Porta Universorum | **Vol. 2 No. 5 (2026): Gegužė | ISSN 3030-2234**
https://doi.org/10.69760/portuni.26050009

Digitalization and the Expansion of Intangible Production in Emerging Markets

Firudin Abdullayev
Nakhchivan State University, Azerbaijan

How to cite: Abdullayev, F. (2026). Digitalization and the expansion of intangible production in emerging markets. *Porta Universorum*, 2(5), 64-70. https://doi.org/10.69760/portuni.26050009

ABSTRACT

The rapid digitalization of economies across the globe has catalyzed a profound shift in the structure and dynamics of production, particularly within emerging markets. Intangible production—encompassing services, intellectual property, digital content, and knowledge-based activities—is now a primary driver of value creation and economic growth. This article examines the relationship between digitalization and the expansion of intangible production in emerging markets, exploring key opportunities, challenges, and future directions. The research underscores the strategic importance of digital infrastructure, human capital, and supportive policies in fostering a thriving intangible sector. It also highlights persistent barriers such as digital divides, institutional gaps, and skills mismatches. The article concludes by offering policy recommendations for harnessing digitalization as a lever for sustainable, inclusive development.

Keywords: Digitalization; intangible production; emerging markets; intellectual property; digital infrastructure; knowledge economy; brain gain; digital divide

1. INTRODUCTION

The global economy is undergoing a transformative phase characterized by the ascendancy of intangible production—economic activities that generate value through knowledge, innovation, intellectual property, and digital services rather than physical goods. This transition is particularly pronounced in emerging markets, where rapid digitalization has enabled new forms of value creation and economic diversification (Abdullayev & Abutalibova, 2026). Historically, emerging markets were predominantly associated with agriculture, manufacturing, and the export of tangible goods. However, the proliferation of digital technologies—such as the internet, cloud computing, artificial intelligence, and digital platforms—has redefined traditional development trajectories (Imanova, 2025).

Intangible production now plays a critical role in shaping competitiveness, productivity, and integration with the global economy. Digitalization acts as both catalyst and enabler, lowering entry barriers for innovative businesses, connecting talent to global markets, and fostering the creation of digital content, financial services, creative industries, and knowledge-intensive activities. This shift aligns with the evolution toward knowledge-based economies, where intangible assets—including data, software,

brands, and human capital—become central to sustained economic growth (Haskel & Westlake, 2018). Despite immense opportunities, significant challenges remain (Abdullayev et al., 2024). Digital divides, institutional weaknesses, inadequate infrastructure, and a shortage of digitally skilled labor threaten to limit the inclusive expansion of intangible production. This article reviews current trends, analyzes the drivers and barriers, and proposes future directions for maximizing the benefits of digitalization in emerging markets.

2. THE RISE OF INTANGIBLE PRODUCTION AND DIGITALIZATION AS CATALYST

2.1 The Rise of Intangible Production

Intangible production refers to economic activities centered on the creation, management, and commercialization of non-physical assets such as intellectual property, software, digital platforms, design, research and development, and a wide range of services (Corrado, Hulten, & Sichel, 2005). In the world's advanced economies, investment in intangible assets has surpassed investment in tangible assets, marking a fundamental shift in how value is generated (Haskel & Westlake, 2018). This transition is now increasingly visible in emerging markets, where digitalization accelerates the growth and significance of intangible sectors (World Bank, 2016).

2.2 Digitalization as a Catalyst

Digitalization enables intangible production by providing the necessary infrastructure, tools, and platforms for knowledge-based activities. The internet and mobile technologies have dramatically expanded access to digital services, e-commerce, online education, and virtual collaboration (Bukht & Heeks, 2018; Javid, 2022). Cloud computing and big data analytics allow businesses and entrepreneurs in emerging markets to leverage advanced technologies without the need for heavy capital investments in physical infrastructure. This democratization of access has lowered entry barriers for start-ups and SMEs, enabling them to participate in the digital economy and offer innovative services to local and global markets (UNCTAD, 2019). Digital platforms play a crucial role in supporting intangible production: e-commerce sites, gig economy platforms, online content services, and fintech applications connect producers and consumers, facilitate knowledge sharing, and create new opportunities for employment and entrepreneurship (Sussan & Acs, 2017). For instance, in countries like India, Brazil, and Nigeria, digitalization has enabled the rapid growth of fintech, e-learning, and creative industries (Kshetri, 2020).

