

Digital Trade as Engine of Growth for Pakistan

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Abstract

Digital trade is increasing rapidly throughout the world whereas digital platforms and Coronavirus have further enhanced the importance of the digital economy and digital trade. Countries are focusing on promoting digital trade and integration through various measures including free trade agreements and bilateral negotiations. This study examined digital trade as defined by WTO E-commerce work and USITC. The study included the items that come under the definition of digital trade and examined the digital trade volume of Pakistan from 2010-2020 through three-step methodology. This includes the identification of digital trade items based on Harmonized System at a six-digit level, examining trade volume for digital goods, and identification of top ten export and import items along with top ten markets for digital trade. Favorable government policies and measures have helped Pakistan in promoting digital trade flows. However, there is a need to develop information and communication technology infrastructure in Pakistan to flourish trading activities. Furthermore, Pakistan has to reduce the fiscal and trade barriers such as rules and regulations for foreign investment in digital space, data and information costs, and ensure online security and data protection to promote digital trade integration.

Keywords: Digital trade, digital economy, e-commerce, information & communication technology (ICT), industry 4.0

1. Introduction

Digital trade has increased extensively in recent times based on modern technology and the induction of new digital products and business models. Business models and sectors have been transformed due to digital technologies which are spreading across the world at a rapid pace (Dahlman et al., 2016). Although digital-related transactions existed earlier, the recent surge in online platforms has transformed the scale of transactions and opened new windows of opportunities (United Nations, 2018). The European Union (EU) has a special emphasis on Industry 4.0 and Europe's Digital Transformation. As a result, the performance of companies that adopted modern technologies is better as compared to other companies. The internet economy has generated millions of new jobs, and the manufacturing sector is also expected to grow based on digitalization process. The Coronavirus (COVID-19) pandemic increases the significance and volume of digital trade for both business-to-business and business-to-consumers. A rise in online shopping, internet connectivity for businesses and individuals, teleservices, and more use of social media was observed (World Bank, 2020).

Although no specific definition of digital trade exists, however, WTO E-commerce Work Program (1998) stated that 'digital trade includes the use of the internet to search, purchase, sell and deliver a good or service across borders and includes how internet access and cross-border data flows enable digital trade'. USITC (2014) pointed out a broader definition of digital trade as 'U.S. domestic commerce and international trade in which the internet and internet-based technologies play a particularly significant role in ordering, producing, or delivering products and services. The World Economic Forum (WEF) has defined the four major dimensions of digital trade.

As per World Economic Forum, four dimensions of digital trade include digital goods and services, tangible goods and services, digital enablers of trade in tangible goods and services, and emerging transformative digital technologies (Figure 1).

Digital trade is creating new prospects for Pakistan in terms of employment and business promotion. Foreign investments in digital sectors are transforming traditional sectors by making them more efficient. Pakistan has a vibrant Information and Communication Technology (ICT) sector which is among the fastest-growing sectors (Javed, 2020a). Total exports from IT were \$2,457 million in 2021 having a share of around

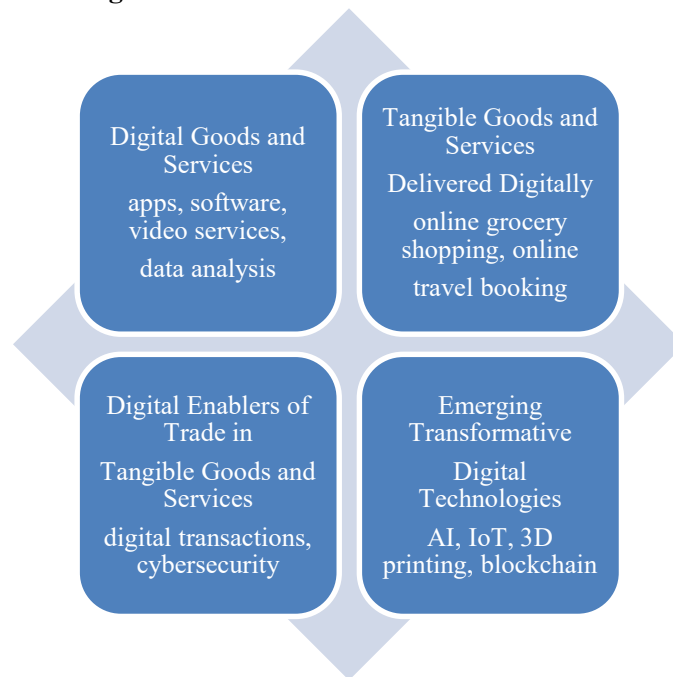
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38% in services exports (International Trade Centre). The E-commerce sector showed significant growth in Pakistan while digital financial services are also on the rise. Pakistan is also focusing on initiating favorable policies and measures to support digital trade. E-commerce Policy (2019), Digital Pakistan Policy (2019), and other measures from several platforms are enabling an environment under which digital trade is flourishing.

