

MEASUREMENT OF DIGITAL ECONOMY AND E-COMMERCE

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Abstract: *Commerce has entered the stage of universal availability in its development. The reason for this stage was the Internet and communication tools. Marketable exertion has moved to the Internet, has spread each over the world and has come available non-stop. New online business platforms have come, the foundation of numerous large and small companies. The development and prolixity of information technology was the morning of this global availability of digital coffers for doing business. The symbiosis of information technology and business has come a significant factor in the development of the digital frugality. This composition defines generalities similar as “e-commerce” and “digital economy”, and discusses a brief history of the preface of these generalities in our ultramodern reality. The paper discusses the main aspects of e-commerce that have told developed of the digital economy. The composition also reviews keen practices and analyses styles and tools of electronic commerce and their useful use in business development.*

Keywords: *digital economy, data flow, e-commerce, international trade, electronic platforms, digitalization*

ИЗМЕРЕНИЕ ЦИФРОВОЙ ЭКОНОМИКИ И ЭЛЕКТРОННОЙ КОММЕРЦИИ

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Аннотация: *Торговля вступила в стадию всеобщей доступности в своем развитии. Причиной этого этапа стал Интернет и средства связи. Рыночная деятельность переместилась в Интернет, распространилась по всему миру и стала доступной в режиме нон-стоп. Новые онлайн-платформы для бизнеса легли в основу множества крупных и мелких компаний. Развитие и распространение информационных технологий стали началом глобальной доступности цифровой казны для ведения бизнеса. Симбиоз информационных технологий и бизнеса стал важным фактором развития цифровой бережливости. В этой композиции определяются обобщения, подобные «электронной коммерции» и «цифровой экономике», и обсуждается краткая история предисловия этих обобщений в нашей ультрасовременной реальности. В статье рассматриваются основные*

аспекты электронной коммерции, которые повлияли на развитие цифровой экономики. В статье также рассматриваются актуальные практики и анализируются стили и инструменты электронной коммерции, и их полезное использование в развитии бизнеса.

Ключевые слова: *цифровая экономика, поток данных, электронная коммерция, международная торговля, электронные платформы, цифровизация*

САНАРИПТИК ЭКОНОМИКАНЫН ЖАНА ЭЛЕКТРОНДУК КОММЕРЦИЯНЫН ЧЕНЕМДЕРИ

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Аннотация: *Соода өзүнүн өнүгүшүндө жалпыга жеткиликтүү стадияга кирди. Бул баскычка интернет жана байланыш себеп болгон. Базар экономикасы Интернетке өтүп, бүткүл дүйнөгө тарады жана токтоосуз жеткиликтүү болуп калды. Жаңы онлайн бизнес платформалары көптөгөн ири жана чакан компаниялардын негизи болуп калды. Маалыматтык технологияларды өнүктүрүү жана жайылтуу бизнес жүргүзүү үчүн санариптик казынанын глобалдуу болушунун баиталышы болуп калды. Маалыматтык технологиялар менен бизнестин симбиозу санариптик үнөмдөөнү өнүктүрүүдө олуттуу фактор болуп калды. Бул композиция "электрондук коммерция" жана "санариптик экономика" сыяктуу жалпылоолорду аныктайт жана биздин заманбап реалдуулукта бул жалпылоолордун кириш сөзүнүн кыскача тарыхын талкуулайт. Макалада санариптик экономикада иштелип чыккан электрондук коммерциянын негизги аспектилери талкууланат. Макалада ошондой эле учурдагы практикаларды карап, электрондук коммерциянын стилдерин жана инструменттерин жана алардын бизнести өнүктүрүүдөгү пайдалуулугун талдайт.*

Өздүк сөздөр: *санариптик экономика, маалымат агымы, электрондук соода, эл аралык соода, электрондук платформалар, санариптештирүү*

1. Introduction

Increasing digitalization of the economy and society is changing the ways people act and interact. One of the distinguishing features of various digital transformations has been the exponential growth in machine-

readable information, or digital data, over the Internet (UNCTAD, 2019a). Such data are core to all fast-emerging digital technologies, such as data analytics, artificial intelligence (AI), block chain, Internet of Things (IoT), cloud computing

and all Internet-based services – and they have become a fundamental economic resource. The COVID-19 pandemic has accelerated digitalization processes, as more and more people have continued, to the extent possible, with their activities through online channels – for example, for working, studying, communicating, selling and buying, or entertainment (UNCTAD, 2021a). Data and data flows, either domestic or international, can bring many benefits and contribute to solving societal challenges, including those related to the Sustainable Development Goals. While such gains should be harnessed, it is important to ensure that they are distributed in an equitable manner, rather than being captured by a few, and that social value is created. The current process of digitalization is associated with power imbalances and inequality, which need to be addressed.

