

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE

SUMY STATE UNIVERSITY

Educational and Research Institute of Business, Economics and Management

Department of International Economic Relations

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QUALIFICATION PAPER

It is submitted for the Master`s degree

Specialty 292 “International Economic Relations”

on the topic “MARKET OF DIGITAL SERVICES IN UKRAINE: CURRENT TRENDS
OF DEVELOPMENT”

Student group IB.m-31

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It is submitted for the Master's level degree requirements fulfillment.

Master's level degree qualification paper contains the results of own research. The use of the ideas, results and texts of other authors has a link to the corresponding source

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Sumy, 2024

SUMMARY

of Master's level degree qualification paper on the theme
“MARKET OF DIGITAL SERVICES IN UKRAINE: CURRENT TRENDS OF
DEVELOPMENT”
student Serhii Svystelnyk

The main content of the master's level degree qualification paper is set out on 41 pages, including a list of used sources of 28 titles, which is placed on 4 pages. The work contains 2 tables.

KEYWORDS: UKRAINE DIGITAL SERVICES, EXPORT TRENDS, GLOBAL COMPETITIVENESS, IT SECTOR, DIIA.CITY, DIGITAL MARKET DEVELOPMENT

The Ukrainian digital services market plays a significant role in the global economy, driven by innovation, skilled human capital, and technological advancements. This paper examines the trends, challenges, and opportunities of the Ukrainian digital services market, focusing on its export potential and competitiveness. The purpose of this paper is to analyze the current trends and development of digital services in Ukraine, with a particular emphasis on their role in the global market.

The purpose of this paper is to explore the current trends in the development of digital services in Ukraine and to analyze their competitiveness and export potential in the global market. It is realized by performing the following tasks:

- identify key trends in the global digital services market;
- provide an overview of the Ukrainian digital services market;
- analyze the advantages and challenges of digital service exports for developing countries;
- examine the contribution of digital services to Ukraine's economy and its export dynamics;
- analyze leading Ukrainian companies and startups in global markets;
- Investigate role of outsourcing and product development in service exports;

- examine barriers to development of the sector;
- analyze strategies for overcoming barriers and fostering growth;
identify technological innovations and specializations of Ukrainian companies;

In the process of research, methods such as statistical analysis, literature review, case studies, and expert interviews were applied to achieve the study's objectives.

According to the results of the study the following conclusions are formulated:

The worldwide digital services market is quickly increasing, driven by technological improvements and increased demand for digital solutions across sectors. This rise provides major potential for emerging nations such as Ukraine to expand their positions in the global market.

Ukraine has emerged as a competitive competitor in the digital services export market, thanks to its qualified workforce, creative ideas, and cost benefits. IT outsourcing, product creation, and technology expertise in AI, cybersecurity, and blockchain are among the company's key competencies. Grammarly, Reface, and GitLab are notable Ukrainian firms that have achieved success in worldwide markets.

Despite its gains, the Ukrainian digital services sector has a number of obstacles that must be solved in order to continue growing. These constraints include infrastructural gaps, such as the need for enhanced internet and data facilities; legislative impediments, notably in taxes and intellectual property protection; and a trained professional scarcity caused by talent migration and restricted local talent pool development. Addressing these concerns is crucial to increasing Ukraine's competitiveness and promoting long-term industrial growth.

The obtained results can be used to guide policymakers and industry stakeholders in enhancing Ukraine's position in the global digital services market.

The year of qualifying paper fulfillment is 2024

The year of paper defense is 2024

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TASKS FOR MASTER'S LEVEL DEGREE QUALIFICATION PAPER

(specialty 292 “International Economic Relations”)

student 2 course, group IB.m-31

Serhii Svystelnyk

1. The theme of the paper is " MARKET OF DIGITAL SERVICES IN UKRAINE: CURRENT TRENDS OF DEVELOPMENT" approved by the order of the university from 03.12 2024 № 1255-VI.
2. The term of completed paper submission by the student is 10/12/2024.
3. The purpose of the qualification paper is to analyze the current trends and competitiveness of the digital services market in Ukraine and propose strategies to enhance its role in the global economy.
4. The object of the research is Export of digital services from Ukraine.
5. The subject of research is current trends and development of digital services in Ukraine.
6. The qualification paper is carried out on materials such as bibliographic materials, reports, official statistic and different internet sources
7. Approximate qualifying master's paper plan, terms for submitting chapters to the research advisor and the content of tasks for the accomplished purpose is as follows:

Chapter 1: THEORETICAL ASPECTS OF DIGITAL SERVICE EXPORTS

Chapter 1 deals with: 1) Concept and Types of Digital Services: International Context; 2) Importance of Digital Services for Ukraine's Economy; 3) Advantages and Challenges of Digital Service Exports for Developing Countries

