

SECTION 5. ECONOMY OF TRADE AND SERVICES

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5.1 Digitalization and its impact on international trade

Digitalization significantly impacts economies worldwide, connecting societies through data flows and transforming trade and production processes. It involves three core aspects: digitization, which is the conversion of analogue information into digital; digitalization, which involves using digital technologies in existing processes; and digital transformation, which results in the creation of new processes or products through digital technologies (IMF, 2023). This shift is characterized by increased use of information and communication technologies (ICT) that link people, devices, and objects, reshaping both economic and social interactions globally.

Rapid technological development is both a driver and reflection of structural transformation of economies. Digital technologies offer potential opportunities for firms and countries to diversify production and trade, extent participation in global value chains, and enhance resilience to exogenous shocks. Technological changes driving digitalization provide opportunities to creating new jobs that are connected with digitally friendly consumers and a young workforce.

The development of digital technologies has facilitated international trade, making it easier for firms to participate in global markets through e-commerce and e-export. Digital trade, broadly defined by the WTO and OECD, includes the production, distribution, marketing, sale, or delivery of goods and services via electronic means (OECD, WTO, IMF, 2020). It encompasses digitally ordered goods and services, digitally delivered services, and services that are enabled by digital technologies (IMF, 2023). Moreover, digitalization has reduced trade costs, making it possible for smaller firms and individuals to participate more actively in international commerce (López-González, Sorescu and Kaynak, 2023).

One of the key drivers of this transformation is digital connectivity, which lowers trade costs and enables greater participation in global value chains. Increased

connectivity has resulted in more international data flows, the digitalization of trade documents, and increased reliance on digital platforms for commerce (OECD, 2023). This has also enabled micro, small, and medium enterprises (MSMEs) to engage in international trade by enhancing their operational efficiency and market coverage, particularly in developing countries.

Digital trade also benefits from the rise of new services and technologies, including cloud computing, machine vision, and additive manufacturing (3D printing). These technologies change the way production is organized and distributed, with the potential to bring production closer to the end-user, which could reshape global value chains and shift the focus towards more efficient production methods that do not require large-scale infrastructure (Strange and Zucchella, 2017). Digital technologies are not only transforming manufacturing but are also wiping down the lines between goods and services. Services that were once only available locally can now be delivered internationally through digital platforms. Digitalization enables prompt exchanges of virtual goods: e-books, apps, online games, music and streaming services, software and cloud computing services can all be transmitted to connected customers anywhere in the world.

The emergence of digital services has led to what is often called the "servicification" of the economy—where the share of services in economic output increases due to digital integration (Lodefalk, 2017). This trend is closely related to the specialization of firms in their core competencies, outsourcing other services as necessary, and utilization of digital platforms to reduce costs. For example, the rise of platforms that facilitate online services such as customer support, marketing, or even compliance management has enabled businesses to optimize processes and reduce expenses.

However, this digital transformation has also introduced regulatory challenges. Cross-border data flows, digital privacy, national security, and intellectual property are among the policy areas influenced by digital trade. Regulatory differences across countries can pose barriers to seamless digital commerce (Fiorini and Hoekman, 2018). The availability of digital infrastructure, appropriate regulatory policies, and digital

literacy also play significant roles in determining whether a country can benefit from digitalization in trade.

To address these challenges, international cooperation and harmonization of regulations are essential. Countries need to work together to develop standards for data protection, privacy, and intellectual property that facilitate cross-border digital trade while safeguarding consumer rights (Ferracane, van der Marel, 2018). Furthermore, investments in digital infrastructure, particularly in developing countries, are crucial for ensuring that the benefits of digitalization are widely shared.

The Role of Digital Connectivity in International Trade

Digital connectivity is a fundamental aspect of modern international trade, enabling companies of all sizes to participate in the global economy. By reducing the cost of communication and improving access to information, digital connectivity lowers barriers to entry for firms wishing to engage in international markets. This is especially important for MSMEs, which often lack the resources to navigate complex international trade processes (OECD, 2023). Digital connectivity allows these firms to reach new customers, streamline operations, and utilize the digital platforms to offer goods and services globally.

Digital connectivity has played a key role in reducing both domestic and international trade costs. Estimates suggest that a 1% increase in digital connectivity is associated with a 0.3% reduction in domestic trade costs and a 0.1% reduction in international trade costs. The trade-cost reducing impact of digital connectivity translates into a quantitatively significant trade flow increasing effect. On average, a 1% increase in domestic digital connectivity is associated with a 2.1% increase in domestic trade and a 1.5% increase in international trade (López Gonzalez, Sorescu and Kaynak, 2023)

The rise of digital platforms, such as e-commerce marketplaces and social media channels, has also contributed to the expansion of international trade (López González and Sorescu, 2021). These platforms provide businesses with a cost-effective way to access global markets, manage customer relationships, and advertise their products. For instance, companies in developing countries can now sell directly to international

consumers through platforms like Amazon, Alibaba, and Etsy, bypassing traditional intermediaries and reducing costs. The ability to digitally connect with international customers has led to greater inclusivity in trade and increased opportunities for entrepreneurs in regions that were previously marginalized from global commerce.

