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INDUSTRY 4.0 AND ITS IMPACT ON THE INTERNATIONAL TRADE

Summary. *The work first sets out the current "Industry 4.0"debate. Then it considers how the digitalization making flexible international trade and discusses the challenges of paperless international trade. Finally, the policy priorities for governments are reviewed, followed by the new challenges.*
Key words: *Industry 4.0; paperless trade; digitalization.*

Introduction

"Fourth Industrial Revolution" (4IR), or "Industry 4.0" became the topical issue of nowadays among the scientists and policymakers (*Schwab, 2016*). **"**Industry 4.0 describes the *organization of production processes based on technology and devices autonomously communicating with each other along the value chain:* a model of the 'smart' factory of the future where computer-driven systems monitor physical processes, create a virtual copy of the physical world and make decentralized decisions based on self-organization mechanisms. The concept takes account of the increased digitalization of manufacturing industries where physical objects are seamlessly integrated into the information network, allowing for decentralized production and real-time adaptation in the future" (Smit et al. 2016). Consideration of

changes in technological, social and business paradigm assures us in the greatest importance of "Industry 4.0" for the future development. Reseachers indicate about transition of industrial era economy to knowledge-based economy (*Rodrigues J. M. 2003, Rooney D, Hearn G., Ninan A. 2005; Kuruczleki, et al, 2017; Lichtblau et al, 2015; Raton, 2006*) and formation of the new type of an economy. Research in the field of new type of economy has grown dramatically among georgian scinetists as well (See, for example, *Aladashvili, 2014; Gagnidze, 2016; Gogorishvili, 2017; Lekashvili, 2017; Papachashvili, 2014, 2016; Sepashvili, 2016; Tsetskhladze, 2016*). An important consequence of these transition is reflected on the economic growth, occupation, entrepreneurial opportunities and so on. Among them is an international trade. Digitalization has a substantial impact on its structure, forms, efficiency, etc. Based on digital networks "new generation" international trade using models with paperless communications which facilitate trade. The scientific literature suggests that participation in the digital economy is positive for trade and growth across countries but is not necessarily positive for inclusive growth within countries and developing countries have not closed the digital divide. The World Bank Group (*Digital Dividends, 2016*), in its major study on the implications of the digital economy for inclusive growth observes: Digital technologies have spread rapidly in much of the world. Digital dividends — the broader development benefits from using these technologies—have lagged behind. In many instances digital technologies have boosted growth, expanded opportunities, and improved service delivery. Yet their aggregate impact has fallen short and is unevenly distributed (*Ciuriak&Ptashkina, 2018*).

It is widely known that trade is itself a powerful driver of structural change, helping to reallocate resources to the sectors and areas where they can be most efficient. This is one of the key gains from trade, but also one of its costs.

Technology and trade are closely connected. Technology has helped transform modern trade and enable Global Value Chains by greatly reducing communication, co-ordination and transport costs. The effects of trade and technology are mutually reinforcing, so policies need to address both.

Underscoring the close relationship between trade and technology, digital trade is again revolutionizing the availability of goods and services worldwide (*OECD, 2017*).

The aim of the given article is identifing the impact of Industry 4.0 on the international trade.

Type of the paper and methodology: analytical literature review.

Main accents of the literature review: The numerous instances that argues that digital technologies can bring significant gains (Digital Dividends,2016), but in practice It is too difficult to estimate their impact on international trade, because of its widely dispersed and its indirect growth impacts. Also, because of complex international supply chains. Despite these difficulties, there are some scientific calculations approving that rapid adoption of digital technologies in the economy is beneficial.

The internet enables many small firms to participate in global trade, thus leading to more inclusion; it makes enables more products to be exported to more markets, often by newer and younger firms. A 10-percent increase in internet use in the exporting country is found to increase the number of products traded between two countries by 0.4 percent. A similar increase in internet use of a country pair increases the average bilateral trade value per product by 0.6 percent. Online platforms overcome trust and information problems through feedback and rating systems and by offering escrow and dispute resolution mechanisms. Easier trade of intermediate products encourages further "unbundling" of production processes, not just in the markets for goods but also for services (Digital Dividends, 2016). The role of internet is highlighted in the most works examining impact of digitalization on the trade: the Internet greatly increases firms' potential to produce new goods and service, and serve new markets. The Internet reduces transaction costs – communication, information, and coordination – through the use of emails, websites, and dedicated platforms and online marketplaces, making it easier for firms to participate in international trade. Online platforms can reduce the matching and information costs that can affect international trade more than domestic trade, and provide mechanisms such as feedback and guarantees that improve consumer trust in online sellers (Shawn, 2017). Other work examines the links the number of broadband users in a country to its volume of international trade in goods and services. Based on the model reseacher concludes that each country's openness to trade will be affected by expected future growth in broadband use: the trade-to-GDP ratios will increase an additional 6.88 percentage points on average in the high income countries and an additional 1.67 percentage points on average in the developing countries due to further growth in broadband use over the next five years (Riker, 2014).