In this context, the current study aims to present an overview of the digital trade volume of Pakistan during 2010-20. The study also examines the digital trade challenges and institutional framework and related policies in digital space. Besides, the study assessed the scope of e-commerce in Pakistan and how many firms are engaged in e-commerce. The next section of the paper provides a brief literature review on digital trade and e-commerce followed by a section on methodology and data sources. Section four presents discussion on digital trade of Pakistan whereas section five reviews the digital eco-system of Pakistan. Section six covers digital trade challenges. Institutional framework and related policies are discussed in section seven whereas the last section presents conclusion and policy recommendations.

Figure 1: Dimensions of Digital Trade



Source: World Economic Forum (2020)

2. Literature Review

Wang (2021) pointed out that digital trade has not only boosted the industrial innovation, but also increased the flow of global capital and knowledge. Digital trade offers extensive prospects for the global economy, and it is more beneficial for smaller businesses in developing countries (Ahmed & Aldonas, 2015). Jalote and Natarajan (2019) also pointed out that digital transformation is especially important for SME sector which is getting positive spillovers from it. The study by Boston Consulting Group (2012) examined that the SMEs which use the internet at high levels tend to have higher revenue growth as compared to those who do not use it (Dean, 2012). Besides, the scope of digital trade will increase as internet access increases across the world and businesses use it to approach their customers in global markets (Meltzer, 2015). Furthermore, the internet is also helpful for those businesses which tend to have a greater proportion of low-skilled workers (Dutz et al., 2011). Hu et al. (2021) pointed out that internet development, payment convenience, online transaction are significant factors that affect digital trade development.

Herman (2010) stated that countries are now aiming for new rules of digital trade in regional free trade agreements and all Free Trade Agreements in which the US or the EU are involved include e-commerce

chapters. The performance of Pakistan is not satisfactory in terms of digital integration as the Digital and Sustainable Regional Integration Index (ESCAP, 2020) reported that in terms of digital integration, Pakistan is least integrated as compared to other countries of the region.

McKinsey Global Institute (2016) reported that currently almost every type of cross-border transaction consists of a digital component. The growth of digital economy has also increased the significance of data which is the key factor in economic activities such as digital entertainment, blockchain services and cloud computing (Gonzalez & Jouanjean, 2017). Digital revolution process has further accelerated after COVID-19 as global digital trade increased considerably after the pandemic (Fu, 2020). Digitalization helps firms to offer new goods and services to more customers who are digitally connected across the world

³. Digital connectivity such as broadband is important as Qiang and Rossotto (2009) pointed out that broadband penetration helped in increasing growth in both developing and developed countries. Grimes et al. (2012) stated that broadband access enhances the productivity of firms by around 10%. Hence, the competitiveness of firms increases at both domestic and international levels (Bernard et al., 2007). Internet is also significant for those SMEs who are engaged in international trade as it is providing them with new prospects for growth (USITC, 2013). Therefore, digital platforms are significant pathways for SMEs to export their goods and services (Meltzer, 2018).

The investments in automation and ICT infrastructure are useful in promoting industrialization 4.0 which can spur economic, environmental, and social value creation (Davies, 2015). The advancements in digital technology are not only increasing level of digital goods trade but digital service trade is also flourishing (Zhang & Wang, 2022). Taylor (2015) pointed out that higher costs decrease the diffusion of ICT infrastructure and devices. On one hand, this impedes the increase in the number of digital users and the digital economy while on the other hand, it creates issues for digital enterprises (eBay, 2013). Singh (2018) suggested that comprehensive changes are required at the institutional level within governments to develop digital policy and programmatic requirements. Pipitwanichakarn and Wongtada (2020) stated that technology has interrupted traditional commerce and for inclusive growth, it is required to include all groups, especially the underprivileged.

Digital connectivity is not without challenges as access to a reliable power supply is required and there is a lack of access especially in developing countries (Practical Action, 2013). One further challenge is that most of the content on internet is available in the English language which is barrier to information for those who are not familiar with the English language (UNCTAD, 2010). Access, availability, and affordability of broadband are major barriers in developing countries as the fixed broadband rates are quite higher (ITC, 2015).