Chapter 2: CURRENT STATE AND TRENDS IN DIGITAL SERVICE EXPORTS FROM UKRAINE

Chapter 2 deals with: 1) Overview of Ukraine's IT Sector and Export Dynamics; 2) Analysis of Leading Ukrainian Companies and Startups in Global Markets; 3) Role of Outsourcing and Product Development in Service Exports; 4) Technological Innovations and Specializations of Ukrainian Companies

Chapter 3: BARRIERS AND DEVELOPMENT STRATEGIES FOR DIGITAL SERVICE EXPORTS FROM UKRAINE

Chapter 3 deals with: 1) Barriers to Development; 2) Strategies for Overcoming Barriers and Fostering Growth

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Chapter	Full name and position of the advisor	Date, signature	
		task issued by	task accepted by
1	Professor, Doctor of Economics Fedir Zhuravka	01.11.2024	10.11.2024
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3	Professor, Doctor of Economics Fedir Zhuravka	28.11.2024	06.12.2024

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Research Advisor:

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The tasks have been received:

(signature)

(full name)

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INTRODUCTION

The relevance of the study topic originates from the global tendency of digital transformation which has set the market for digital services among the most important growth drivers for the economy – “Market of Digital Services in Ukraine: Current Trends of Development”. The more digital technologies develop, the more people need such digital services as AI, e-commerce, cloud services, and cybersecurity. Ukraine, well known for its strong information technology (IT) industry, has made considerable strides toward being a competitive global player in the digital services arena. The impact of this research is important because it seeks to understand the ongoing trends that characterize the Ukrainian digital services industry and the Ministry of Ukraine’s position in globalization. It will also furnish government officials, businesspersons, and investors with the information required to harness the digital potential of Ukraine.

Over the past few years, the IT outsourcing market has grown tremendously. Ukraine has played a crucial part in this growth offering a wide range of services from software development to web services and providing digital solutions. Considering the amount of previously mentioned talent available, Ukraine's digital services sector also has grounds for impressive growth and certainly plays a major role in the economies of the country. The government of Ukraine also sees the need to boost this growth by coming up with policies such as Diia.City is meant to improve the business climate for providing digital services and attract investors from abroad. However, irrespective of these developments, Ukraine's digital services market is contending with a series of infusions which include development constraints, lack of special regulation, and inability to keep skilled personnel due to geopolitical factors.

The market for digital services is one of the most rapidly growing and promising sectors which is being observed in the economies of the world. Digitalization is becoming ubiquitous across societies and businesses around the globe, and companies are depending more and more on cloud, cybersecurity, and marketing solutions to compete. In this sense, Ukraine has positioned itself as a center

for the outsourcing of digital services such as software development, IT, and information security. The growth of digital services in Ukraine is not just supported by the knowledge and skills of its people, but also by governmental changes, foreign investments in the private sector, and the development of the ICT base. This comment has provided or outlined economic development potential free of charge.

To use the potential, the Ukrainian digital service sector has some barriers that need to be dealt with. Some major obstacles are the standard of the global digital infrastructure, high levels of political and economic volatility, and the absence of an all-encompassing legal framework for the digital economy, which would allow for strategies that foster the global competitiveness of the latter. In addition, the prevailing conflict in Ukraine provides some peculiar challenges regarding the movement of skilled workforce, maintaining business, and encouraging investments from foreign nations. However, regarding the outsourcing aspects, Ukraine remains one of the top performers globally, alongside its rise in the technology entrepreneurship sector and favorable state policies, thus fundamentally providing a conducive environment for the digital service market.

The qualitative paper aims to explore current tendencies in the development of digital services in Ukraine, also to locate its competitiveness in the world market and the challenges and strategies that transport the potential of maintaining the growth. The paper will discuss what Ukraine sees as a framework for the analysis of digital services and what it could usefully indicate of the strengths of Ukraine, as well as the barriers it must overcome to position itself more effectively in the international digital economy. This paper strives to deliver concrete insights for public and private stakeholders by analyzing the contribution of digital services to Ukraine's GDP, the export dynamics of this sector, and the world demand for Ukrainian digital services.

To achieve the purpose of the work, the following tasks need to be solved:

- Examine the role of digital services in the global economy and their importance for developing countries, particularly Ukraine; ;
- Provide an overview of the digital services market in Ukraine, including its current state and future prospects;
- Analyze the factors driving the growth of digital services in Ukraine, including

- technological advancements, government policies, and the talent pool;
- Assess the competitiveness of the Ukrainian digital services market on the international stage;
 - Investigate the key challenges faced by the Ukrainian digital services sector, such as infrastructure limitations, regulatory barriers, and the impact of political instability;
 - Propose strategies for overcoming these barriers and fostering further growth in the digital services market;
 - Forecast the future trajectory of the Ukrainian digital services sector and its potential role in the global digital economy;

The object of this study is the market of digital services in Ukraine.

The subject of the research is the current trends and development of this market, with a particular focus on export dynamics, competitiveness, and future growth opportunities.