2. Materials and methods of research

Data are much more than an economic resource, as they are also linked to privacy and other aspects of human rights, as well as national security. These points to the need for an integrated, holistic approach to policymaking in relation to data. Before looking at the evolution of the global situation in the data-driven digital economy, this section addresses the lack of clarity on the definition of data, as well as some key characteristics that make them different from goods and services. Essentially, in the digital economy, everything is data. Digitization of any product or activity (which can be generally called “events”) implies converting or coding it into a binary language of “zeros” and “ones”. Thus, everything on the Internet is numbers, and therefore data. Every zero or one represents a bit of machine-readable information, which is the smallest piece of information that is digitally readable. These can be seen as the “virtual” representation of “real” life.

The translation of real-life events into machine-readable codes of zeros and ones is made through software. These coded events can then be transmitted through and stored in the hardware (e.g. submarine cables and data centers). The Internet is a network of networks; from the moment that bits leave the user devices and enter the network, data are flowing. Data flows refer to the transfer of these digitally encoded events (in zeros and ones) between digital devices. These data flows are not commercial transactions per se; they are just the way in which the machine-readable information is transmitted through the network. The functioning of the Internet and the digital economy is fundamentally based on how these data can flow within and between countries. Since the Internet is a global network, a large proportion of these are cross-border data flows. What matters in general, and most particularly for regulation purposes, is what the zeros and ones represent in real life, in terms of “*human-readable*” information, or what can be understood by the human mind. Despite the importance of data in the evolving digital economy, there is no common of the concept of data, which may lead to confusion and increase complexity in the analyses and policy debates. Indeed, most frequently in the literature and policy debates, the meaning of data is taken for granted, something that is commonly understood by everybody. It appears to be considered as a somehow homogeneous and homothetic entity – a monolith. But this is far from reality. There is in fact a significant lack of clarity about what the term means.

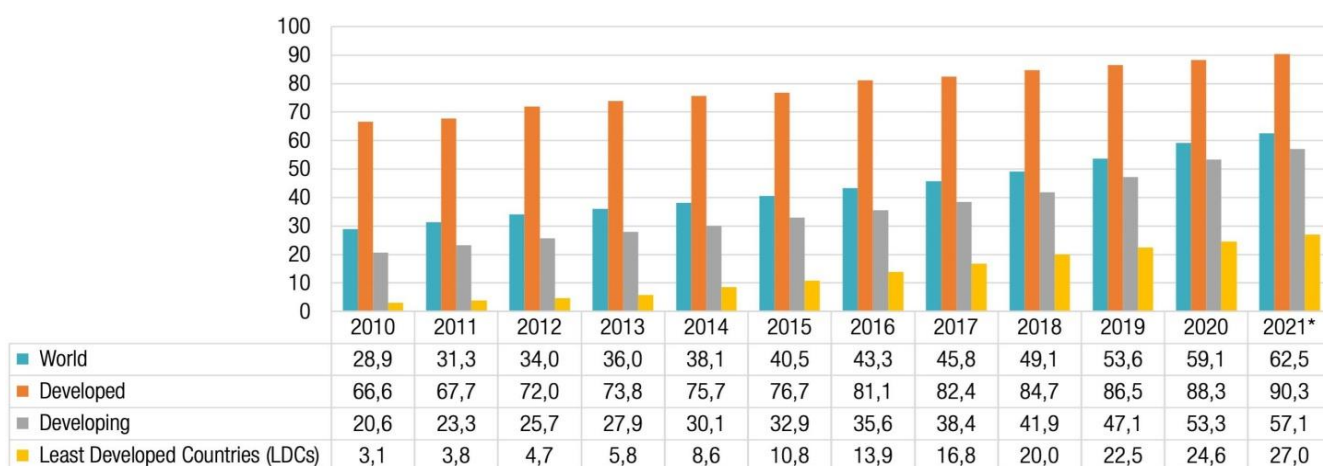
The speed of Internet connections is a key determinant for the capacity to generate and use data traffic. As the technology and use of the Internet have been evolving very rapidly in the last 20 years, the quality of connection matters, different average speeds of connection may be good enough for basic

activities, such as Internet browsing or emailing, but not for others, such as video calls. Among Internet users, the kind of activities that people engage in varies considerably. While more than 80 per cent of Internet users in some European countries shop online, in many Least Developed Countries (LDCs) the corresponding share is below 10 per cent (UNCTAD, 2021c).