There exists a digital divide between developed and developing nations in the usage of internet as the internet usage is more in developed countries as compared to developing nations (ITU, 2019). UNCTAD (2021) report highlighted that digital divide COVID-19 was observed among the countries as low-income countries faced digital restrictions due to lack of internet and lack of knowledge in using digital devices. Shah et al. (2022) explained the disparity among advanced and developing countries regarding access, collect, integrate, store, analyze and use data in promoting digital economy as data divide. However, the digital divide can be reduced through regional cooperation which will also help in promoting trade among member nations (Javed, 2019). Also, by lowering the trade and investment barriers along with simplification of the regulations, digital economy integration among the region can be strengthen (ESCAP, 2022).

3. Methodology and Data Sources

This study adopts a three-step methodology in which firstly a list of 41 items was identified as defined by the Choudhry (2020) which were available and traded in digital and physical form. The identification is based on Harmonized System (HS) at six-digit level. HS at six-digit provides detailed description of goods by further sub-divisions. Nevertheless, due to unidentified items, the study included 37 items for the analysis. These items are also identified in other studies including Banga (2019), Teltscher

³ OECD, <https://www.oecd.org/trade/topics/digital-trade/>

(2000) and WTO (2016). The identified products are diverse in nature and included the items such as software, books, video games and media. The complete list of the items is given in Annex 1.

In the second phase, the trade volume based on the list of included items was calculated for the period 2010-2020. HS nomenclature of 1996 is used in data extraction from World Integrated Trade Solution (WITS). In the third phase, the top ten export and import items are identified based on the trade volume whereas the top ten markets for digital trade exports and imports are identified for the period 2010-20.

4. Digital Trade of Pakistan

The Organization for Economic Cooperation and Development (OECD) prepared a draft conceptual and measurement framework for digital trade. A growing consensus upon definition of digital trade revolves around that it covers digitally enabled transactions in trade in goods and services which are either physically or digitally delivered while it contains consumers, firms, and governments (Gonzalez & Jouanjean, 2017).

Table 1: Top ten digital trade items during 2010-20

Exports			Imports		
HS code	Description	Value (Million \$)	HS code	Description	Value (Million \$)
490199	Printed matter; books, brochures, leaflets and similar printed matter	21.8	490700	Unused postage, revenue, or similar stamps of current or new issue in the country	1,300.0
482110	Paper and paperboard; labels or all kinds, printed	13.5	854212	Monolithic digital integrated circuits	301.2
491199	Printed matter	8.9	490199	Printed matter; books, brochures, leaflets, and similar printed matter	300.7
490110	Printed matter; in single sheets, whether or not folded	4.3	852439	Discs for laser reading systems	149.8
490810	Printed matter, transfers (decalcomanias), verifiable	3.3	482110	Paper and paperboard; labels of all kinds, printed	47.3
950490	Playing cards; other	2.7	491199	Printed matter	42.5
852439	Discs for laser reading systems	2.3	490600	Plans and drawing	35.0
490599	Maps and hydrographic or similar charts	2.2	491110	Printed matter; in single sheets	20.8
491110	Printed matter; in single sheets	1.3	490300	Printed matter; children's picture, drawing, or coloring books	13.4
490290	Newspapers, journals, and periodicals	0.8	854150	Electrical apparatus; photosensitive semiconductor devices	11.8

Source: WITS

Pakistan's imports of digital items are greater than that of exports (Table 1). The highest imports are of unused postage, revenue or similar stamps (HS 490700) with a total value of \$1,300 million from 2010-2020. On the other hand, the major export item is printed matter/books, brochures (HS 490199) having total export volume of \$21.8 million from 2010-2020. It is also important to assess the trade potential which can provide a baseline as how much trade expansion is possible within a specific sector. Some studies have also suggested measures to estimate digital trade such as Zhang and Zheng (2020) which highlighted that GDP per capital and market openness can be used as indices to assess trade potential. Liu et al. (2020) pointed

out level of human capital, income level and degree of regional economic growth are key factors to evaluate digital economy.