The research methodology will combine both qualitative and quantitative approaches, utilizing data from industry reports, statistical analysis, expert interviews, and case studies. A comprehensive literature review will provide theoretical insights into global digital services trends, while secondary data analysis will offer a detailed overview of the Ukrainian market's growth and challenges. This paper will also include a comparative analysis of Ukraine's digital services sector with other leading countries in this field.

The qualification work consists of an introduction, three chapters, conclusions and a list of references. The work contains 6 tables. The list of references includes 42 titles placed on 5 pages.

1. THEORETICAL ASPECTS OF DIGITAL SERVICE EXPORTS

1.1 Concept and Types of Digital Services: International Context

Thus, market services of a digital nature have become one of the most powerful components of a global economy increasingly dependent upon and driven by rapid technological change together with ever-growing needs for its different forms of digital solutions across industries. Digital services comprise a multitude of offerings- from software development to cloud computing, cybersecurity, digital marketing, and data analytics. Such service provision is essential for innovation within business, operational efficiency, and competition on a global scale. By 2024, it is expected that the global market in cloud services will exceed \$500 billion, and thus the seriousness of digital technologies in the world will be manifested. [1]

Ukraine has set itself up to be a significant actor in this transformation of the digital landscape. Despite the geo-political developments going on, the IT sector has continued to thrive and contribute significantly to the economy of the country. A recent study revealed that, in 2024, Ukraine's IT services sector represented about 38% of the total service export of the country amounting to \$4.8 billion. [2]

The sector continues to be important in the national export economy. Just a few more sell overseas as compared to that. But the bright face of achievements in Ukraine remains shadowed by expected minor reductions in IT export volume towards the close of 2024 - 3%-5%- because of conditions like the war and a worldwide economic slowdown. [2]

Types of Digital Services

- Custom Applications and Software Development In many respects, software development continues to be the source of digital services including online platforms, mobile apps, and bespoke enterprise software. Unquestionably, Ukrainian businesses have upheld excellent standards when creating creative,

safe, and scalable products for clients around the world. As a result, Ukraine will continue to be a top exporter of IT services and a blatant innovator in the creation of custom software in 2024. [3]

- Cloud Computing has established new paradigms in ensuring that scalable and flexible solutions can be provided for applications such as storage and data processing. It has paved the way for an increasingly growing demand for cloud services globally. Additionally, this demand has created environments conducive for firms in Ukraine to enter very cost-effective markets to offer their cloud-based services and solutions. [1]
- Cybersecurity has become increasingly vital due to rising cyber threats, with Ukrainian firms leading in advanced solutions to protect critical infrastructure and data. In response to growing cyberattacks, particularly those tied to geopolitical tensions, Ukraine has strengthened its cybersecurity infrastructure. By 2023, the national cybersecurity strategy played a key role in maintaining trust with international clients. [4]
- Digital marketing has to do with search engine optimization, social media management, and e-commerce solutions for reaching worldwide audiences. Ukraine's digital marketing sector recorded the most growth by supporting global businesses using local to expand their online presence. Thus, this remains one of the significant exports from Ukraine, where the country is now known as an emerging innovation and cost-effective.
- Data Analytics and Artificial Intelligence Data analytics and artificial intelligence services are at their utmost demand. Ukrainian companies are also developing their skills in machine learning, predictive analysis, and AI-centered business solutions. While the rest of the world finds itself depending on data-driven decisions, Ukraine's know-how within the field of AI proves a booster in this growing market.
- Telecommunication and Network Infrastructure Services The digital economy

is underpinned by a strong telecommunication and network infrastructure. The improvements that Ukraine has made in digital connectivity contribute greatly to the support of businesses and governments worldwide. As more and more businesses go online, one of the most significant contributions coming from the Ukrainian telecom sector is giving them highly reliable, fast Internet services.

The global digital services market is highly competitive, with countries like India, the Philippines, and Ukraine leading in IT outsourcing. Ukraine's strengths lie in its cost-effective solutions, highly skilled workforce, and government initiatives such as Diia.City, which offers favorable tax and legal conditions for tech businesses. Despite challenges posed by the war, first big downfall of Ukrainian IT sector, it has remained resilient, with international clients continuing to invest in Ukrainian talent and services.

1.2 Importance of digital services for Ukraine's economy

Digital services had become, early on, a basis for economic development in Ukraine, introducing the country into the GDP and providing great potential for export. The figures show that, as of 2024, IT contributes almost 4.5% of GDP in Ukraine along with US\$ 7.35 billion generated just from IT service offerings alone. Most likely it already has developed into a critical pillar within the economy of Ukraine, not least in view of continuing internal geopolitical challenges. [5]

The digital services industry includes a wide range of offerings such as IT outsourcing, software development, cybersecurity, and cloud services. This diversification has allowed Ukraine to position itself as a leading IT outsourcing hub, ranking among the top global destinations for IT services.