Global digital platforms are in a privileged position to collect data at a massive scale when their many access their services. This gives them a significant competitive advantage. In the absence of a proper international system of global data governance, this advantage in data

collection directly translates in these platforms being able to capture most of the monetary gains of the data-driven digital and thereby also of cross-border data flows. Network effects, combined with access to data and economies of scale and scope, have led to monopolistic trends and increased market power of the world's largest digital platforms, which are mainly based in the United States and China. The platforms reinforced their positions through strategic acquisitions of other companies by expanding their reach into new sectors, and by engaging in lobbying of policymakers (UNCTAD, 2019a, 2019b).

Figure 1. Individuals using the Internet per 100 inhabitants, 2010-2021



Source: ITU

Note: 2021 data are estimates

Global exports of Information Communication Technology (ICT) goods increased by 4 per cent, to US\$ 2.4 trillion in 2020. Meanwhile, imports of such goods grew by 1.1 per cent, rising to almost US\$ 2.5 trillion. This reflects an accelerating use of digital technologies during the pandemic in response to lockdown measures introduced in many economies. It stands out against an overall decline in economic activities in the wake of the pandemic – in which overall merchandise trade contracted by around 7.5 per cent (according to both export and import data). However, the

upward trend in Information Communication Technology (ICT) goods exports was seen only in Eastern and South-Eastern Asia, where they surged by 8 per cent. In all other exports declined. By far the sharpest drops occurred in LDCs (-82 per cent) and in Africa (-48 per cent). The importance of the Internet and digital data for economies and societies continues to grow. Their expansion, as measured by Internet Protocol (IP) traffic, is an estimation provided by private sector proprietary statistics, as there are no official country statistics on this matter. The methodologies used are not

standardized, not totally clear, and the periodicity of publication of data is not necessarily regular. Thus, assessing the evolution of global Internet and data traffic is not an easy task. Nevertheless, the

different estimations all suggest that global Internet and data traffic has exploded in recent decades, and that this rapid growth is expected to continue with the ongoing fast progress in digital technologies.

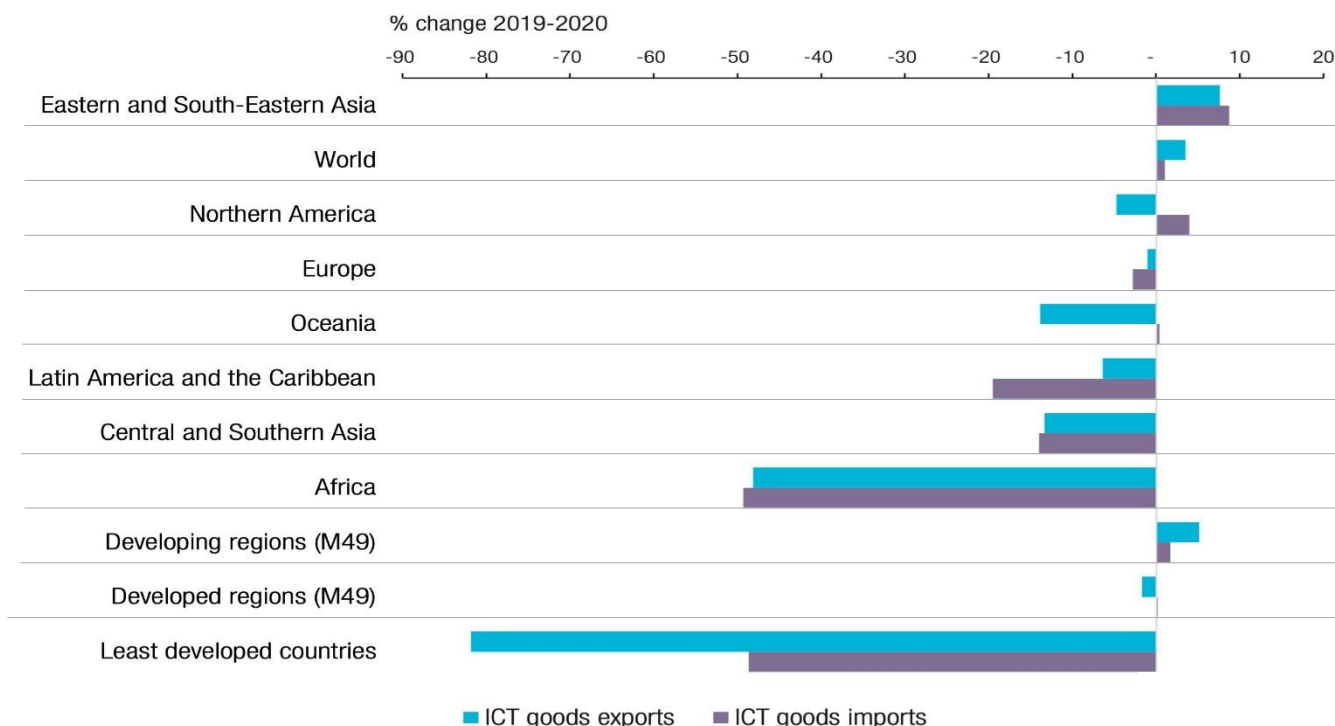


Figure 2. Change in ICT goods exports and imports, 2019-2020

Source: UNCTAD based on UNCTAD digital economy statistics (unctadstat.unctad.org).