Table 2: Top ten digital trade markets during 2010-20

Country	Exports (Million \$)	Country	Imports (Million \$)
Saudi Arabia	10.2	China	361.7
UK	7.3	USA	255.5
USA	6.6	UK	109.9
Bangladesh	3.0	UAE	93.8
UAE	2.9	Malaysia	62.4
Germany	2.2	India	43.2
Kuwait	2.1	Hong Kong	41.1
India	2.0	Singapore	31.6
Qatar	1.9	Saudi Arabia	16.4
Jordan	1.8	Poland	14.6

Source: WITS

The top export market is Saudi Arabia where Pakistan exported \$ 10.2 million of digital goods during 2010-2020 (Table 2). However, the export level gradually decreases with the passage of time. The major import market is China from where Pakistan imported \$ 361.7 million of digital goods during the same time period.

5. Digital Ecosystem

Digital trade ecosystem depends upon the access and availability of basic infrastructure. The office of Director General Trade Organization (DGTO) in Pakistan is responsible to regulate trade organizations including those in the digital space (Ahmed et al., 2021).

Table 3: Teledensity and broadband penetration in Pakistan

Description	2016-17	2017-18	2018-19	2019-20	2020-21
Cellular Teledensity (%)	72.4	73.6	76.5	78.57	85.3
Broadband penetration (in Million)	322.2	445.9	583.4	710.3	-

Source: Pakistan Telecommunication Authority

A significant growth is observed in digital penetration in terms of cellular teledensity and broadband penetration (Table 3). Government has keenly focused on promoting telecom and internet penetration which resulted in improvement in digital penetration. After the auctions of 3G and 4G spectrum licenses in 2014, significant boost in Next Generation Mobile Services (NGMS) subscribers was observed. Pakistan Telecommunication Authority also granted permission to two more cellular mobile operators for conducting noncommercial trials of 5G. Pakistan Telecommunication Authority has issued Internet of Things (IoT) licenses to two new companies in 2022 which will help in promoting Fourth Industrial Revolution as IoT is used to run smart city systems and digital services⁴. Pakistan and China have agreed to launch Digital Corridor which will help in developing IT industry of Pakistan⁵. Recently, a Chinese firm has planned to invest in telecom infrastructure and fiber business in Pakistan after which the infrastructure will be improved in tier-2 and tier-3 cities⁶.

The rise in branchless banking and subscription of 3G/4G networks has promoted the digital payment infrastructure in Pakistan. Retailers and online marketplaces are adopting the digital payments mechanism the number of e-commerce merchants using e-payment gateways of banks increased from 571 at

⁴ 'PTA Issues IoT Licenses to Two New Companies' Pro Pakistani, Nov 10th 2022, <https://propakistani.pk/2022/11/10/pta-issues-iot-licenses-to-two-new-companies/>

⁵ 'Pak-China digital corridor to boost IT cooperation' Express Tribune, Oct 22nd 2022, <https://tribune.com.pk/story/2382841/pak-china-digital-corridor-to-boost-it-cooperation>

⁶ 'Chinese firm to invest in telecom industry' The News International, Sep 13th 2022, <https://www.thenews.com.pk/print/990737-chinese-firm-to-invest-in-telecom>

the end of FY 17 to 1,707 at the end of FY 20 (Table 4). E-commerce sector helps in addressing the employment crisis during Covid-19 as digital sales increases during the pandemic period (Javed, 2020b).

Table 4: Number of E-commerce merchants registered with banks

Description	FY 17	FY 18	FY 19	FY 20
E-commerce merchants	571	1,094	1,362	1,707

Source: State Bank of Pakistan

Table 5: E-commerce transactions

Description	FY 17	FY 18	FY 19	FY 20
Number of transactions	1,217	3,422	5,657	10,205
Amount	9,397	18677	26,088	34,871

Source: State Bank of Pakistan

The exponential growth in e-commerce activities was observed in Pakistan which was made possible by lower transaction costs, an increase in internet penetration, and convenience (Javed, 2020c). The number of transactions increased from 1,217 in FY 17 to 10,205 in FY 20 (Table 5). The number of e-commerce transactions also increased considerably during the same period. KCCI (2019) reported that e-commerce enterprises like that of Daraz.pk can generate one million direct and indirect jobs by 2022. In a recent survey of IT industry by P@SHA, it was pointed out that companies are interested in investing in seven key IT skills in coming years which include artificial intelligence, cloud technologies, mobile app development, big data and blockchain, agile methodologies, MEAN Stack and quality assurance and automation⁷.

