Effect of Digitalization on Import and Export

J. Shyla
Head, Department of Commerce,
Malankara Catholic College, Mariagiri

Abstract

Digital technology is shaping the future of global trade and investment. One aspect of the adoption of digital technology by global exporters and importers is the purchase and sale of goods and services online, which is part of what is broadly understood as “e-commerce”. The use of automated data exchange systems, cloud computing, big data and open source operating systems can help businesses run international supply chain management more efficiently. However, the use of digital technology in trade activities can, in fact, go beyond online buying/selling; in this chapter, the term “digital trade” refers to the use of digital technologies to facilitate businesses without limiting it to just online sales or purchases.

Keywords: E-Commerce, Trade

I. INTRODUCTION

The impact of digital technology on global trade has attracted public attention worldwide with the discussions mainly focused on online sales. The rising importance of digital trade was already noted by international organizations in the late 1990s. For example, in 1999, UNCTAD stated that “electronic commerce has the potential to be a major engine for trade and development on the global scale” (UNCTAD, 1999, p. 1). WTO work in the same period stated that “the value of electronic commerce has catapulted from virtually zero to a predicted $300 billion in the 10 years up to the turn of the century” (WTO, 1998, p. 1). A decade later, OECD (2012) indicated that more than 95% of all companies in OECD countries use Internet in doing their business. According to the most recent estimates made by UNCTAD (2016a), “e-commerce
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includes both business-to-business (B2B) and business-to-consumer (B2C), valued respectively at around $19.9 trillion and $2.2 trillion each...This trade is mostly domestic, but is becoming more and more international.”

II. OBJECTIVES

1. To Understand about effect of digitalization on import and export
2. To Know about effect of digitalization on import and export
3. To Study about the use of DGFT digital signature certificate
4. To Know about Foreign trade and digital signature certificates
5. To Study about the impact of digital technology global trade

III. METHODOLOGY

Detail and information for the propose of the study was collected from the secondary sources viz, web sides, publish, article, thesis and desecration, journal, magazines etc.