Table 1. Key ICT indicators (2020, 2021)

	Fixed-broadband subscriptions		Active mobile-broadband subscriptions		Population covered by a mobile-cellular network		Population covered by at least a 3G mobile network	
	2020	2021*	2020	2021*	2020	2021*	2020	2021*
World	15.8	16.7	77.3	83.2	96.7	96.9	93.6	95.0
Developed	34.6	35.7	127.1	131.0	99.7	99.7	97.8	98.6
Developing	12.1	13.0	67.5	73.9	96.2	96.4	92.8	94.3
Least Developed Countries (LDCs)	1.4	1.4	36.3	38.8	88.7	90.1	79.0	83.2

Source: ITU World Telecommunication/ICT Indicators database; Updated: October 2021 Note: *2021 data are estimates

The pandemic has further exposed gaps in policy areas central to improving digital readiness in developing countries, such as weak e-commerce regulatory frameworks

and bottlenecks in financing digital entrepreneurs and start-ups. But the surveyed businesses did acknowledge that some measures taken by the public and private

sectors have helped lower hurdles for businesses and consumers to use e-commerce services. Increased public awareness campaigns of the benefits of e-commerce, more digital skills training opportunities, and reduced e-payment transaction costs were most cited as impactful. The pandemic has underscored the value and potential of public-private cooperation in devising crisis recovery strategies, as well as the need for greater collaboration among stakeholders to mobilize technical and financial resources. Most of the surveyed businesses said “a well-defined national E-commerce Strategy” should be a priority for COVID-19 recovery plans. Reduced costs for Internet and broadband access, as well as for mobile and other electronic payments, were the other measures recommended most. Governments often integrate their data services with the private sector in their use of data sources, services and storage. Government-initiated cross-border data flows may therefore also depend on contracts and agreements that shape the data flow. Government data are often seen as more sensitive than other data, especially if they are part of critical national infrastructure. Thus, cross-border flows of such data may be subject to additional requirements, including national regulation. For example, certain government data may be allowed to cross borders only under certain requirements (for example, only using specific standards or encryption norms; or requirements of use of storage within the private cloud, as opposed to public cloud, for security). In some cases, cross-border data flows may be prevented when data are especially sensitive, as discussed later in more detail. While internal government data may be subject to stricter treatments, there is also a trend for governmental and other non-profit organizations to share data as a means to

create economic and social value. Appropriately shared data can drive regional or international cooperation. At a governmental level, cross-border data flows in areas such as harmonized trade, business databases, and regional governance platforms, and national security and crime systems, are becoming more common. Data flows can also integrate with more open resources, which might also be seen as a category of data with the goal of open use and sharing. Specific organizational groupings or areas may come together to agree on how to share data at national or international levels. One example of a success in this area is activities that have promoted building standards, platforms and the promotion of sharing of aid data.

3. Research results

The analysis of foreign experience in the development of e-commerce allows us to make a number of significant conclusions that need to be taken into account for Kyrgyzstan. Namely: the development of powerful, reliable working and secure servers, affordable for the mass buyer (an alternative is a block chain), ensuring the security of electronic transactions; development of online culture; availability of a well-established telecommunications infrastructure, including the regions of the country; prevalence credit cards; compliance and improvement of the activities of electronic payment systems with foreign payment systems; development of a mechanism for interaction with international financial institutions; improvement of the fiscal orientation of customs operations international trade; existence of a culture of orders and catalog sales; existence of effective express delivery systems; development of mobile commerce, development of standardization issues in the field of e-commerce, insurance of e-commerce entities, licensing of activities in

the field of e-commerce and certification of e-commerce tools, lack of human resources in the regions, which hinders the involvement of the population of the regions in the global e-commerce. Improving customs legislation regulating business activity; for example, in legislation about licensing and certification. A draft law on the protection of personal data should be considered; development of standardization issues in the field of electronic commerce, insurance of subjects of electronic commerce, e-commerce licensing and certification e-commerce tools, on obligations for electronic transactions; about information security; about the electronic stock market; criminal and administrative law to strengthen the responsibility of e-commerce participants. It is necessary to systematize the subject list of goods subject to mandatory certification and

harmonization with international and national standards in the field of electronic commerce.