2.3 Economic and Social Impact

The expansion of intangible production in emerging markets contributes to economic diversification, reducing dependence on commodity exports and traditional manufacturing (World Bank, 2019). Knowledge-intensive sectors foster higher productivity through innovation and technology adoption (Brynjolfsson & McAfee, 2014). New forms of employment are emerging in information technology, digital design, online education, marketing, and research, creating jobs that are often more resilient to economic shocks than traditional roles (Alisoy, 2023; ILO, 2021). Digitalization also enables greater integration into global value chains. Emerging markets can now participate in high-value segments of international trade by exporting digital services, software, creative content, and intellectual property (Gereffi, 2018), enhancing global competitiveness and attracting foreign investment. On a social level, digitalization and intangible production offer pathways to greater inclusion: digital tools and platforms can empower marginalized communities by providing access to education, remote work, and entrepreneurial opportunities (ILO, 2021; Chuang & Ho, 2016).

2.4 The Azerbaijani Experience

Azerbaijan provides a compelling case study of digitalization driving intangible production. Government initiatives have prioritized investments in digital infrastructure, ICT education, and innovation ecosystems (Məmmədov, 2020). Programs such as ASAN Service, digital public services, and e-government platforms have improved service delivery and encouraged the development of digital content and knowledge-based businesses (Qasımova, 2022). The growth of the fintech sector and creative industries further demonstrates the economic and social value of intangible production in the Azerbaijani context (Əliyev, 2021). In summary, digitalization is a powerful driver of intangible production in emerging markets: it reduces traditional barriers to entry, fosters innovation, creates new employment opportunities, and enhances social inclusion. However, realizing the full potential of this transformation requires overcoming persistent challenges related to infrastructure, skills, policy, and digital inclusion.

3. CHALLENGES AND FUTURE DIRECTIONS

3.1 Digital Divide and Infrastructure Barriers

One of the most persistent challenges is the digital divide—uneven access to digital infrastructure and technologies across regions, social groups, and genders (ITU, 2021). While urban centers in emerging markets often benefit from advanced internet connectivity and digital services, rural and marginalized areas remain under-connected due to high costs, lack of infrastructure, and limited digital literacy (World Bank, 2016). These gaps not only restrict access to intangible production opportunities but also widen social and economic inequalities. Efforts to bridge the digital divide should focus on investing in broadband infrastructure, expanding affordable internet access, distributing digital devices, and promoting inclusive digital literacy programs tailored to vulnerable populations (UNESCO, 2021). Public–private partnerships and international cooperation can accelerate infrastructure development and resource mobilization, especially in low-income contexts (PwC, 2019).

3.2 Skills Mismatch and Human Capital Development

A critical factor for the success of intangible production is a digitally skilled workforce. However, many emerging markets face a skills mismatch, where education systems and training programs lag behind the rapidly changing demands of the digital economy (OECD, 2019). Traditional curricula often do not emphasize digital literacy, critical thinking, creativity, or lifelong learning, resulting in graduates ill-prepared for knowledge-based industries (European Commission, 2020). To overcome this, governments must reform education systems to prioritize STEM, digital literacy, and entrepreneurial skills. Vocational and lifelong learning initiatives, as well as public–private collaboration in curriculum development, are vital for aligning workforce skills with industry needs (Chuang & Ho, 2016). Upskilling and reskilling programs targeting women, youth, and disadvantaged groups can further promote equal participation in the intangible sector (ILO, 2021).

3.3 Institutional and Regulatory Challenges

Weak institutional frameworks, fragmented regulations, and inadequate intellectual property protection hinder the growth of intangible production in many emerging markets (UNCTAD, 2019). Unclear or outdated legal environments can discourage investment in innovation and digital businesses, while weak IP rights may reduce incentives for creative work (Haskel & Westlake, 2018). Addressing these issues requires modernizing IP laws, strengthening enforcement mechanisms, reducing regulatory uncertainty, and harmonizing digital policies across sectors (Karimova, 2024). Governments should create innovation-friendly environments by supporting start-up ecosystems, simplifying business registration, and facilitating access to finance for intangible-intensive ventures (PwC, 2019).

3.4 Data Governance, Cybersecurity, and Digital Trust

As intangible production increasingly relies on big data, cloud platforms, and digital services, concerns about data privacy, cybersecurity, and digital trust become more acute (Kshetri, 2020). Cyber threats pose significant risks to businesses, governments, and individuals, potentially undermining confidence in digital transformation (World Bank, 2019). Emerging markets must therefore invest in robust data protection regulations, cybersecurity infrastructure, and institutional capacity to manage digital risks. Training specialists in cybersecurity and data governance, establishing national cyber response centers, and participating in global cyber cooperation initiatives are all important steps (ITU, 2021).

