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## **THE ROLE OF SERVICE SECTOR IN GLOBAL VALUE CHAINS РОЛЬ СФЕРИ ПОСЛУГ У ГЛОБАЛЬНИХ ЛАНЦЮГАХ СТВОРЕННЯ ВАРТОСТІ**

Global value chains (GVCs) have become one of the major characteristics of international trade and production. Services feature prominently in GVCs as they provide a "double" function, namely as a transitional input to production as well as a facilitator. In a "coordinating role", they link together different stages of production in different countries and allow companies to further specialize and coordinate production and trade in GVCs [1]. With quick expansion of supply chains in recent years, services such as transport, logistics and supply chain services, and ICT services have become vital for coordinating production across many countries.

While the global growth in GVC trade has been mainly linked to machinery, transport and electronics, added value in the service sector is also becoming more and more developed, and organized internationally. Improving transport, digital infrastructure and taking apart existing obstacles to trade in goods and services have contributed greatly to the expansion of GVC coverage in all sectors. Also, the fragmentation of production is associated with an increase in outsourcing not only of production tasks, but services as well. Such services, including advisory services, financial services, maintenance and repair services are important.

Among the scientists who devoted their research to specific features of global value chains, were both foreign scientists G. Gereffi, M. Porter, J. Humphrey, and national scientists – H. Duhinets, N. Cherkas, O. Hirna, O. Menchynska, N. Chukhrai and others. Despite the significant number of scientific works on the research topic, constant development of views on the nature of global value chains promotes further research.

While companies specialize and develop, they are apt to spend more and more time to coordinating and organizing their business. Progressing in service delivery and increasing participation in GVCs through feedback loops allows companies, especially downstream manufacturing companies, to have better range and quality of services at competitive prices. As a result, it improves their partaking in GVCs and general efficiency.

Therefore, the role of services as a contribution to production is essential. The service sector is a driving power for many companies to incorporate in GVCs. Transport, logistics, ICT services, marketing, consulting and professional services play an important coordinating role in GVCs. Empirical evidence suggests that effective provision services is essential for downstream operations

of companies. Efficient and high quality services without political barriers strengthen the institutional framework and invest in human capital. This process will facilitate the integration of Ukraine into GVCs.

The relationship between service resource use and participation in GVCs are studied in this work. Ukraine offers an interesting learning environment in which service sector plays an important role. The study found that service resource access and usage appears to be an important driver for integration with GVC. The intensity of GVC integration depends on the amount of services being introduced. Companies that are high performing, large in size, pay higher value-added wages, have a higher leverage ratio are likely to be more deeply integrated into GVCs. Low service companies are unlikely to be integrated into GVCs. If companies that do not participate in GVCs increase their investment intensity, the likelihood that they will start participating in GVCs increases significantly. The possibility of integrating at different levels (limited, low, medium, high) increases with the intensity of service inputs. In addition, the range of services matters for GVC integration. Ukrainian companies using integrated IT services and related IT services tend to be more deeply integrated into GVCs.

The GVC participation index proposed by R. Koopman et al. [2] and subsequently used in empirical studies applied to measure participation in GVCs. The cross-country data used to build the index is taken from the OECD Value Added Trade and Export Database. The participation index takes into account two sides of the GVC: back participation or the “sourcing” side and forward participation or the “supply” side. Reverse participation in GVCs captures a country's foreign resource sources into its production process for export and is expressed as the ratio of foreign value added in gross exports to gross exports. Forward participation in GVCs reflects the internal contribution of a country that uses its own production processes and for exports, which, in turn, are not completely absorbed by an importing country, but are embodied in the exports of the importing countries. Countries put themselves naturally through these two types of participation in GVCs. For example, countries with higher levels of natural resources are often placed upstream in GVCs and are likely to develop strong supplier ties as an input. Countries with larger market sizes are less likely to import intermediate goods and services due to their ability to produce the same, while smaller countries lacking market size tend to higher rates of back participation. Correspondingly, countries with a surplus of low-skilled labour typically have higher participation in GVCs with low skill levels for production and services [3].

