, N., & Stallkamp, M. (2022). 3 Obstacles to Globalizing a Digital Platform. *Harvard Business Review*. Retrieved 7 may 2022, from <https://hbr.org/2022/05/3-obstacles-to-globalizing-a-digital-platform>.
 3. Cote, C. (2020). 5 Common Challenges of International Business | HBS Online. *Harvard Business Review* Retrieved 21 July 2022, from <https://online.hbs.edupost/challenges-of-international-business>
 4. Kraus, S., Jones, P., Kailer, N., Weinmann, A., Chaparro-Banegas, N., & Roig-Tierno, N. (2021). Digital Transformation: An Overview of the Current State of the Art of Research. *SAGE Open*. <https://doi.org/10.1177/21582440211047576>
 5. Lazovic, V., & Durickovic, T. (2014). The digital economy in developing countries; challenges and opportunities. *Research Gate*. Retrieved 7 may 2022, from <http://dx.doi.org/10.1109/MIPRO.2014.6859817>.
 6. Lenkenhoff, K., Wilkens, U., Zheng, M., Süsse, T., Kuhlenkötter, B., & Ming, X.G. (2018). Key challenges of digital business ecosystem development and how to cope with them. *Procedia CIRP*, 73, 167-172.
 7. Muggah, R., Rohozinski, R., & Goldin, I. (2020). The dark side of the digital revolution – and how to fix it. *World Economic Forum*. Retrieved 7 may 2022, from <https://www.weforum.org/agenda/2020/09/dark-side-digitalization/>.
 8. OECD. (2017). KEY ISSUES FOR DIGITAL TRANSFORMATION IN THE G20. *Oecd.org*. Retrieved 7 may 2022, from <https://www.oecd.org/g20/key-issues-for-digital-transformation-in-the-g20.pdf>.
 9. Parker, G., van Alstyne, M., & Evans, P. (2019). The Four Biggest Challenges Digital Platforms Need to Address. *Dartmouth Engineering College*. Retrieved 7 may 2022, from <https://engineering.dartmouth.edu/news/the-four-biggest-challenges-digital-platforms-need-to-address>.
 10. Patel, K., & Foda, K. (2018). Competition challenges in the digital economy. *Brookings*. Retrieved 7 may 2022, from <https://www.brookings.edu/blog/up-front/2018/06/28/competition-challenges-in-the-digital-economy/>.



11. Schiliro, D. (2020). Towards digital globalization and the covid-19 challenge. MPRA Paper, University Library of Munich, Germany, <https://EconPapers.repec.org/RePEc:pra:mprapa:100504>
12. Strommen-Bakhtiar, A., & Razavi, A. (2008). Emerging Problems in the Digital Business Ecosystem. Research Gate. Retrieved from https://www.researchgate.net/publication/228522871_Emerging_Problems_in_the_Digital_Business_Ecosystem
13. United Nations. (2021). Cross-border data flows and development: For whom the data flow. Geneva.
14. World Trade Organization. (2021). Adapting to the digital trade era: challenges and opportunities. World Trade Organization. Retrieved 7 may 2022, from https://www.wto.org/english/res_e/booksp_e/adtera_e.pdf.

©2022 por los autores. Este artículo es de acceso abierto y distribuido según los términos y condiciones de la licencia Creative Commons Atribución-NoComercial-CompartirIgual 4.0 Internacional (CC BY-NC-SA 4.0) (<https://creativecommons.org/licenses/by-nc-sa/4.0/>).