Digital financial services are also becoming popular in Pakistan (Manzoor et al., 2021) and overseas Pakistanis are also preferring digital applications based on their stable and low fee along with trouble-free transactions⁸. State Bank of Pakistan (SBP) recently launched 'Raast', an instant digital payment system that will enable transparent financial transactions among businesses, government entities, and individuals securely and more efficiently⁹. SBP has also approved a Fintech related to online payments to start its pilot operations through which customers can send and receive local money transfers along with overseas remittance payments¹⁰. McKinsey (2016) reported that digital financial services can increase GDP of Pakistan and help in generating new employment prospects.

6. Digital Trade Challenges

For integrating and promoting digital trade, Pakistan must deal with the challenges that are restricting the growth of digital transformation. Pakistan is yet to develop the basic digital infrastructure required to cope with rapid demand for digital services as there is a lack of digital access and connectivity. Institutional infrastructure in the country is weak and as identified by studies such as Quiones et al. (2015) and Damarillo (2011), this is considered as major hurdle to digital entrepreneurship. Kuek et al. (2015) identified lack of access to electricity and higher cost of electricity as a barrier to digital economy development. Higher cost of electricity in Pakistan is affecting the economic growth and digital connectivity (Arshad et al. 2016). Telecom industry has raised concerns that rising operation costs of doing business has affected the growth of industry in recent years¹¹. Besides, rule and regulations are also affecting the foreign

⁷ 'P@SHA survey reveals the seven IT skills you need to succeed in 2021' TechJuice, Dec 2, 2020, <https://www.techjuice.pk/psha-survey-reveals-the-seven-it-skills-you-need-to-succeed-in-2021/>

⁸ 'Digital apps gain edge over banks', Express Tribune, Dec 20th 2020, <https://tribune.com.pk/story/2276641/digital-apps-gain-edge-over-banks>

⁹ 'Pakistan launches Raast instant digital payment system', Samma News, Jan 11th 2021, <https://www.samaa.tv/news/pakistan/2021/01/pakistan-launches-raast-instant-digital-payment-system/>

¹⁰ 'Pakistan based online payments fintech SadaPay now approved by State Bank to launch pilot operations', Crowd Fund Insider, Dec 27, 2020, <https://www.crowdfundinsider.com/2020/12/170674-pakistan-based-online-payments-fintech-sadapay-now-approved-by-state-bank-to-launch-pilot-operations/>

¹¹ 'Rising operating costs hurt telecom industry', Express Tribune, Sep 9th 2022, <https://tribune.com.pk/story/2375634/rising-operation-costs-hurt-telecom-sector>

investment in digital space (Ahmed et al. 2021). Another main barrier is the higher fixed broadband rates whereas the mobile internet rates are also high (GSMA, 2020).

Table 6: Mobile connectivity comparison of Pakistan with South Asia

Country	Mobile connectivity index	Infrastructure	Affordability	Consumer readiness	Content	Mobile internet penetration
Afghanistan	22	27	41	11	21	18%
Bangladesh	41	33	56	52	30	30%
Bhutan	37	33	62	43	22	37%
India	38	25	58	43	33	32%
Nepal	40	32	45	46	39	32%
Pakistan	34	23	55	25	47	29%
Sri Lanka	49	45	62	73	27	39%

Source: Global System for Mobile Association (GSMA)

Mobile internet penetration in Pakistan is only 29% which is even lower than the regional average of 32% (Table 6). Pakistan also lags in consumer readiness and without the basic skills and supporting culture, people are unable to understand and attain the benefits of mobile internet. Unfavorable policy and regulatory environment is a deterrent to growth of fiber coverage in Pakistan whereas high fees and levies and sluggish administrative processes are also the key challenges (Amin et al., 2022).

Table 7: Broadband speed rank South Asia

Country	2017	2018	2019	2020	2021
Afghanistan	150	180	184	211	217
Bangladesh	144	148	151	184	197
India	119	88	74	101	80
Nepal	168	144	128	150	163
Maldives	130	147	170	141	154
Pakistan	171	171	179	198	199
Sri Lanka	85	81	82	72	132

Source: Cable.co.uk¹²

It can be observed from the above table that Pakistan has the least rank in terms of broadband speed as it is only better than Afghanistan (Table 7). India and Sri Lanka are the top-ranked countries in South Asia in terms of broadband speed rank. The relevant platform for the promotion of regional cooperation among South Asian states in telecommunication facilities is South Asian Telecommunication Regulator's Council (SATRC). The member countries can utilize this forum to promote digital connectivity among them.