In addition to lowering trade costs, digital connectivity has also facilitated the digitalization of trade processes, such as customs clearance and documentation. Paperless trade, supported by technologies like blockchain and digital signatures, has significantly reduced the time and cost associated with cross-border transactions (Atkinson and Stevens, 2020). This has made international trade more efficient, transparent, and secure, benefiting both businesses and consumers. The implementation of digital trade facilitation measures has the potential to further boost global trade by streamlining border procedures and reducing the administrative burden on traders.

Digital Technologies Transforming Trade and Production

The integration of digital technologies into production and trade processes has brought about significant changes in the global economy. Technologies such as artificial intelligence (AI), the Internet of Things (IoT), and big data analytics transform how goods are produced, distributed, and consumed. AI-driven automation, for example, has enabled manufacturers to optimize production lines, reduce waste, and improve product quality. IoT devices, which connect physical objects to the internet, provide real-time data that can be used to enhance supply chain visibility and manage logistics more effectively (Hallward-Driemeier and Nayyar, 2018).

Additive manufacturing, commonly known as 3D printing, is another technology that has the potential to reshape global value chains (Freund et al., 2019). By allowing for on-demand production of customized goods, 3D printing reduces the need for large inventories and can bring production closer to the end consumer. This has implications for international trade, as it may reduce the need for long-distance shipping of goods and shift trade patterns towards the exchange of digital design files rather than physical products. The rise of 3D printing also presents opportunities for developing countries

to participate in high-value manufacturing without the need for extensive industrial infrastructure.

Cloud computing has also played a crucial role in supporting digital trade by providing scalable and cost-effective computing resources (Shaqiri, 2015). Businesses of all sizes can leverage cloud services to manage their operations, store data, and run applications without the need for significant upfront investment in IT infrastructure. This has levelled the playing field for smaller firms, enabling them to compete with larger multinational corporations on a global scale. Cloud-based solutions have also facilitated the delivery of digital services, such as software-as-a-service (SaaS), which can be accessed by customers anywhere in the world.

The Emergence of Digital Services and Servicification

The digital economy expresses a significant rise in the trade of digital services, which include services that can be delivered remotely over digital networks. These services range from software development and digital marketing to financial services and online education. The growth of digital services trade has been driven by advances in ICT, which have made it possible for firms to provide services to clients around the world without the need for physical presence. This has opened up new opportunities for service providers in developing countries to access global markets and offer their expertise to international clients.

The concept of "servicification" refers to the increasing role of services in the production and export of goods. This servicification of the economy resulted in an increased specialization in firms' core competencies and is one reason why the share of services in GDP has been rising in all countries. Many goods today are associated with services, such as maintenance, customer support, and software updates, which add value to the product and enhance the customer experience. For example, a smart appliance may come with an app that allows users to control it remotely, effectively turning a physical product into a service-enabled offering. This trend has blurred the distinction between goods and services, leading to new challenges for trade policy and regulation (Tronvoll et al., 2020).

Digital platforms have played a key role in facilitating the growth of digital services trade. Freelance platforms like Upwork and Fiverr, for example, have enabled service providers to connect with clients globally, offering services ranging from graphic design to software development. These platforms have opened up access to international markets, allowing individuals with specialized skills to participate in the global economy without the need for traditional employment relationships. The rise of digital services has also contributed to the growth of the economy, where workers provide services on a freelance or short-term contract basis.

Regulatory Challenges and the Need for International Cooperation

While digitalization has created new opportunities for international trade, it has also introduced a range of regulatory challenges. One of the key issues is the regulation of cross-border data flows, which are essential for digital trade (Ferracane, Van der Marel, 2020). Data flows enable businesses to transfer information across borders, manage global supply chains, and provide services to international customers. However, concerns about data privacy, national security, and intellectual property have led some countries to impose restrictions on data flows, which can create barriers to digital trade (Beverelli et al., 2017).

Data localization requirements, which mandate that data be stored within a country's borders, are one example of a regulatory measure that can hinder digital trade. While such measures are often implemented to protect personal data and ensure national security, they can increase the cost of doing business for companies that operate across multiple countries. To address these challenges, international cooperation is needed to develop common standards and frameworks for data protection and privacy that balance the need for security with the benefits of open data flows.