Over the last few years, Ukraine has built a strong reputation for providing high-quality services at competitive prices, with numerous global companies relying on Ukrainian firms for their tech needs. [6]

Thus, with the elementary things and conditions entirely present, a simple room for over 75, 000 IT professionals has spread to more than 307,000 in 2014. With the increasing availability of high-quality education and the presence of tech hubs such as Diia.City, which provides tax benefits and legal support to tech companies: It's interesting to mention that this ecosystem is also an inspiring aspect of attracting local and overseas investors for the development of startups. [7]

Within Ukraine's vibrant digital services ecosystem, innovation thrives and new technologies and startups are brought into being. In a period of ten years, the number of tech companies in Ukraine has risen from about 400 to 2,150 active tech firms by 2023. Grammarly, Reface, Respeecher are some Ukrainian startups that have gone beyond the borders of Ukraine. Their names are now well known to the world, proving that Ukraine is innovating and can meet demands beyond its line of vision. Venture capital in funding Ukrainian startups has soared, thanks to the Blue & Yellow Heritage Fund and some government-backed initiatives for entrepreneurs.

Through the ostensible digital transformation of government, it has become really essential for public administration and the new normal in society to have such a thing as digital services. The Diia, utilized by more than 20 million Ukrainians, actually shows how digital services can facilitate the interaction between people and public services while promoting access to important resources. This 'state on the smartphone' phenomenon is also visible abroad, as other nations have adapted it to digitize their public services. [8]

Digital governance initiatives of Ukraine are working increasingly at building an efficient economic framework through trust and transparency. Directly impacts the entire mix of digital systems put in place within different government agencies as well as enables the Trembita platform-an edifice for decentralized data-exchange-convergence through reducing operational inefficiencies and lack of transparency in operations.

Digital services are important for Ukraine's growth challenges in their access components. Currently, about 72% of mobile internet subscribers are in urban areas, while rural regions remain underserved. Investments are made in broadband expansion as part of addressing the digital divide and bringing digital services to all

citizens, including expanding digital literacy programs.

The economic importance of quite a number of sectors has been reinforced with the blend of digital services into traditional industries like agriculture, manufacturing, and healthcare. An example is agritech powered by IoT and AI in bettering the farming practice. Telemedicine platforms also provide a solution by improving access to health care for those in remote areas. As these solutions go mainstream, it inspires productivity and new revenue opportunities for Ukrainian businesses.

1.3 Advantages and Challenges of Digital Service Exports for Developing Countries

Digital services are making waves in international trade, offering developing countries great leeway to boost income and competitiveness. They are contingent services, including IT outsourcing, e-commerce, cloud computing, and even AI solutions, which countries can introduce digitally and which can provide avenues for their markets to reach the outside world without the constraint of traditional infrastructure. However, the development of deep potential in exports from digital services brings a number of challenges to be addressed within developing economies.

Advantages of Digital Service Exports

- Economic Growth and Diversification - E-commerce services provide a pathway through which developing nations can grow their economies on high-value, low-resource-intensive terms. In 2023, developing countries are poised to exceed collectively the \$1 trillion mark in exports of digitally deliverable services, creating yet another milestone for these countries. With these exports, developing countries have an option to diversify their economies beyond these traditional sectors, such as agriculture and manufacturing, into broader horizons, thus decreasing their dependence on volatile price fluctuations in commodity markets. [9]

- Job Creation and Skill Development - The exporting of digital services ensures the development of high skilled human resources in areas such as software development, cybersecurity and artificial intelligence. It also transitions into having a more knowledge-based workforce, with spillover effects in various industries. In particular, it is going to replicate the successful transition with the development of IT services in countries such as the Philippines and India. The transformation of economies has led to the creation of millions of jobs, while at the same time allowing different people to develop skills.
- Global Market Access - With the use of digital technologies, even the smallest enterprises from developing countries can join global value chains. These telework platforms and virtual markets, together with commerce tools, enable businesses to reach worldwide clients without enormous investments upfront. As such, smaller economies compete on a higher playing field. [10]
- Resilience During Crises - Digital service exports are the face of economic resilience during the global crisis. These digitally delivered services help support economies during dire moments like the COVID-19 pandemic, which has severely disrupted physical trade, making it difficult to continue normal productive activities in many developing countries.