3.5 Ensuring Inclusive and Sustainable Growth

Despite the promise of digitalization, there is a risk that certain groups—such as women, rural populations, and the elderly—may be left behind if inclusive policies are not actively pursued (ILO, 2021). Gender gaps in access to digital technology and STEM education remain significant barriers in many contexts (UNESCO, 2021). Future strategies should prioritize the inclusion of marginalized groups by designing targeted digital literacy programs, supporting women's participation in STEM fields, and promoting remote work and entrepreneurship opportunities that transcend geographic limitations. Policies must also address environmental sustainability, as the digital sector's energy consumption and e-waste pose emerging risks (UNCTAD, 2019).

4. POLICY RECOMMENDATIONS

To unlock the full potential of intangible production, emerging markets should adopt a comprehensive and coordinated set of policy measures addressing the dimensions outlined above. Specifically, the following strategic priorities are recommended:

- Invest in universal, high-quality digital infrastructure and affordable connectivity, with particular attention to rural and underserved areas.
- Reform education and workforce policies to prioritize digital and entrepreneurial skills, with sustained support for lifelong learning programs (Schwab, 2017; Tapscott, 2015).
- Strengthen intellectual property protection and harmonize digital regulations to provide a stable and predictable environment for intangible-intensive investment.
- Build robust data governance systems and cybersecurity frameworks to foster digital trust and protect individuals and enterprises from cyber risks.
- Foster inclusive digital transformation by actively addressing gender, regional, and income disparities through targeted literacy programs and support structures.
- Integrate environmental, social, and governance (ESG) considerations into digitalization policies and strategies to ensure that technological progress does not come at the cost of sustainability.

By proactively addressing these challenges and adopting a holistic approach, emerging markets can harness digitalization to drive innovation, productivity, and inclusive economic growth through the expansion of intangible production.

5. CONCLUSION

The rise of digitalization has fundamentally transformed the economic landscape of emerging markets, placing intangible production at the forefront of value creation and development. Sectors such as digital services, intellectual property, creative industries, and knowledge-based activities now play an increasingly vital role in driving productivity, competitiveness, and diversification. Digitalization lowers traditional barriers to entry, enables new business models, and fosters greater economic

integration with global markets. At the same time, it creates opportunities for social inclusion and the empowerment of marginalized groups through remote work, digital entrepreneurship, and access to online education (Babayev, 2023).

However, realizing the full benefits of this transformation is not without significant challenges. Persistent digital divides, skills mismatches, institutional weaknesses, and cybersecurity risks threaten to limit the scale and inclusivity of intangible production. Addressing these challenges requires coordinated action from governments, the private sector, and civil society. Investments in digital infrastructure, education reform focused on digital and entrepreneurial skills, robust data governance, and inclusive policies are all critical components of a successful strategy. Looking ahead, emerging markets that prioritize the expansion of intangible production through digitalization will be better positioned to achieve sustainable economic growth, resilience, and social progress. By fostering innovation, supporting human capital, and building enabling policy environments, these countries can unlock new sources of value and secure a more prosperous and equitable future in the digital era (Abdullayev & Alakbarov, 2025).

DECLARATIONS

Conflict of Interest Statement: The author declares that there is no conflict of interest in the conduct and reporting of this study.

Funding Statement: This research received no external funding from any public, commercial, or not-for-profit funding agency.

Author's Contributions: Firudin Abdullayev: conceptualization, literature review, methodology, writing – original draft, reviewing, and final editing.

REFERENCES

Abdullayev, A., & Abutalibova, N. (2026). Economic diversification and the development of alternative sectors. *Porta Universorum*, 2(4), 87–92.

Abdullayev, A., & Alakbarov, A. (2025). Human capital and digital skills as drivers of firm-level competitiveness in Azerbaijan's transition economy. *Luminis Applied Science and Engineering*, 2(3), 27–34.

Abdullayev, A. E., Asgerova, M. R., Abbasova, M. M., & Humbat, E. (2024). Global challenges of regional management in the modern world: The main factors shaping the infrastructure base of regional management. *International Journal*, 5(11), 4639–4644.

Alisoy, H. (2023). Digital dynamics: Transforming classrooms with ICT. *Znanstvena Misel Journal*, 34, 3–52.

Azizov, S., & Əliyev, N. (2020). Qeyri-maddi aktivlərin iqtisadi inkışafda rolu. *İqtisadiyyət və Biznes*, 5(109), 34–42.

Babayev, J. (2022). Online versus offline learning. *Znanstvena Misel*, (66), 24–25.