Table 8: DTRI Score and Ranking

Rank	DTRA	A. Fiscal Restrictions & Market Access	B. Establishment Restrictions	C. Restrictions on Data	D. Trading Restrictions
Rank	12	5	43	17	13
Index	0.33	0.49	0.21	0.30	0.31

Source: Ferrance et al. (2018)

The Digital Trade Restrictiveness Index (DTRI) score indicates the country's overall policy framework related to digital trade. The index ranges from 0 to 1 where 0 specifies the completely open and 1 point out virtually restricted. The DTRI is negatively link with economic growth and mostly less developed countries are having higher restrictions. The table highlights that Pakistan has higher restrictions in all the categories which needs to be reduced in order to promote the digital trade (Table 8).

Pakistan don't have any internationally recognized payment gateway due to which cross border payment issues arise while it is also affecting the entrepreneurs and freelancers (Couto & Fernandez-Stark

¹² <https://www.cable.co.uk/broadband/speed/worldwide-speed-league/>

2019). There also exists lack of awareness in use of digital technologies and digital channels among households (Zulfiqar et al., 2016). ZTBL (2019) indicates that lack of relevant and trained resources, lack of framework for consorting with Fintechs and lack of IT infrastructure are key hurdles in expanding digital technology usage in financial market.

7. Institutional framework and Related Policies

Digital Pakistan Policy (2019) intends to promote a framework for e-banking to enhance the usage of mobile financial services. The Government of Pakistan also initiated an E-commerce policy (2019) which focuses on developing enabling environment for growth of e-commerce sector. The policy aims to promote SMEs and streamline the digital infrastructure along with the regulatory framework for e-commerce business and provision of efficient e-payment mechanism. Government is also keen to facilitate female entrepreneurs in the IT sector to provide them with equal opportunities. A Software Technology Park in Gilgit is also established recently which will help in the growth of local IT entities along with the provision of job prospects for male as well as female IT professionals¹³. Pakistan Software Export Board (PSEB) aims to establish 40 further technology parks in major cities of Pakistan which will boost the IT sector and digital connectivity and infrastructure in the country¹⁴. PSEB has also launched ‘Sales Launch Pads’ in various countries to boost IT exports¹⁵.

The Ministry of IT & Telecommunications (MoIT&T) took the initiatives to develop software technology parks and work towards research and innovation, international certification, subsidized bandwidth, and skill development to enhance digital trade in the country. The ministry has also launched Pakistan’s largest Information Technology Park project in Karachi (Sindh). Once completed, the project will help creating more than 20,000 job opportunities¹⁶. Tax exemption on IT and Information Technology Enabled Services export revenue, tax exemptions to startups, and 100% equity ownership are also some of the key measures by the ministry to boost digital trade. Furthermore, efforts are also being made for data protection law, cloud-based services, data security, and authentication. Amazon is interested in bringing its cloud computing business to Pakistan which will help in digital transformation¹⁷. MoIT&T also launched the Rolling Spectrum Strategy for 2020-23 which will be basis for 5G Technology in Pakistan¹⁸. The strategy elaborates the frequency spectrum outlook for mobile broadband services, fixed services, satellite services, unlicensed bands for short-range devices, and broadcast services.

State Bank of Pakistan (SBP) relaxed the regulatory framework for e-commerce exporters under which the requirement of ‘E’ Form has been removed¹⁹. SBP is also working on making corporate supply

¹³ ‘Efforts on to facilitate female entrepreneurs in IT sector: Minister’ The Nation, Dec 31st 2020, <https://nation.com.pk/31-Dec-2020/efforts-on-to-facilitate-female-entrepreneurs-in-it-sector-minister>

¹⁴ ‘PSEB to set up 40 technology parks across country’ The Nation, Dec 7th 2020, <https://nation.com.pk/07-Dec-2020/pseb-to-set-up-40-technology-parks-across-country>

¹⁵ ‘Pakistan Software Export Board to establish sales launch pads to enhance IT exports’ Pro Pakistani, Aug 29th 2022, <https://propakistani.pk/2022/08/29/pakistan-software-export-board-to-establish-sales-launch-pads-to-enhance-it-exports/>

¹⁶ ‘MoITT launches Pakistan’s largest IT Park in Karachi’, The Nation, Nov 8th 2022, <https://www.nation.com.pk/08-Nov-2022/moitt-launches-pakistan-s-largest-it-park-in-karachi>