Challenges of Digital Service Exports

It is common knowledge that developing countries lack a sufficient digital infrastructure to export large-scale services fully. The bottlenecks include limited, high-speed broadband access; older telecommunication systems; and insufficient data-center capacity. For instance, although digitally deliverable services comprise 55% of global service exports, they account for just 20% in the least developed countries (LDCs). The solution to this gap includes investments in affordable broadband expansion and public-private partnerships coupled with international cooperation for better infrastructure. [11]

Digital Skills Gap

Mentor-shortage limit in professional skills training is a major bottleneck in increasing developing countries' potentials to export digital services. Demand for digital skills that are advanced is fast increasing yet educational institutions and

training programs do not seem to match current market needs. Identify and mention an agency, by the example of UNCTAD, that builds the issue around the fact that coordinated capacity-building initiatives are needed to fill the void, especially in LDCs, where it can be very economically participatory in terms of skills development. [12]

Regulatory and Data Protection Challenges

Disintegrated regulations, as well as the absence of standardized frameworks for data protection, act as bottlenecks to the export of digital services. Hence, it is unaffordable for a lot of developing nations to comply with these international standards as they also increase the costs of compliance and limit market opportunities. UNCTAD highlights that there is a need for an internationally coordinated policy frame in the area of cross-border digital trade that would not compromise privacy and security.

Global Competition

Global exporting countries of digital services have India, the Philippines, and Eastern Europe in front. New emerging economies venturing into the digital services sector need to be specialized or need to have some cost advantage to be able to compete with the established behemoths. Competing with larger and more experienced players usually requires an investment in innovation and training that could be too heavy a burden on available resources.

Dependence on Foreign Markets

High dependency on foreign markets is now a potential area of vulnerability for developing countries, wherein they have become exposed or potentially exposed to global trading shifts, whether it be from geopolitical tensions or trade policy changes. Then there are also risks attributed to currency and a dependence on a rather narrow client base. Building domestic markets and diversifying export portfolios can therefore be imperative to cutting dependency and bolstering resilience.

2. CURRENT STATE AND TRENDS IN DIGITAL SERVICE EXPORTS FROM UKRAINE

2.1 Overview of Ukraine's IT Sector and Export Dynamics

Ukrainian IT industry today still stands ansell because it continues to be a very strong contributor in national economy itself, and has demonstrated resilience and adaptability toward unprecedented challenges. So, in 2023, IT industry contributed up to approximately 4.4% of GDP: IT service export was worth \$7.34 billion and achieved a year-on-year 5 percent growth. By 2024, export revenues will likely level off between \$6.5 billion and \$7 billion, which is a slight dip from the previous level due to infrastructure disruptions and adjustments in the global economy. [13]

Presently, there are over 302,000 IT professionals in Ukraine, which is considered one of the largest and most skilled tech workforces in Eastern Europe. The professionals are spread out across more than 2,150 tech companies, predominantly focusing on IT outsourcing (47%) and product development (31%). The survey indicates that this workforce is excellent at technical skills, as it ranked third in Europe in terms of technology skills, as well as consistent in terms of retention rate with 96 percent of all international contracts being quite alive even nowadays amid the conflict. Major export markets for the IT services of Ukraine include the United States (35%), the European Union (30%), and Israel (10%), with growing penetration into the Gulf and Southeast Asian markets. In terms of service categories, these include software development, IT consulting, and emerging fields such as artificial intelligence (AI), machine learning (ML), and defense technology. [14]

The crucial element in promoting IT development in Ukraine has come from the innovation introduced in 2021 by the state through the Diia.City, which is the current state initiative offering preference in taxation, legal clarity, and incentives to local startups and foreign investors. There were about 272,000 private IT entrepreneurs in Ukraine registered in simplified regulatory frameworks in the year

2023.

Increased priorities for Ukraine include high-value value-added service offerings like AI development, cybersecurity solutions, and cloud computing. Such sectors are becoming increasingly important with growing global demand for cutting-edge digital solutions. For instance, between 2022 and 2023, more than 300 defense technology startups emerged, indicating Ukraine's flexibility in adapting its technical abilities to wartime and geopolitical demands.

Another exemplary kind of tendency is shifting the export market diversification. Ukraine is initiating the reduction of traditional clients and at the same time opens up old avenues in areas like the Middle East where it is fulfilling its high-end services rendering at very affordable prices.

Table 2.1 Overview of Ukraine's IT Sector and Export Dynamics (2023-2024)

Category	Details
GDP Contribution (2023)	4.4% of GDP
Export Revenue (2023)	\$7.34 billion
Projected Revenue (2024)	\$6.5 - \$7 billion
Number of IT Professionals (2023)	302,000 professionals
Key Export Markets	United States (35%), EU (30%), Israel (10%)
Main Specializations	Software Development, IT Consulting, AI, Cybersecurity
Retention Rate During Conflict	96%
Number of Active Tech Companies	2,150
Government Initiative	Diia.City - Tax Incentives and Legal Support

2.2 Analysis of leading Ukrainian companies and startups in global markets

Technological innovations in Ukraine have produced diverse unique companies with a significant mark in the world market. Geopolitical situations have impacted these companies, but they nonetheless showed resilience and growth by taking their businesses to new heights across different industries such as AI, cybersecurity, and software development. Some prominent names include Grammarly, Reface, and GitLab, which have got gloriously translated into global players and raised Ukraine as a country of technology.