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Underlying the rapid growth in digital trade is the revolution in computer and software technology, telecommunications technology and the expansion of Internet access. Since the mid-2000s, Internet access has greatly increased globally. According to the United States International Trade Commission (2013), while only 5.9% of the world’s population had Internet access in 2000, the number had grown to an estimated 34.3% by 2012. Internet access has expanded greatly, both in developed and developing economies. For example, the Internet penetration rate, which is measured by the share of Internet users in total population, more than doubled from 37.3% in Japan and 33.8% in the United States of America to 79.5% and 78.1%, respectively, during 2000 to 2012 (USITC, 2013). However, it is in emerging economies, such as Brazil, China and India, where Internet penetration has rocketed from 2.9%, 1.8%, 0.5%, respectively, to 45.6%, 40.1% and 11.4% (USITC, 2013). According to the International Telecommunications Union (2013), 2.3 billion people have access to the Internet and this figure is expected to grow to 5 billion by 2020. For Asia and the Pacific, the growth of ICT connectivity over the past decade has been leading the world average. A report prepared by ESCAP (2016a), reveals that more than 52.3% of the global fixed broadband subscribers are in the Asia-Pacific region; however, this impressive number is mainly driven by China and a few countries in East and North-East Asia (ESCAP, 2016).1 Online connectivity has been greatly improved as a result of the increase in mobile telephones and social media activity, and the deployment of national and international fibre-optic networks (UNCTAD, 2015). As Internet accessibility expands, trade transactions are moving from physical interactions between sellers and buyers, to cyberspace – with the marketplace being based on online activities without requiring direct interactions. For example, the virtual marketplace has proliferated in forms of
websites and through the use of social media such as eBay and Craigslist. In this process, the widespread lowering cost of mobile phones and tablets has been an important means for digital trade, especially in developing countries (UNCTAD, 2015). According to OECD (2012), the number of mobile phone subscriptions worldwide has more than doubled since 2005 and tripled in non-OECD countries. According to Ahmed and Andolas (2015, p.1), mobile devices “will account for four out of five broadband connections by 2016”. The latest statistics, released in June 2016 by ITU, indicate that the global mobile-broadband penetration rate was 49.4% while the penetration rate of fixed broadband was only 11.9%. The expansion of mobile broadband, in particular, is reducing the digital gap for developing economies whose access to fixed-broadband (8.2%) is much more limited than access to mobile broadband (40.9%). Therefore, it is not surprising that a survey by Fedrikkson (2013) found that 90% of online consumers in Latin America use smartphones to do online shopping. In China, “almost half of all online shopping is carried out on smartphones” (Wilson, 2016). Similarly, the survey by USITC (2013, p. 12) showed that “portability and wireless broadband, particularly when accessed via tablets, were key drivers of the increase in United States demand for digital content”. While the development of ICT hardware and infrastructure contributed greatly to the expansion of digital trade in the past decade, new ways of using technology and the information it generates, including big data, social networking and cloud computing, has increasingly become an important element of digital trade. Social networks, such as Facebook and Twitter, have become a standard means of communication between businesses and consumers. Apart from the comprehensive quantitative analysis of digital trade in the United States by USITC (2013), there are few studies for other markets. The reasons behind this void in quantitative analysis are linked to limited data on digital trade or even e-commerce specifically. As noted by UNCTAD (2015, p. 12), “only a few countries – mainly developed ones – compile data on e-commerce revenue.” The work on ICT for development done in partnership between UNCTAD and ITU suggest core indicators of digital trade; however, the indicators that measure the readiness of countries to engage in digital trade do not lend themselves well to measuring the value of such transactions. The problem is compounded when trying to separate domestic and cross-border digital trade. Without official statistics, previous studies have generally been based on private data sources, followed varying methodologies, and have limited geographical coverage (mainly OECD countries). In trying to measure e-commerce, UNCTAD (2015) categorizes e-commerce into four types based on electronic relationships between governments, enterprises and consumers: (a) B2B (business-to-business); (b) B2C (business-to-consumer); (c) B2G (business-to-government); and C2C (consumer-to-consumer). Among these categories, B2B – which is the digital trade between businesses, such as between a wholesaler to a retailer – is dominant (UNCTAD, 2015; Asian Development Bank, 2015). An estimate of worldwide B2B e-commerce amounted to $19.9 trillion in 2015 and for global B2C about $2.2 trillion.
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(UNCTAD, 2016a), while estimates for the e-commerce of the other categories are not available. The Asian Development Bank estimated that B2B transactions accounted for 90% of total e-commerce transaction value in Asia (ADB, 2015). However, these estimates are based on limited data and depend very much on the method of measurement. Despite accounting for a smaller share in total digital trade globally, the previous studies used estimates based on B2C e-commerce statistics (such as online shopping) to discuss trends and developments in digital trade due to the fact that data on B2C are relatively more available. Overall, it is estimated that B2C e-commerce is growing faster than B2B, and with Asia and the Pacific seemingly growing faster than the rest of the world (UNCTAD, 2016b).