Companies that are much integrated into GVCs have a higher intensity of IT service resource application. IT and IT facilitating services include services related to technical know-how and licenses, outsourcing of professional IT work and IT-related R&D.

Among the total export of services in Ukraine, the share of IT has already reached 38%. For comparison, it was 24% in early 2020.

The fact that the IT sector in Ukraine continues developing is confirmed by the number of new PEs specializing in computer and information technology services – their number has increased by 40% in 2020–2021. The number of IT companies has grown as well: companies providing computer services by 22%, and by 10% – companies providing information services. The growth in figures is a result of the activities of outsourcing companies hiring Ukrainian programmers to work on foreign IT projects [4].

It is safe to say that many nations were caught off-guard by the events unraveling at the end of February 2022. Many expected Ukraine to decline massively, especially in economic terms. However, to everyone's surprise, some Ukrainian industries, specifically the IT sector, illustrate remarkable resilience and hope for the best six months into the turmoil.

How the Ukrainian IT industry handles all the challenges shows the importance of digitalization in general. Yet, specifically in Ukraine, the resilience of the IT sector is a direct representation of the strength of Ukrainians. Let us study the case of the Ukrainian IT industry and portray several factors that allowed the sector to recover after its challenges. Despite the war, Ukraine's IT Sector faced all the challenges with utmost effectiveness and managed to create the conditions allowing the industry to grow despite all the odds. As a result, the numbers show Ukraine's IT service market will continue to grow shortly (see Fig. 1).

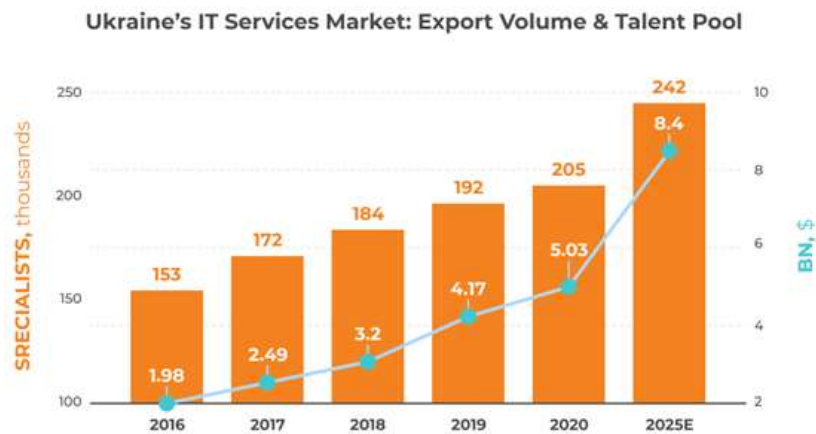


Figure 1. Ukraine's IT Services Market: Export Volume & Talent Pool [5]

Many IT companies managed to preserve their contracts and find new clients. Global investors look forward to using the services of Ukraine's IT professionals. American Chamber of Commerce indicates that 96% of companies plan to continue operating in Ukraine in 2023. Furthermore, 85-95% of IT sector professionals managed to return to work duties despite the war. Finally, only 1% of all IT companies in Ukraine cannot pay their employees' salaries. These numbers prove that the Ukrainian IT market not only managed to survive the events of the past twelve months but also found a way to flourish despite everyone's expectations.

Before February 24, 2022, there were 285,000 IT professionals, 858 IT services companies, and \$5 billion in IT services export in Ukraine. In addition, with 661 higher education institutions operating in Ukraine, more than 23,000 new IT professionals enter the industry each year. Finally, Global Sourcing Association labeled Ukraine as the #1 IT-outsourcing destination in 2021. As a result, before the war started, Ukraine's IT segment had a strong foundation and favorable business climate for the sector to grow [5].

As services play a vital role in GVCs, both as an input in the manufacturing process as well as a coordination facilitator, it is possible to conclude that facilitating the use of high quality services, liberalizing the service sector, removing various types of policy barriers related to services, strengthening the institutional framework including contract enforcement mechanisms, and enhancing human capital, which is crucial for the provision of more sophisticated services, will enable strengthening GVC participation and profit from the associated economic benefits.

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