EPAM Systems is one of Ukraine's most notable technology businesses, with a significant presence in the worldwide IT services industry. Although EPAM was started in Belarus in 1993, it now has a considerable presence in Ukraine, where it employs thousands of IT workers and contributes considerably to the country's IT export revenues.

EPAM has long been one of the largest IT employers in Ukraine, employing over 14,000 professionals across multiple offices in cities like Kyiv, Lviv, Kharkiv, and Dnipro as of 2023. It provides IT consulting, software engineering, and digital transformation services to Fortune 500 companies globally. [17]

Grammarly is one of the most valuable technology companies in Ukraine with a valuation of \$13 billion. Founded in 2009, it employs artificial intelligence to assist more than 30 million users worldwide with their writing every day. The company had a huge investment in 2021 of \$200 million, which would subsequently strengthen its offering as well as broaden its reach across more than 50 markets.

GitLab: Valued at \$11 billion, GitLab offers a complete DevOps platform that serves millions of users around the world, including some of the largest corporations like NASA and Goldman Sachs. Launched in Ukraine, GitLab has raised over \$286 million before its IPO, placing itself at the forefront of collaborative software development. [15]

People.ai: This AI-powered sales optimization platform raised over \$100 million in funding, achieving unicorn status with a valuation exceeding \$1 billion. It has gained a significant foothold in the U.S. market, exemplifying how Ukrainian startups can excel globally. [16]

Reface: Reface, an AI-based face-swapping software, has over 270 million users worldwide. Its success demonstrates Ukrainian entrepreneurs' creative skills in using AI for entertainment and customization. The app has received cash to enter new areas and enhance its feature set. [17]

Emerging Startups Penetrating Global Markets.

BetterMe provides an abundance of online assets related to health. The platform had a workout library of over 3,000 workout plans, offering employees wellness programs for its clients across the globe. The startup has now raised \$7 million in its initial fundraising and is seeing new-market growth in North America and Europe. [18]

Liki24: The health-tech startup has recently expanded its operations to Poland, Romania, and Italy, featuring a consolidated pharmacy delivery ecosystem. Liki24 has raised over USD 10 million in investment funds, thereby democratizing healthcare access across Europe. [18]

Esper Bionics: This company creates AI-based bionic prosthetics such as the "Esper Hand," a revolutionary prosthesis. It garnered \$5.2 million in 2024 to expand operations, demonstrating a high capability in Ukraine's med-tech. [18]

Focus on Export Markets: Over 70% of Ukrainian entrepreneurs pursue foreign markets, with Europe and the United States providing the most income. Many firms, such as Monobank and Preply, have grown their presence internationally, utilizing partnerships and local market experience. [19]

Diverse Specializations: Ukrainian startups are excelling in fintech, med-tech, AI, and consumer applications, enabling them to attract global attention and investment.

One such ecosystem supporting new projects is the Diia.City initiative and the Ukrainian Startup Fund, which constitute tax benefits, mentorship, and funding perks for budding start-ups to speed their establishment or entry into foreign markets. [16]

The success of Ukrainian companies like Grammarly, GitLab, and Reface, alongside innovative startups such as BetterMe and Esper Bionics, highlights Ukraine's global potential. With a focus on international markets, government support, and a skilled workforce, Ukraine's digital ecosystem is poised for significant growth. Addressing challenges like venture capital access and infrastructure gaps will unlock even greater opportunities for global influence and development.

2.3 Role of Outsourcing and Product Development in Service Exports.

IT outsourcing is another pillar of Ukraine's digital economy. It has remained a constant revenue generator despite geopolitical concerns. By 2023, outsourcing services would have contributed 6.7 billion dollars or 60 percent of total IT export revenues. This demonstrated the industry's main role in sustaining foreign currency inflows and making Ukraine a competitive outsourcing destination worldwide. [20]

Expanding Global Reach and Clientele.

North America (40%): A significant percentage of outsourcing partnerships stem from Fortune 500 clients like Google, Microsoft, and Oracle, who rely on Ukraine for cost-efficient, high-quality development services.

Western Europe (20%): Countries like Germany and the U.K. utilize Ukrainian expertise for software development, cloud solutions, and cybersecurity enhancements.

Emerging Markets (5–7%): Ukraine is increasingly targeting markets in Southeast Asia and the Middle East, which are showing strong demand for high-quality, affordable IT services. Ukrainian firms are particularly expanding into regions such as India, China, and the UAE, where there is rapid digital transformation and growing demand for IT outsourcing. [21]

Rest of the World (28-30%): This category includes smaller but growing markets in Eastern Europe, Latin America, and Africa. These regions are increasingly outsourcing software development and IT consulting services to Ukraine due to

competitive pricing and high-quality solutions.