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Digital trade also has implications for the improvement of existing systems of international trade statistics. One aspect of this is the need for the improvement of trade statistics to catch up with the fundamental changes in trade. The growing digitalization of trade is blurring the boundary between trade in goods and trade in services. For example, the digital purchase and delivery of books, films or music have increasingly replaced physical transactions. In some manufacturing industries, 3-D printing is transforming the shipment of physical goods into the online transfer of a digital file that can be used to produce the good at its point of consumption. Digitization in trade has also turned part of non-tradeable services to become tradeable. For example, most of the medical and educational services were previously seen as difficult to trade across borders but today are almost a standard part of tradeables taking the form of Telehealth or online courses. Current international trade statistics has not been able to track digital trade properly. The need for service trade statistics at the disaggregated level has become greater than ever. For example, trade in products that can be digitized is increasingly shifting from trade in physical products such as DVD books or films to trade in services such as in the subcategory of personal and recreational services. In addition, conducting digital trade depends on inputs from computer and information services, telecommunications services, and professional services such as web design, data engineers, IT professionals etc. Unfortunately, tracking trade in services is highly limited due to the lack of comprehensive data. For example, unlike statistics on trade in goods, there are still no official statistics providing bilateral trade in services. Data on international trade in services is available for broad categories under the sixth edition of the IMF Balance of Payments and International Investment Position Manual (BPM6) from the WTO database. However, Digital trade also has implications for the improvement of existing systems of international trade statistics. One aspect of this is the need for the improvement of trade statistics to catch up with the fundamental changes in trade. The growing digitalization of trade is blurring the boundary between trade in goods and trade in services. For example, the digital purchase and delivery of books, films or music have increasingly replaced
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Digital technology does not only affect trade in personal, cultural and recreational services; the supply of most services has also been affected. For example, in the tourism industry, booking and payment for airline tickets, hotels, tours etc. are increasingly carried out over the Internet. Electronic banking and online insurance provision have taken an important share of the financial and insurance services. Professional services, such as accounting, legal or medical, are increasingly based on Internet-based communications; news services transmitted by digital networks, together with Internet telephone, e-mail, voice mail etc., constitute a majority of the communication services provided. Furthermore, in the sectors where the supply of certain services across borders appear to be unfeasible, digital technology has allowed new forms of supply, such as Telehealth. As the scope of Internet-enabled services is large, it then follows that cross-border trade in these sectors accounts for 88% or more of total world trade in commercial services. Digital technology is having an increasing impact on those services, but measuring it remains difficult. As explained above, the best that can be achieved is some estimation or approximation of the digital intensity of exports by using the proxy based on trade in value-added data. Therefore, any impact analysis is bound to be biased by having no exact data on the digital content in overall trade flows. Trade in value-added data indicates that the growth of digital trade has a relatively stronger impact on service trade than merchandise trade. Measured by the use of computers and telecommunication services in export value addition, digital technology in general plays a larger role in the export of services than in the export of goods. Among others, the sectors with high digital intensity include financial services (for example, Internet banking, although it is not possible to say how much of it is crossborder), telecommunication services, research and development and business services, and renting of machinery and equipment (car rental services etc.). In the case of exports of goods, the publishing industry – which involves digital trade of e-books, e-magazines, online newspapers etc. – has the highest degree of digital intensity. It is followed by relatively high-tech industries that use digital and telecommunication technologies to facilitate their operations and participation in global value chains (e.g. chemical products, computer equipment, and electrical machinery and transport machinery. Education services lead the way in terms of the speed of growth of digital content in the exports by Asia and the Pacific. The increase of digital content in educational exports by Asia and the Pacific was nearly 200% from 1995 to 2011 (figure 7.5). Overall, there are 11 Asia-Pacific industries where the digital content in exports more than doubled from 1995 to 2011. For non-Asia-Pacific economies, it appears that the rate of digitization is relatively slower except in the case of printing, telecommunications and machinery renting businesses.

The availability of digital infrastructure is important for the development of digital trade. Part of the investment in digital infrastructure is the import of infrastructure related IT goods and services; however, the import intensity in each
country differs, depending on various factors including domestic capacity to produce the digital infrastructure-related goods and services, and trade policy. Trade in value-added shows that the import share of digital infrastructure services in total exports globally increased from 14% in 1995 to 22% in 2011. In the case of Asia-Pacific exporters, the import share is higher than the world average. Since 1995, the share of imported telecommunication services has been 21% while the import intensity of computer and related services gradually increased from 23% in 1995 to 25% in 2011. The growing significance of digital infrastructure-related imports implies that there is a need for an open trade environment for the sake of Figure 7.6 Sources of computer-related services used in exports, Asia-Pacific and rest of the world, 1995 and 2011 Source: ESCAP calculation using data from OECD-WTO TiVA, October 2015 version. Digital-trade development. In addition, intraregional trade is growing together with the rising importance of digital trade, especially intraregional trade in computer and related services. From 1995 to 2011, intraregional imports of digital infrastructure services grew faster than the imports from non-regional partners and domestic sourcing. As a result, the share of intraregional imports grew from 9% to 11% during those years (figure 7.6). In contrast, non-regional economies only source 2%-3% of the services from Asia and the Pacific.