4. Discussion

Development of conditions for recognition of key certificates of foreign citizens in Kyrgyzstan in the legislative order will allow solving the legal side of cross-border interaction. Holding monitoring the regulatory framework of the Republic of Kyrgyzstan and international legislation will allow the development of new regulations aimed at accelerating the further development relations in the field of e-commerce. A particularly serious disadvantage is the lack personnel potential in the regions, which hinders the involvement of the population of the regions in the global electronic trade. It is also necessary to develop a mechanism for improving the skills of electronic trade.

Figure 3. Challenges encountered by e-commerce business

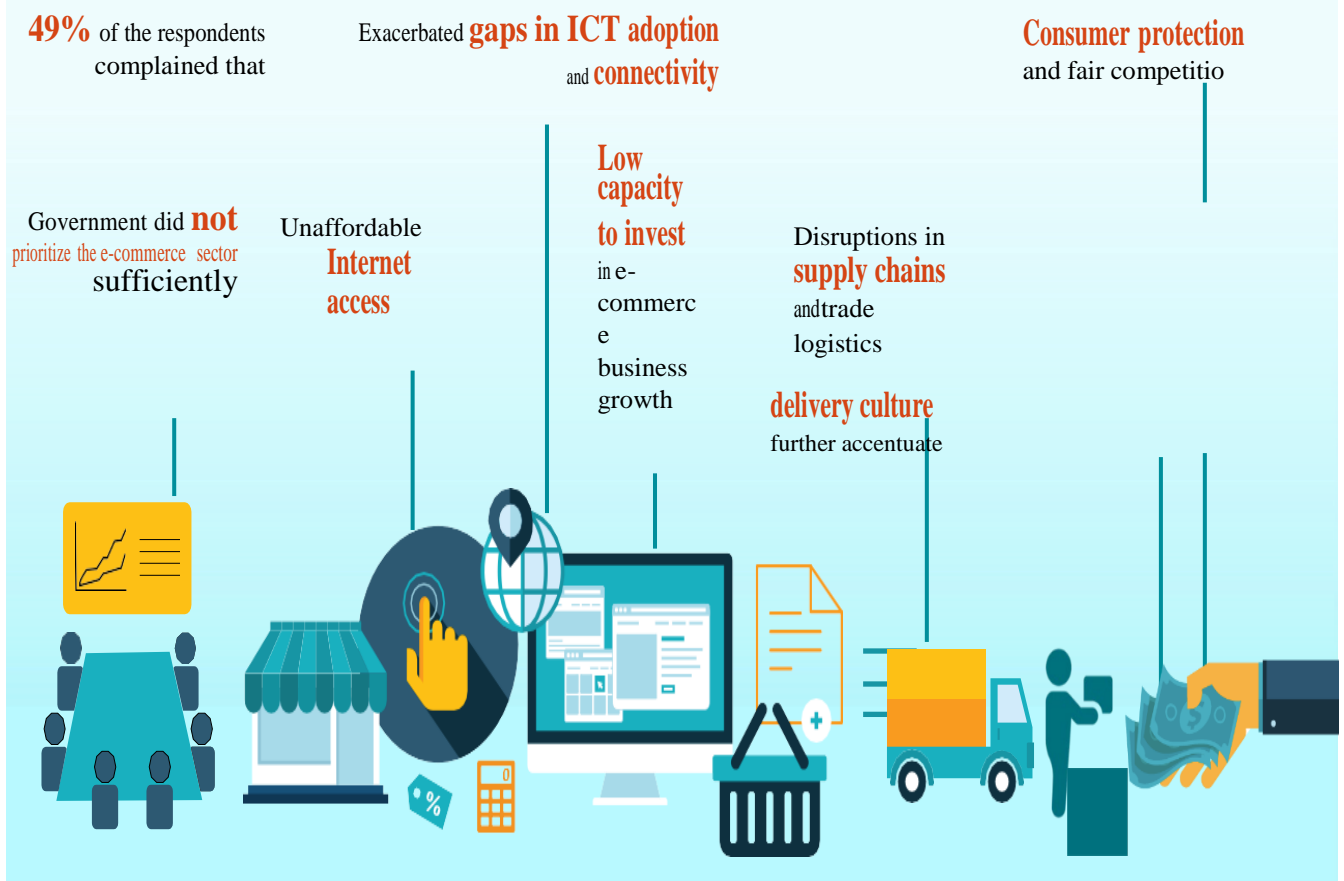
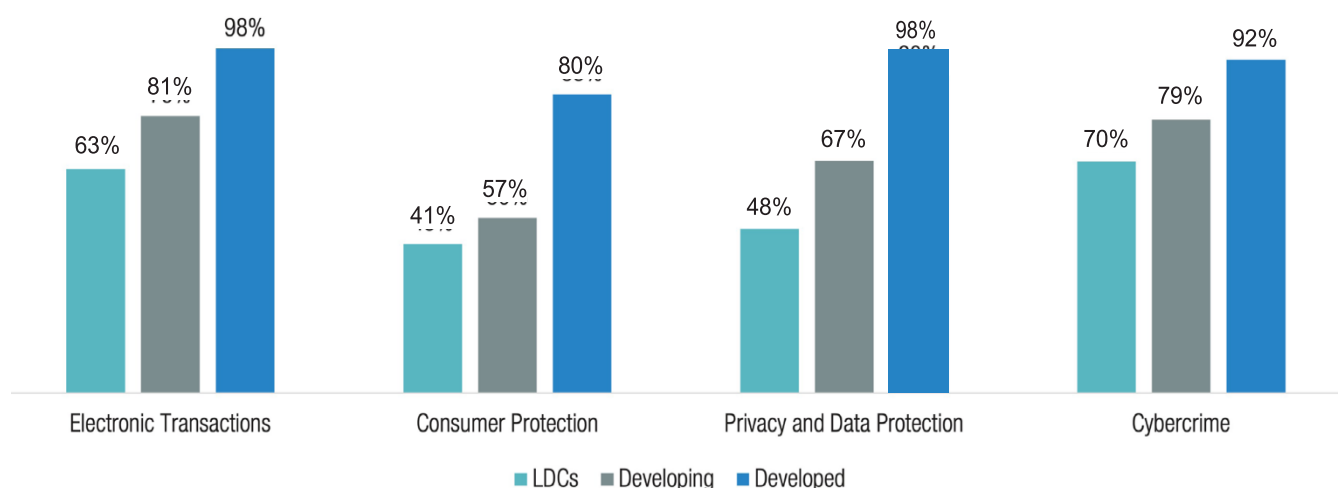