The discussions around the digital trade facilitations comprises the issues of the application of modern information and communication technologies (ICTs) to simplify and automate international trade procedures. Duval & Mengjing (2017) examine the paperless trade

measures, included in regional trade agreements (RTAs). Their analysis reveals that the number of paperless trade measures in RTAs entered into force globally since 2005 essentially doubled, with a large majority of RTAs now featuring one more measures aiming to exchange trade-related data and information electronically. In many cases, recent RTAs are found to go further than the WTO TFA in promoting digital trade facilitation and the application of modern information and communication technologies to trade procedures – with the possible exception of e-payment of duties and fees, which is not specifically mentioned in any of the RTAs reviewed.

Mishra (2017) highlights the delicate and complex relationship between international trade and the Internet: Recent preferential trade agreements (PTAs) such as the Trans-Pacific Partnership Agreement (TPP) and the Japan – Mongolia Economic Partnership Agreement (Japan – Mongolia FTA) contain legal provisions on cybersecurity, data protection, data localisation, consumer protection, net neutrality, spam control, and protection of online intellectual property, intended to facilitate electronic commerce and enable cross-border data flows. Many issues related to Internet policy are also central to trade in digital economy. Issues of cybersecurity, privacy and data protection can not only act as barriers to electronic commerce, but also facilitate electronic commerce – this perspective necessitates a reorientation of legal provisions in trade agreements (Mishra, 2017).

New methods of trading, such as e-commerce, create both new opportunities and new challenges for traders and policymakers. E-commerce promotes the ability of small and medium-sized enterprises (SMEs) to go from being small players in the domestic market to becoming global exporters. But a variety of impediments in policies, and in the business environment, can prevent e-commerce from reaching its full potential (Trade & Competitiveness, 2017). Based on the survey of export-oriented firms in the Canadian IT service industry and consultations with industry associations Dong et al revealed that IT service firms experience strong sales growth and tend to be very positive about their outlook, driven by the solid exports that comprise the majority of their sales; because of the knowledge-intensive nature of the industry, firms report investing in human capital more than in physical capital (Dong et al, 2016).

Towards a stronger and resilient digital economy The discussions in the preceding sections indicate that international trade agreements are important tools in shaping the future of the digital economy. As cross-border data flows are indispensable to the digital economy, international trade agreements should be equipped to respond to the

challenges of cyber sovereignty, frequently enforced through disproportionate and burdensome regulatory measures such as data localisation, unreasonable cybersecurity requirements, and lack of interoperability of domestic privacy and consumer protection laws. Thus, understanding the linkages and developing mechanisms to synergise international trade and Internet are not just desirable, but absolutely vital to create a robust and strong digital economy. Negotiation of international trade agreements enables countries to gain greater understanding of common areas of interest and discord, identification of priority areas and policy rationale behind variable domestic approaches (Mishra, 2017).

Despite the virtues of PTAs of moving faster and easier forward, of addressing new pressing issues (such as localization measures) and of providing legal certainty, PTAs fail to provide both a comprehensive framework for digital trade and a workable interface with IG rules (Burri, 2016).

Reducing trade costs is essential for developing economies to participate in international production networks and to effectively use trade as an engine of growth and sustainable development. This can be accomplished by tackling non-tariff sources of trade costs and addressing cumbersome regulatory procedures and documentation requirements. Indeed, trade facilitation including paperless trade has taken increasing importance, as evidenced by the entry into force of the WTO Trade Facilitation Agreement (TFA) in February 2017 and the growing number of regional and subregional initiatives in this area.

According the Report of the Second Global Survey on Trade Facilitation and Paperless Trade Implementation, more advanced paperless trade measures remains at a relatively early stage. For example, while nearly 60% of the economies have engaged to some extent in creating an electronic single window for processing trade documents, very few have fullyoperational systems in place. The global average implementation level of “Cross-border paperless trade” (33%) is substantially lower than that of the other groups of measures considered. Implementation of paperless and cross-border paperless measures improved by 7.8 percentage points (from 50.8% to 58.6%) and 9.3 percentage points (from 25.0% to34.3%), respectively (Trade Facilitation, 2017).

Ha and Lim discuss on how to facilitate integration of international supply chain using paperless trade in the Asia-Pacific Region. They define paperless trade and describe how paperless trade can improve efficiency of international supply chain. Based on the review of

paperless trade initiatives and assessment of paperless trade readiness of economies in the Asia-Pacific Region, researchers identify critical challenges in facilitating crossborder paperless trade and elaborate on how those challenges can be lessened (Ha & Lim, 2014).

Digitalization offers immense potential to improve trade facilitation implementation and further reduce trade costs. Figure 1 shows implementation of trade facilitation as a step-by step process, based on the groups of measures included in this survey.