Foreign Trade and Digital Signature Certificates

As discussed in this chapter, requirements for analyses of digital trade issues need a combination of data on trade in services, input-output linkages and merchandise statistics at the most detailed level that is comparable across countries. Without a unified definition, proper conceptual framework and systematic data collections, key questions concerning policy design and regulation remain inadequately answered. Using the available official statistics, this chapter is aimed at contributing to closing the knowledge gap by suggesting proxies and a conceptual framework that can be indicative for highlighting major trends related to cross-border digital trade. The chapter focuses on a factual exploration of digital trade at the global and Asia-Pacific levels. In considering the use of digital technology and services in international trade in goods and services transactions as an attractive proxy, the study reveals that exporters in the Asia-Pacific region are rapidly increasing the use of digital technology to support their export activities, both directly and indirectly. The growth of digital trade is having a relatively stronger impact on service trade than on merchandise trade. The digital-intensive industries are relatively high-tech or high value-added. Digital intensive services sectors include financial services (for example, Internet banking), telecommunication services, R&D and business services, and the renting of machinery and equipment (car rental services etc.). In the case of manufacturing, the publishing industry, chemical products, computer equipment, and electrical machinery and transport machinery are among the sectors with high digital intensity. The availability of digital infrastructure is important to the development of digital trade. Imports of
telecommunications and computer equipment play an important role in digital trade, especially that of Asia and the Pacific. This has opened intraregional trade opportunities as intraregional sourcing for those digital infrastructure products has been growing in recent years. However, the export opportunities are mainly clustered in large economies, especially China, Japan, India and the Republic of Korea. The trends and developments discussed can shed light on a broader policy framework. The digitalization of international trade brings about a greater need for an open trade environment and international cooperation. Non-discriminatory principles and international harmonization of rules and regulation are essential. The concept of an open environment is not new; however, what is added is the fact that “openness” in the world of digital trade does not only mean free flows of goods or services, but also the need for the free flow of data across national borders. In addition, the growing importance of digital trade brings to the fore a greater need for international cooperation, as a supportive environment for digital trade is more dependent on multilaterally agreed policies than on unilateral ones.

The platform takes certain shipment details from a shipper – origin, destination, transit time required, packaging details – and specifies which mode and route are best suited to that shipment. The system also generates the transportation and compliance documents relevant to the shipment based on the Incoterms under which it is moving.

The idea, Acosta said, is to reduce a shipper’s reliance on forwarder relationships that aren’t strategic, and to give shippers more control over their end-to-end import/export processes, starting with sourcing at origin. This stemmed from personal experiences Acosta had with shipments being poorly consolidated in Asia, which led to downstream impacts that multiplied in cost. Acosta is partnering with freight brokerage firms in Asia to link domestic transportation providers at origin, and is also in discussions with ocean carriers to secure capacity. Globatom will also work with product quality assurance labs, companies that perform audits of vendors at origin to assure that goods meet standards before they even get into the pipeline.

“Globatom provides a unique comprehensive approach that will revolutionize, simplify and illuminate the import/export process over the next decade much as the internet has transformed other industries such as newspapers, television and advertising,” he said in a statement.