Table 2. Key policy areas and related challenges

Policy areas	Main challenges
E-commerce readiness assessment and strategy formulation	Limited awareness of e-commerce relevance among policy and law makers, consumers, and businesses. Lack of statistical data on electronic commerce and the digital economy. Persistent barriers for women and youth to engage in e-commerce, preventing the leveling of playing fields through increased inclusion.
ICT infrastructure and services	Limited Internet access in rural/ remote areas and costly access to fixed and mobile-broadband Internet.
Trade logistics and trade facilitation	Inadequate facilities for physical delivery of online purchases.
Payment solutions	Overreliance on cash-based transactions, plus low access to and limited experience with online payments and the use of credit cards.
Legal and regulatory frameworks	Weak legal and regulatory frameworks, including protection of consumers online.
E-commerce skills development	Inappropriate education for the digital economy and lack of business development skills and adequate e-commerce skills for MSMEs.
Access to financing	Unsuitable financial mechanisms for start-up enterprises to engage in e-commerce.

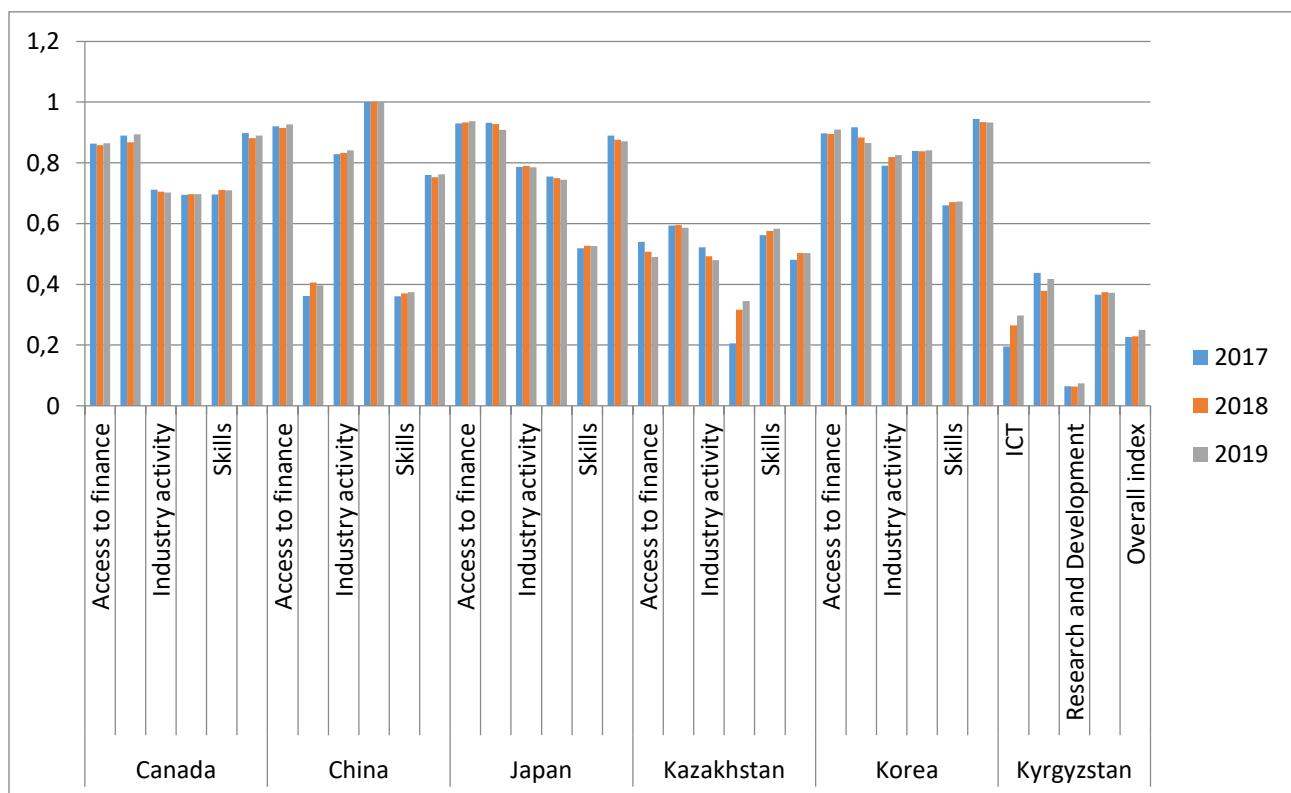
Source: UNCTAD

Figure 4. Cyber law adoptions in developed, developing and least developed countries, 2021



Source: UNCTAD, Cyber law Tracker December 2021

Figure 5. Frontier technology readiness index



Source: UNCTAD