¹⁷ ‘Amazon officially enters Pakistan with web services’ Profit Pakistan, Aug 7th 2020, <https://profit.pakistantoday.com.pk/2020/08/07/amazon-officially-enters-pakistan-with-web-services/>

¹⁸ ‘IT minister launches Rolling Spectrum Strategy 2020-23’ Profit Pakistan, Nov 23rd 2020, <https://profit.pakistantoday.com.pk/2020/11/23/it-minister-launches-rolling-spectrum-strategy-2020-23/>

¹⁹ ‘State Bank eases regulations for ecommerce exporters’ The News International, Dec 3rd 2020, <https://www.thenews.com.pk/print/752679-state-bank-eases-regulations-for-ecommerce-exporters>

chains digital through which financial inclusion through digitization will be promoted²⁰. SBP also permitted the e-commerce payment gateway 'PayFast' to start its operations in Pakistan which will address the issues related to payment acceptance through its multi-instruments' mechanism²¹.

Pakistan Telecommunication Authority is focusing on the regulatory framework for Internet of Things (IoT) in Pakistan. Securities and Exchange Commission of Pakistan (SECP) initiated a digitally Secured Transaction Registry (STR) for facilitating farmers and small businesses through which they are enabled access to bank finance without the condition of mortgaging their land or homes²².

Apart from federal institutions, provincial authorities are also taking initiatives to promote digital transformation. Punjab Information Technology Board (PITB) intends to engage local IT companies for software development with a special focus on digitally powered public services²³. Government of Punjab has launched a web 3.0 portal through which feedback of contributors will be collected²⁴. This will help in progressing towards web 3.0 technology which will help in increasing economic growth of the country. Tourism, education, government services are the key sectors that will be beneficiaries of web 3.0. Khyber Pakhtunkhwa launched the 'Youth Employment Program' to promote digital skills among youth (Javed, 2020d).

8. Conclusion and Policy Recommendations

Digital transformation across the world has brought forth a revolution in many areas and it has also increased the significance of digital trade. For Pakistan, digital trade is creating new business opportunities. The vibrant ICT sector of Pakistan provides a basis for digital trade promotion while the e-commerce sector is also growing at a rapid pace. The favorable policies from the government are helping in creating an environment under which digital trade is flourishing. However, it is still an early phase and a lot more is required to be done to get further benefits from digital trade and integration.

The study identified the digital trade items at HS six-digit level and the trade volume of Pakistan in those products for the period 2010-2020. The study identified the top ten export and import items in digital trade, while the top ten export and import markets are also highlighted. The major export item of Pakistan is printed mater/books, and brochures (HS 490199) whereas the major import item is unused postage, revenue, or similar stamps (HS 490700). The major export destination of Pakistan is Saudi Arabia, and the major import partner is China during this period. Pakistan needs to boost bilateral cooperation at both regional and international level to increase digital trade flows.

Pakistan requires sustainable economic growth which can be achieved through taking measures that ensure development in areas such as digital trade infrastructure and human capital. The government can take guidance from measures of other countries such as Australia which are promoting digital trade through specific initiatives for its economic growth. In this regard, Australian government is keen to promote digital trade liberalization, standards, and regulatory cooperation with global partners. Government of Pakistan must develop the digital trade infrastructure such as the provision of efficient broadband services for which Pakistan Telecommunication should implement effective measures. Pakistan must reduce the fiscal restriction such as taxes and tariffs and trade restrictions including quantitative trade restrictions and standard

²⁰ 'State Bank of Pakistan eyes digitizing corporate supply chains' PYMNTS.com, Dec 22nd 2020, <https://www.pymnts.com/news/b2b-payments/2020/state-bank-pakistan-eyes-digitizing-corporate-supply-chains/>

²¹ 'SBP grants approval for e-commerce payment gateway 'PayFast' The Nation, Jul 18th 2020, <https://nation.com.pk/18-Jul-2020/sbp-grants-approval-for-e-commerce-payment-gateway-payfast>

²² 'SECP releases annual report for FY 20' Profit Pakistan, Dec 28th 2020, <https://profit.pakistantoday.com.pk/2020/12/28/secp-releases-annual-report-for-fy20/>

²³ 'Punjab govt t engage local IT companies for software development' Profit Today, Dec 30th 2020, <https://profit.pakistantoday.com.pk/2020/12/30/punjab-govt-to-engage-local-it-companies-for-software-development/>

²⁴ 'Punjab govt launched web 3.0 portal', Pakistan Today, Nov 28th 2022, <https://www.pakistantoday.com.pk/2022/11/28/punjab-govt-launches-web-3-0-portal/>

online sales and transactions (World Bank, 2020) to increase the digital trade volume. Telecom industry has also requested to the government to reduce withholding tax to reduce operating costs for the industry.