Seattle-based Globatom said it will complete beta testing in the fall and is eyeing further seed investment for potential future development. The spread of digital technologies is transforming all types of global flows — those of goods, services, money, and people — and this transformation is only in its earliest stages. Already, more and more of people across the globe engage in instantaneous cross-border exchanges of digital goods, from books and music to design files that enable 3-D printing of physical objects. As the infrastructure that supports the Internet expands, barriers of distance and cost that once seemed insurmountable have begun to fall away.
Digital trade represents an important, albeit hard-to-measure, component of these global flows. As it grows, develops, and assumes new forms, it is both facilitating globalisation and transforming it. Digitisation lowers marginal production and distribution costs, while broadening access to global commerce. The cost of participating in trade is reduced not just for large companies, but also for individuals, small firms, and entrepreneurs. This is already spurring innovations in business models and spawning the emergence of micro-multinationals, micro-work, and microsupply chains that are able to tap into global opportunities. The Internet of Things (IoT) — the ability to monitor and manage objects in the physical world electronically — will enhance and accelerate these developments. Digitisation has already had a significant impact on trade by transforming logistics and supply chains; companies can readily track and collect information about a product, place, time, or transaction using sensors or other digital “wrappers,” to improve their operating efficiency and reduce costs. This process, too, is at an early stage, and we believe that its impact could be considerable over the next decade. Manufacturers and oil and gas companies, among others, have already begun to see the initial payoff from IoT technologies in their operations. From monitoring machines on the factory floor to tracking the progress of ships at sea or parcels being shipped across frontiers, digital technologies are helping companies get far more out of their physical assets. The digitisation of global flows has been a key contributor to the explosive growth of cross-border data flows. Crossborder Internet traffic has increased 500-fold since 2000 — and with conservative assumptions will expand another eightfold by 2025. Together, these transformations will have broad implications for the future of globalisation. They will impact companies large and small, in emerging economies as well as in developed ones. Governments will be challenged to adapt their regulatory and taxation systems to deal with this upsurge in digitisation and digital trade. Policymakers will need to address sensitive issues around data security, privacy, and Internet governance. Trade agreements must be updated to reflect the new realities of global commerce and expanded to address new forms of cross-border commerce and customs procedures.