Babayev, J. (2023). Digitalization in education after the pandemic. In *Proceedings of the International Conference "Multilingualism, Internationalization, Digitalization as Factors of Innovations in Teacher Education"* (pp. 102–103).

Brynjolfsson, E., & McAfee, A. (2014). *The second machine age: Work, progress, and prosperity in a time of brilliant technologies*. W. W. Norton & Company.

Bukht, R., & Heeks, R. (2018). Defining, conceptualising and measuring the digital economy. *International Organisations Research Journal*, 13(2), 143–172.

Corrado, C., Hulten, C., & Sichel, D. (2005). Measuring capital and technology: An expanded framework. In C. Corrado, J. Haltiwanger, & D. Sichel (Eds.), *Measuring capital in the new economy* (pp. 11–46). University of Chicago Press.

European Commission. (2020). *Digital education action plan 2021–2027*. https://ec.europa.eu/education/education-in-the-eu/digital-education-action-plan_en

Əliyev, V. (2021). Azərbaycan iqtisadiyyətında qeyri-maddi istehsal sahələrinin inkışaf perspektivləri. *Azərbaycan Dövlət İqtisad Universiteti Elmi Əsərləri*, 3(79), 120–130.

Gereffi, G. (2018). *Global value chains and development: Redefining the contours of 21st century capitalism*. Cambridge University Press.

Hashimov, A. (2025). Max Weber's bureaucratic theory: Its strengths and weaknesses, and adaptation to the modern era – A theoretical and empirical analysis. *Acta Globalis Humanitatis et Linguarum*, 2(4), 128–166. https://doi.org/10.69760/aghel.0250040006

Haskel, J., & Westlake, S. (2018). *Capitalism without capital: The rise of the intangible economy*. Princeton University Press.

ILO. (2021). *World employment and social outlook 2021: The role of digital labour platforms in transforming the world of work*. International Labour Organization.

Imanova, M. (2025). Global evolution of artificial intelligence: Navigating ethics, policy, and innovation for a sustainable future. *Journal of Information Systems Engineering and Management*.

ITU. (2021). *Measuring digital development: Facts and figures 2021*. International Telecommunication Union.

Javid, B. (2022). Characteristics of online learning. *Polish Journal of Science*, (50).

Karimova, F. (2024). Legal oversight of transportation within the tourism sector. *Journal of Law and Tourism Studies*.

Kshetri, N. (2020). Digital transformation and economic development in emerging economies. *IT Professional*, 22(6), 70–74.

Məmmədov, R. (2020). Rəqemsəllaşdırmanın və innovasiyaların Azərbaycanda iqtisadi inkışafa təsiri. *Azərbaycan Milli Elmər Akademiyası İqtisadiyyət İnstitutu Elmi İşləri*, 6(4), 45–56.

OECD. (2019). *OECD skills outlook 2019: Thriving in a digital world*. OECD Publishing.

PwC. (2019). *Emerging markets: Driving the next phase of digital globalization*. https://www.pwc.com/

Qasımova, S. (2022). Rəqemsal istehsal və insan kapitalı: Azərbaycan təcrübəsi. *Azərbaycan Respublikasının Təhsil Nazirliyi Elmi Məqalələr Toplusu*, 2(10), 88–96.

Schwab, K. (2017). *The fourth industrial revolution*. Crown Business.

Sussan, F., & Acs, Z. J. (2017). The digital entrepreneurial ecosystem. *Small Business Economics*, 49(1), 55–73.

Tapscott, D. (2015). *The digital economy: Rethinking promise and peril in the age of networked intelligence*. McGraw-Hill.

UNCTAD. (2019). *Digital economy report 2019: Value creation and capture—implications for developing countries*. United Nations.

UNESCO. (2021). *Global education monitoring report 2021: Digital learning and the digital divide*. https://en.unesco.org/gem-report/report/2021/digital

World Bank. (2016). *World development report 2016: Digital dividends*. World Bank.

World Bank. (2019). *Competing in the digital age: Policy implications for the Russian Federation*. World Bank Group.

Chuang, H.-M., & Ho, H.-C. (2016). The effect of digital skills on students' economic participation. *Journal of Educational Technology & Society*, 19(4), 56–68.

ABOUT THE AUTHOR

Firudin Abdullayev is a second-year master's student in the specialty of Strategic Management at Nakhchivan State University, Azerbaijan. His research interests include digitalization, intangible production, emerging market economics, and knowledge-based development policy.

https://orcid.org/0009-0007-4509-2657
Email: firudinabdullayev6@gmail.com

Received: 10 March 2026
Accepted: 4 May 2026
Published: 6 May 2026