The most important factor hindering the development of e-commerce is the low level of security in the network, which entails the threat of intrusion, theft and deception in the virtual environment, respectively, distrust among users of e-commerce services. To create conditions for the development of small businesses and entrepreneurship in the field of electronic commerce (for example, administrative, tax, information and other benefits), it is necessary to revise income rates and unified social taxes, customs duties (by creating customs zone with countries of near and far abroad) and simplification of procedures for passing through the customs zone for e-commerce objects.

Also stimulate the development of electronic in rural areas, providing various forms of benefits, preferences, creating a mechanism for preferential

lending to the population when purchasing Information Communication Technology (ICT) products and using services e-commerce. Creation of specialized credit systems for small and medium-sized businesses using e-commerce services will attract manufacturers of goods and services to online sales, which will create competitiveness in a virtual environment.

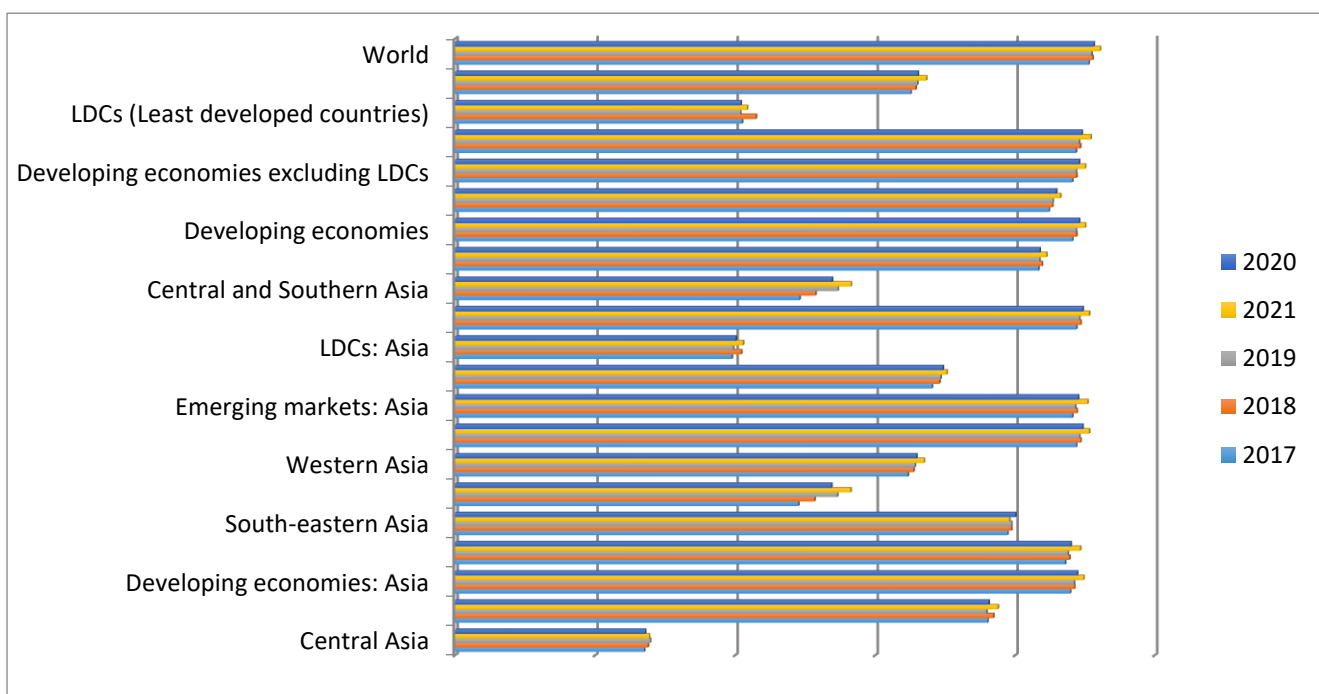
Development and implementation of electronic system insurance, including online insurance with the introduction of e-commerce, will increase confidence users and hence the demand for services in a virtual environment needs constant exchange positive experience with countries near and far abroad in the field of informatization. Increase the number of online stores and the expansion of the range of goods and services will lead to a