Impact of Digital Technology Global Trade

Measuring digital trade and its impact on globalisation is complex. There is as yet no accepted definition of what it is and no reliable data about its size (See Box: Defining and measuring digital flows). We begin our analysis by looking first at the result of digital trade: the surge in cross-border flows of data and communication. Between 2002 and 2012, cross-border Internet traffic grew by 60 percent a year.2 By 2025, on conservative assumptions, we estimate crossborder Internet traffic could grow another eightfold. A large part of the growth in the bits and bytes of data flowing around the world is from communication between individuals. As transmission costs have plummeted and speeds have soared, people and companies are using digital and mobile connections to share ideas, collaborate, and make social connections — both
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within countries and increasingly across borders. A researcher in one country can use an idea patented in another to develop a new product that is sold globally. Two friends in different countries can share their latest news via phone, email, Facebook, Twitter, or Instagram. A business executive can instant message a colleague in a foreign office. Photo sharing on Facebook illustrates the sheer scale and speed at which social media allows content to travel around the world. When US President Barack Obama was re-elected in 2012, his official victory photo was re-shared more than 600,000 times and “liked” more than 7 million times — and more than two-thirds of those shares and likes came from outside the United States.3 All of these exchanges generate cross-border flows of data. Voice-over-the-Internet Protocol (VoIP) has generated a surge in global cross-border telephone calls. These have more than doubled over the past decade from 162 billion call minutes in 2002 to 570 billion call minutes in 2014. Since 2004, the number of call minutes on VoIP has increased by 24 percent a year, while traditional analogue call minutes have grown by less than 8 percent. In addition to VoIP calls, cross-border computer-to-computer Skype calling has skyrocketed, similarly generating a torrent of cross-border data flows. By 2014, cross-border computer-to-computer Skype calling was at the level of 44 percent of traditional international calls. Over the past decade, Skype calling has more than doubled every two years, growing at 46 percent a year compared with 8 percent in the case of traditional calls. This amounts to a more than 700 percent increase in Skype call minutes since 2008. But, the tsunami of data moving instantly across borders is not explained solely — or even primarily — by the new flows of global communication described above. While we cannot measure the exact share of Internet traffic that is due to emails, VOIP calls, and other forms of communication, we know that digitisation is enabling other types of global flows. In this paper we focus on three main ways digital technologies are transforming globalisation, beyond enabling communication and idea-sharing: One portion of the growth of cross-border data flows and Internet traffic is explained by trade in digital goods. While these are by no means a new phenomenon for the global economy, the range of goods that are purely digital and the proliferation of devices with which consumers can access digital content has turned a niche into a transformative global industry. Today many goods that used to be traded in physical formats — such as books, magazines, and movies — are now shipped in digital format through the Internet with practically no distribution and transportation costs. Consumers can choose from a near-endless supply of games, movies, music, books, magazines, and newspapers from anywhere in the world. Although most digital goods are consumed in the country where they were produced, a growing share is to customers in foreign countries. For example, Netflix, which provides movies and television shows online, has become an increasingly international business. By the end of 2014, nearly one-third of its streaming customers lived outside the US, a testament to the speed at which companies can establish a global footprint courtesy of digital technologies.6 The range of goods that can be traded digitally is expanding rapidly. In the future, consider how
3D printing technologies might alter the flow of physical goods. Rather than producing goods at scale in one location and shipping them around the world, firms might send digital design files across the Internet and then use 3D printers to produce the good in small batches locally. Replacement parts, medical prosthetics, and industrial components are already being produced this way. Over time, the range of goods to which this could be applied is expanding and may include more complex industrial parts. Shapeways is an example of a digital platform that enables designers around the world to upload designs for products, use 3D printers to produce the good in small batches locally. Digital trade is not easily defined or measured. The United States International Trade Commission (USITC) uses a narrow definition that identifies digital trade as the delivery of products and services over either fixed-line or wireless digital networks. It includes domestic commercial activity as well as international trade but excludes commerce in most physical goods, such as goods ordered online and physical goods that have a digital counterpart, such as books and software, music, and movies sold on CDs or DVDs. Another definition is broader as discussed in a study from the US Bureau of Economic Analysis, which looked at “digitally enabled” industries, such as finance, and counted all trade from those industries as part of digital trade, whether the trade was actually delivered digitally or not.4 However, it is hard to identify what industries are digitally enabled. An Organisation for Economic Co-operation and Development (OECD) study discussed some of the issues of identifying digital industries.5

IV. CONCLUSION

The growing digital intensity has caused fundamental changes in trade; as a result, there is the need for the improvement of trade statistics to catch up with this process. Official and market research on cross border digital trade is starting to emerge; however, of particular concern with regard to measuring digital trade is the quality, methodology and transparency differences that inhibit cross-country benchmarking. The case studies tend to overstate the perception of B2C e-commerce, which in fact is not a good representation of cross-border digital trade in goods and services whereas B2B e-commerce is likely to be much more significant. Although cross-border data flows have been seen as an attractive proxy, they suffer from the same issues as any web-based indicators – the fact that not all data transfers are the result of digital trade. In addition, a number of other technical issues and regulations complicate comparability and ability to map the flows of data with regard to sources and destinations of international trade goods and services. Even global labour markets are being transformed by online marketplaces. Online talent platforms, like UpWork and Freelancer.com, are one way to overcome immigration barriers, by bringing jobs to workers abroad rather than requiring them to immigrate. Freelancer.com and UpWork are the world’s largest online labour marketplaces for freelance work, and together have nearly 27 million users worldwide, although they have been joined by many similar platforms. The vast majority of these platforms’ users are companies in high-income
countries hiring workers in low-income countries. For example, India is the largest destination for outsourced contracts, and the US is the largest spender. But, the virtual labour flows enabled by such platforms are rapidly spreading to new countries, such as the Philippines, and changing direction, with an increasing number of companies based in emerging markets hiring freelance talent in other countries.

V. REFERENCE