Workforce Productivity and Economic Impact

Ukraine's competitive advantage in the global IT outsourcing market is supported by a strong labor force and favorable economic factors:

Skilled Labor Pool: The country has 300,000+ IT professionals and 15,000+ STEM graduates annually, supported by a robust educational infrastructure and government initiatives aimed at expanding digital literacy. [22]

Cost Efficiency: With hourly rates ranging from \$25 to \$40, Ukrainian developers provide considerable cost savings as compared to their peers in North America and Western Europe (\$70 to \$150). This cost advantage, along with strong productivity, guarantees that Ukrainian enterprises can effectively compete with other outsourcing destinations, such as India and the Philippines.

Economic Contribution: The outsourcing sector directly contributes 4.4% of Ukraine's GDP, highlighting its critical role in sustaining foreign currency inflows and maintaining economic stability

Resilience Amid Geopolitical Challenges

Though the backdrop of continuous geopolitical tension in Ukraine, the resilience of the country's IT outsourcing industry demonstrates an admirable strength of adaptation, progress in operations, and strategic positioning in the international market. Though the sector has faced turmoil, it has withstood a lot of instability and growth as well as continues to play an essential component in the overall global tech supply chain.

Client Retention and Business Continuity

Ukraine's IT firms have demonstrated extraordinary resilience by managing to retain 96% of their contracts throughout the conflict, [22] despite physical and operational challenges. The sector's ability to maintain such a high retention rate is largely attributed to the following:

Client loyalty and pliancy: In reply to their characteristic reputation for high-grade service and effectiveness, Ukrainian IT companies have kept international customers on their toes. Many global firms kept mentioning continued confidence in their Ukrainian partner's reliability even in times of crisis. The Ukrainian IT service

provider had the ability to adjust very quickly with changing developments, securing loyalty from both old and new markets.

Technological and strategic adaptability: Companies responded quickly to the changing geopolitical scenario by introducing remote work rules and migrating to cloud-based technologies, ensuring smooth service delivery independent of physical office space availability. Firms like SoftServe and Miratech were able to continue operations with minimum disruption by using modern project management and communication capabilities.

According to Statista, [20] this adaptability in service continuity has reinforced the perception of Ukrainian outsourcing companies as resilient and reliable, maintaining consistent operational excellence in the face of adversity.

Emerging Technologies and Market Expansion

AI and SaaS: AI-driven products like Grammarly and People.ai represent Ukraine's growing dominance in the global SaaS market, providing innovative solutions that scale efficiently across international markets.

Green Technology: With the global push for sustainability, Delfast and other green tech startups are positioning Ukraine as a competitive player in the electric vehicle and renewable energy sectors. Delfast has raised \$3.4 million in funding to expand its electric bike production.

Med-Tech and IoT: Companies like Esper Bionics and Petcube are leveraging Ukraine's technological expertise to develop world-class medical and IoT products, expanding into rapidly growing global markets.

Cybersecurity Measures and Business Continuity

The adoption of robust cybersecurity measures became a critical part of ensuring business continuity, particularly as cyber threats intensified during the conflict. Ukrainian IT firms enhanced their digital security frameworks to safeguard data, mitigate risks, and maintain clients' confidence:

Data Protection and Compliance: Firms adhered to international standards such as ISO 27001, GDPR, and HIPAA, ensuring their ability to provide secure, compliant services to global clients. This adherence to global data protection norms further strengthened their position as trusted service providers. [22]

CERT-UA Monitoring: Ukraine’s Cybersecurity Emergency Response Team (CERT-UA) played a crucial role in monitoring threats and responding to emerging cyberattacks, helping firms mitigate potential security breaches during the conflict

Table 2.2 – Statistical and Economic Insights

Metric	Outsourcing	Product Development
Revenue Contribution (2023)	\$6.7 billion (60% of IT exports)	\$3.2 billion (40% of IT exports)
Workforce Allocation	70% of IT professionals involved in outsourcing	16% of IT professionals focused on proprietary product development
Primary Markets	U.S. (40%), U.K. (10%), Germany (5–7%), Israel, Japan	U.S., EU, Israel, Southeast Asia, Africa
Growth Rate	9.68% CAGR through 2029	High growth in AI, IoT, Med-Tech sectors
Average Hourly Rate (2023)	\$25–\$40 (Ukraine), compared to \$70–\$150 (U.S.) and \$80–\$115 (EU)	N/A (depends on product scale and industry sector)
Annual STEM Graduates	15,000+ annually, primarily from IT-related fields	N/A (Product development requires specific skills in AI, SaaS, Med-tech)
Total IT Workforce (2023)	300,000+ professionals, with high demand in outsourcing	Approximately 16% of total IT workforce focused on product development
Foreign Direct Investment (FDI)	\$1.5 billion in 2023, largely directed towards outsourcing and IT services	Increasingly allocated towards R&D and innovation-driven startups
Top Sectors in Outsourcing	Software Development (35%), IT Consulting (20%), Cloud Solutions (15%)	SaaS (35%), AI and Machine Learning (25%), Med-Tech (20%)
Annual R&D Investment	\$500 million+ by top firms like EPAM, SoftServe,	\$250 million+ in startups focused on AI and Med-tech
Contract Retention Rate	96% during geopolitical instability and conflict periods	N/A (Dependent on market and product scaling success)
Government Support Programs	Diia.City: Tax incentives, legal protection, funding for IT outsourcing	Diia.City, Ukrainian Startup Fund, Tech Talent Initiatives
Export Diversification Index	4.5 (indicating a high reliance on key Western markets)	2.5 (reflects early stages of diversification in emerging technologies)
Growth Projections (2024–2029)	Outsourcing expected to grow at a 9.68% CAGR	Product development, especially in AI and Med-tech, expected to grow at 11% CAGR