State Bank of Pakistan should further relax the requirements for firms that want to expand online trade and the overall export value allowed per consignment can be increased without the need for complex documentation. Government should initiate supportive macroeconomic policies to deal with Covid-19 and boost confidence and demand recovery (Javed, 2020e). Besides, tax harmonization is required among federal and provincial governments to ensure that digital trade goods and services may not face differentiated treatment in different regions of Pakistan. To develop required human capital, Ministry of Overseas and Human Resource can take measures such as introducing ICT at every educational level, promoting cooperation among industry and academia to develop non-cognitive skills and introducing digital literacy programs.

Ministry of Information Technology & Telecommunication should develop a comprehensive regulatory framework that promotes the IoT ecosystem in licensed and unlicensed bands. There is an urgent need of introducing international payment gateway in Pakistan through which financial transactions can be made possible. Although State Bank of Pakistan has taken measures, however a lot more is required to be done to facilitate the traders. Funding and finance are major constraints for the growth of digital businesses. To address these issues, SECP and SBP can provide fast-track loans against intellectual property rights. Ministry of Interior and the provincial government can play their role in improving the Intellectual Property regime in Pakistan. Pakistan Telecommunication Authority should play its role in improving broadband penetration and mobile connectivity across the country to enhance the digital network. Board of Investment should devise policies to promote investment and improve the digital infrastructure in Pakistan.

Regional and bilateral trade agreements can play a significant role in promoting digital trade. Trans-Pacific Partnership Agreement (CPTPP) between Canada and ten countries in Asia-Pacific region includes robust trade rules. Under NAFTA negotiation, Canada, Mexico, and the U.S.A agreed on comprehensive new digital trade rules. Pakistan can develop digital trade agreements through SAARC and related platforms which will help in boosting trade at the regional level. Digital trade agreements can be made part of existing FTAs by negotiating with countries. China and SAARC are major markets for Pakistani professionals however the physical movement of professionals in the digital sector is limited. For this, visa-related clauses can be included in FTAs in services to ensure that local entrepreneurs and professionals get business visas and work permits.

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Annex 1**Table A1: List of Digital Trade Items**

S. No	HS code	Description
1	370510	For offset reproduction
2	370520	Microfilms
3	370590	Other
4	370610	Of a width of 35 mm or more
5	370690	Other
6	482110	Printed
7	490110	In single sheets, whether or not folded
8	490191	Other: Dictionaries and encyclopedias, and serial installments thereof
9	490199	Other
10	490210	Appearing at least four times a week
11	490290	Other
12	490300	Children's picture, drawing or colouring books.
13	490400	Music, printed or in manuscript, whether or not bound or illustrated.
14	490510	Globes
15	490591	Other: In book form
16	490599	Other
17	490600	Plans and drawings for architectural, engineering, industrial, commercial, topographical or similar purposes, being originals drawn by hand; hand-written texts; photographic reproductions on sensitized paper and carbon
18	490700	Unused postage, revenue or similar stamps of current or new issue in the country to which they are destined; stamp-impressed paper; banknotes; cheque forms; stock, share or bond certificates and similar documents of ti
19	490810	Transfers (decalcomanias), vitrifiable
20	490890	Other
21	490900	Printed or illustrated postcards; printed cards bearing personal greetings, messages or announcements, whether or not illustrated, with or without envelopes or trimmings.
22	491000	Calendars of any kind, printed, including calendar blocks.
23	491110	Trade advertising material, commercial catalogues and the like
24	491191	Other :- Pictures, designs and photographs
25	491199	Other
26	852410	Gramophone records
27	852432	Discs for laser reading systems:-- For reproducing sound only
28	852439	Discs for laser reading systems:-- Other
29	852440	Magnetic tapes for reproducing phenomena other than sound or image
30	852451	Other magnetic tapes:-- Of a width not exceeding 4 mm
31	852491	Other: For reproducing phenomena other than sound or image
32	854150	Other semiconductor devices
33	854212	Monolithic digital integrated circuits:-Cards incorporating an electronic integrated circuit (smart cards)
34	950410	Video games of a kind used with a television receiver
35	950430	Other games, coin- or disc-operated, other than bowling alley equipment
36	950440	Playing cards
37	950490	Other