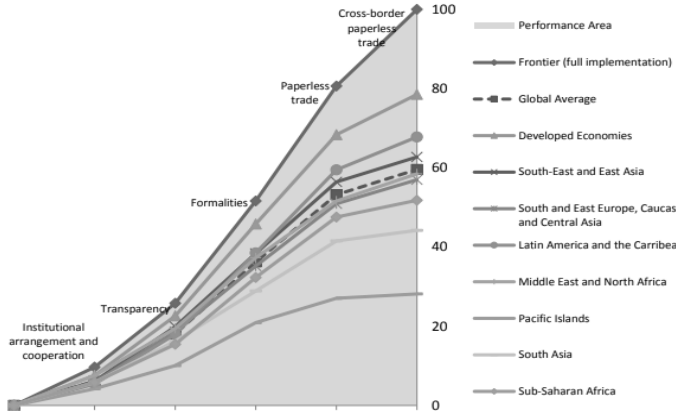

Fig. 1. Moving up the trade facilitation ladder toward international supply chains

Source: Trade Facilitation, 2017

Trade facilitation begins with the setting up of the institutional arrangements needed to prioritize and coordinate implementation of trade facilitation measures. The next step is to make the trade processes more transparent by sharing information on existing laws, regulations, and procedures as widely as possible and consulting with stakeholders when developing new ones. Designing and implementing simpler and more efficient trade formalities is next. The reengineered and streamlined processes may first be implemented based on paper documents, but can then be further improved through information and communications technology and the development of paperless trade systems (Trade Facilitation, 2017).

Trade facilitation-understood broadly as policy measures that reduce all types of trade costs-is a vital area for analysts and policymakers going forward. As the recent WTO Trade Facilitation Agreement

makes clear, the costs of implementing trade facilitation can sometimes be significant. That is also the case implementation of paperless trade. As a result, Aid for Trade and capacity building to support the reform process have to be an integral part of ongoing discussions. The key for policymakers going forward will be to combine reformist will with adequate human, technical, and financial resources. A strong regional arrangement on cross-border paperless trade facilitation would certainly help in this regard (Estimating the Benefits, 2014).

Despite the enormous potential benefits, use of the Internet is relatively limited in Europe and Central Asia (ECA). Fewer firms in the ECA countries use the Internet to sell their products and services compared to other regions. The countries in Western and Northern Europe have smaller shares of e-commerce sales in GDP than the United States and Japan. ECA firms that use the Internet to sell products tend to sell more to domestic rather than foreign markets, missing opportunities to expand their markets. And the export of digitally enabled services is particularly low in many ECA countries (Tan, 2017).

Conclusions

"Fourth Industrial Revolution" (4IR) or "Industry 4.0" causes technological, social and business paradigm changes. These are reflected on the mode of international trade as well. The digital transformation assists to old modes of trade and business to transform entirely new ones.

Digitalization assists countries to develope paperless trading systems and gives broad platform to reduce trade costs, but countries need to harmonize issues related to the cross-border data flows, privacy, and conditions of competition, etc.

Most countries worldwide have implemented general trade facilitation measures, which aim at improving transparency, expediting and streamlining formalities, and developing adequate institutional frameworks.

Despite being the fastest-growing dimension of international commerce in the past decade, e-trading is not yet well understood and used. The global average trade facilitation implementation score stands at approximately 60%.

Countries need to continue to apply modern information and communication technologies and develop paperless trade to simplify trade procedures and enable electronic exchange of data and with all the actors along the international supply chain.

Cross-border paperless trade has significant potential to reduce trade costs and boost trade within the international integration groups.

Challenges of on cross-border paperless trade includes: Adoption of common International Standards; Harmonization of legal frameworks; Capacity gaps among the parties (infrastructure & HR); Cooperation between public and private sectors; Lack of intergovernmental coordination mechanism.

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ТРАНСФОРМАЦІЯ ТЕОРЕТИЧНИХ ПІДХОДІВ ДО УПРАВЛІННЯ ФІНАНСОВИМИ РЕСУРСАМИ ТРАНСНАЦІОНАЛЬНИХ КОРПОРАЦІЙ

Анотація. *У статті досліджується трансформація теоретичних підходи до управління фінансовими ресурсами ТНК, досліджується вплив поведінкових аспектів на прийняття фінансових та інвестиційних рішень головними виконавчими директорами міжнародних корпорацій.*

Ключові слова: *ТНК, фінансові ресурси, управління, публічні фінанси.*

Актуальність. Остання світова економічна криза свідчить про сильні трансформації на глобальному ринку капіталів, що обумовлює необхідність повторно дослідити особливості управління великими ТНК. Враховуючи останні тенденції до "організаційної модальності фінансового капіталу" та фінансіалізованого підходу до управління, сьогодні можна простежити домінування фінансо-