Another regulatory challenge is the lack of harmonization in digital trade policies across countries. Differences in regulations related to e-commerce, consumer protection, and digital payments can create obstacles for businesses looking to expand internationally. For example, varying requirements for electronic signatures, online dispute resolution, and digital taxation can make it difficult for companies to navigate

the regulatory landscape of different markets (Fiorini and Hoekman, 2020). Restrictive policies towards trade in services and digital products have adverse effects on exports and the productivity performance of firms. Beverelli et al. (2017) and Hoekman and Shepherd (2017) show that services trade policies are associated with services trade volumes and sectoral productivity performance, with one channel being the role that services play as inputs into production. To facilitate digital trade, countries need to work together to align their policies and create a more predictable and supportive environment for businesses.

International organizations, such as the World Trade Organization (WTO), the Organisation for Economic Co-operation and Development (OECD), and the United Nations Conference on Trade and Development (UNCTAD), have been working to promote dialogue and cooperation on digital trade issues. Regional trade agreements, such as the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) and the Digital Economy Partnership Agreement (DEPA), also include provisions aimed at facilitating digital trade and addressing regulatory barriers. By participating in these initiatives, countries can help create a more conducive environment for digital trade and ensure that the benefits of digitalization are widely shared.

Inclusivity and the Potential for Inequality

Digital technologies have the potential to make international trade more inclusive by providing opportunities for marginalized groups, including women, youth, and small businesses, to participate in the global economy. Digital platforms and e-commerce marketplaces have lowered the barriers to entry for entrepreneurs who may lack the resources to establish a physical presence in international markets. Women-owned businesses, for example, have been able to leverage digital platforms to reach new customers and grow their businesses, contributing to greater gender equality in trade.

However, there is also a risk that digitalization may exacerbate existing inequalities if access to digital infrastructure and digital skills is uneven. In many developing countries, limited access to reliable internet, high costs of digital devices,

and a lack of digital literacy can prevent individuals and businesses from benefiting from digital trade opportunities. This digital divide can create disparities between those who have access to digital technologies and those who do not, leading to unequal outcomes in terms of economic growth and development (Foster and Azmeh, 2020; Lee et al. 2020).

To ensure that the benefits of digitalization are inclusive, policymakers need to invest in digital infrastructure and education. Expanding access to affordable internet, providing digital skills training, and supporting initiatives that promote digital entrepreneurship are crucial steps toward bridging the digital divide. Public-private partnerships can also play a role in expanding digital infrastructure and ensuring that underserved communities have access to the tools they need to participate in the digital economy.

Digitalization and Resilience in International Trade

The COVID-19 pandemic highlighted the importance of digitalization in maintaining the resilience of international trade. As lockdowns and travel restrictions disrupted traditional supply chains, businesses that had embraced digital technologies were able to continue operations and adapt to changing market conditions. E-commerce platforms experienced a surge in demand as consumers turned to online shopping, and many businesses shifted to digital channels to reach their customers. The ability to operate online allowed firms to mitigate the impact of the pandemic and maintain their competitiveness in the face of unprecedented challenges.

Digitalization has also contributed to supply chain resilience by enabling real-time monitoring and data analytics. Technologies such as IoT sensors and cloud-based supply chain management systems provide visibility into every stage of the supply chain, allowing businesses to identify potential disruptions and respond quickly (Verbeke, 2020). This has become increasingly important in a globalized economy where supply chains are complex and interdependent. By leveraging digital technologies, companies can enhance their ability to withstand shocks and ensure the continuity of their operations (Cordon and Buatois, 2020).

In addition to enhancing resilience, digitalization has supported the diversification of trade by enabling businesses to explore new markets and offer new products and services. Digital platforms have provided a gateway for businesses to expand beyond their domestic markets and reach customers around the world. This diversification is particularly important for small economies that may be vulnerable to external shocks. By expanding their international presence through digital trade, these economies can reduce their reliance on a limited number of trading partners and build greater economic resilience.

Conclusion

Digitalization is reshaping international trade by reducing barriers, increasing efficiency, and opening up new opportunities for participation. The integration of digital technologies into trade processes has transformed how goods and services are produced, distributed, and consumed, enabling firms of all sizes to participate in the global economy. However, realizing the full potential of digitalization requires addressing regulatory and infrastructural challenges. International cooperation, investments in digital infrastructure, and the creation of inclusive policies are essential to ensure that the benefits of digitalization are widely shared and contribute to sustainable and equitable economic growth.

By fostering collaboration, aligning regulatory frameworks, and investing in digital skills and infrastructure, countries can take advantage of the power of digitalization to promote global trade and drive economic development. Digital technologies hold the promise of making international trade more inclusive, resilient, and dynamic, but their success depends on the actions taken by governments, businesses, and international organizations to address the challenges and create an enabling environment for digital trade to thrive.

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