decrease prices for the delivery of goods through online stores.

Diverse functioning of financial institutions will be ensured by the development of the electronic payment system with the expansion of the range of services, in including interbank cooperation also, the large-scale introduction of the use of universal electronic plastic cards to cover all possible types of electronic payments. A favorable basis will be the creation of favorable conditions for the wide attraction of investments, including

foreign ones, grants from international organizations, financial institutions, companies, firms, etc. Economic security as a condition for sustainability implies the ability of the country's economy to withstand destabilizing economic influences from outside. The growth of e-commerce indicators is characterized by the prospects and conditions for attracting investments. In the course of studying the infrastructure of the e-commerce system, it was proposed to include issues of certification of e-commerce tools and licensing of e-commerce activities.

Figure 6. Bilateral trade flows



Source: UNCTAD

Measures are needed to improve certification procedures, which include: facilitating access to information required by applicants for a certificate to determine technical requirements and procedures; optimization of the terms of certification procedures, which will quickly bring technologies to the market; setting reasonable fees for certification procedures, including testing costs, which will allow manufacturers to conduct their own control

or choose from several testing laboratories where the relevant tests should be carried out; the introduction of consistent conformity assessment procedures that allow manufacturers to create rational and realistic business plans; automatic renewal of certificates - recertification (it is necessary to simplify the procedures for recertification in case product changes affect the technical parameters).

In this regard, the most serious attention deserves the use of specialized software and software and hardware protection tools that meet the requirements of the State Certification System for Information Security Requirements. Measuring the value of data remains a major challenge. The concept of the “data value chain” is key for the estimation of the value of data. Value emerges in the process of transformation of raw data – from data collection, through processing, and analysis, into digital intelligence – that can be monetized for commercial purposes or used for social objectives (UNCTAD, 2019a). In this process, individual data are of no value unless they are aggregated and processed. And there cannot be digital intelligence without the raw data. For value creation and capture, both raw data and capacities to process them into digital intelligence are needed.

5. Conclusion

Data-driven digitalization creates global opportunities as well as global challenges that require global solutions to harness the positive and mitigate the negative impacts. Effective global governance of data is a prerequisite for data to support the attainment of the economic, social and environmental objectives of the 2030 Agenda for Sustainable Development, with people at the centre.

Efforts to develop a global approach to the governance of data and cross-border data flows should address a number of key policy areas and priorities, including the following:

- Developing a common understanding about definitions of key data related concepts;
- Establishing terms of access to data;
- Strengthening the measurement of the value of data and cross-border data flows;

- Dealing with data as a (global) public good;
- Exploring emerging forms of data governance;
- Agreeing on digital and data-related rights and principles;
- Developing data-related standards;
- Increasing international cooperation related to platform governance, including with regard to competition policy and taxation in the digital economy. From a development perspective, there is little evidence that backs positions in support of either free cross-border data flows or strict data localization policies. Most studies favoring free flows seek to estimate the negative impact of data flow restrictions in terms of opportunity cost. However, such an approach may fail to incorporate equity and distributional issues related to who appropriates the gains. They may also fail to factor in the non-economic dimensions of data, such as privacy and security.
- At the same time, the case for strict data localization policies in support of domestic development is weak. It is not evident that keeping data inside national borders results in economic or social development.
- The lack of evidence in either direction is partly related to measurement problems, and partly to the fact that the data-driven digital economy and the exploding cross-border data flows are relatively recent phenomena.

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