The importance of IT outsourcing to Ukraine's economy and its integration into the global digital economy is irreplaceable. The sector continues to contribute over 60% to the gross revenue of IT exports in 2023, an amount of \$6.7 billion. IT outsourcing is still the leading engine for economic growth in Ukraine technology- the ill fate of war notwithstanding. This resilience is also reflected in that, with the ongoing geopolitical instability, Ukrainian companies managed to achieve 96% retention of their client contracts- "operational agility, remote work, and cloud-based solutions".

Some of the key issues responsible for the country's emerging success as an outsourcing destination for IT services are tied to the mix of an educated and skilled labor force, cost advantages, and strategic geographical location to facilitate the distance-wise easy joint work with clients in North America and Europe. The number of professionals is over 300,000; the Ukrainian IT workers are specifically known for their high technical qualifications and strong work ethics. Ukraine's average hourly rates fall between \$25 and \$40, thereby making it competitive regarding quality-cost ratio compared to other outsourcing destinations like India and Eastern Europe.

Thus, IT outsourcing is going to be really important for the development of the Ukrainian technology economy. Yet its future will be in innovating and diversifying into product-based development. If it focuses on emerging technologies like AI, blockchain, and Med-Tech, Ukraine can establish itself as not just an outsourcing giant but also one of the leading innovators worldwide in this new global tech ecosystem. Continued investment in talent, infrastructure, and R&D will, therefore, be important for Ukraine in maintaining its competitive edge as a potential large contributor to global service exports over the years to come.

2.4 Technological Innovations and Specializations of Ukrainian Companies

Ukraine's technological landscape has made substantial progress in recent years, with a focus on AI, blockchain, cloud computing, and cybersecurity becoming central to its growth and international competitiveness.

AI and Machine Learning

Ukraine has established a remarkable progress in the field of artificial intelligence, quickly earning itself a rising place in the global tech space. The country, at the moment, has more than 240 AI companies or a fivefold increase in AI/ML specialists over the last ten years. Big names like Grammarly and Preply dragged the Ukrainian innovation to the world; thus, showcasing the country, scaling AI technology. The government embraced AI with built regulatory frameworks to stimulate innovation and secure safety and security.

In addition to that, the AI sector that has been developing in Ukraine will have the most rapid growth supported by strong government initiatives reforming education to further global collaboration with the industry to put Ukraine in a better position as one of the AI hub countries. [23]

Blockchain

However, there's often fertile ground in Ukraine as budding from block chain particularly in the financial and regulatory areas. the government is now trying to apply blockchain solution on a transparency purpose mostly in land registration and public administration, with one important initiative being a blockchain-supported land and realty register to reduce fraud and streamline the efficiency of the public sector. [24]

Ukraine really has also advanced into Web3 and cryptocurrency regulation fronts. The country recently published some of its most extensive legislation on cryptocurrency, clearly marking the shift toward adopting blockchain for financial operations and decentralized applications. Supported by groups like Blockchain4Ukraine, Ukrainian lawmakers are now actively pushing a national roadmap for Web3 development that highlights the use of blockchain as a means of reconstruction for the post-war country alongside the European Blockchain Partnership. [25]

Cloud Computing

Cloud computing is an integral part of the IT environment growing in Ukraine which uses cloud computing in a variety of different ways. The businesses of Ukraine are increasingly relying on cloud-based solutions since, due to the continued

operational challenges, such means allow offering scalable IT services with flexibility. Adoption of cloud computing gives businesses the possibility to best handle their data, improve cooperative work, and access new technologies. For local and global customers, the majority of Ukrainian firms use international cloud platforms such as: AWS, Google Cloud, and Microsoft Azure, thus impacting their local operation in international markets.

Game development as a burgeoning segment within the digital services sector.

The game development sector in Ukraine is a rapidly growing and dynamic part of the digital services market. Despite facing challenges from the ongoing geopolitical situation, the Ukrainian gaming industry has demonstrated remarkable resilience, with numerous companies making significant global strides.

Ukraine is home to over 200 game development companies and has become a vital player in the global gaming landscape. Notable studios such as GSC Game World, the creators of the highly anticipated game S.T.A.L.K.E.R. 2: Heart of Chernobyl, have put Ukraine on the map as a hub for game development. The success of such games, along with their impressive international sales, has cemented Ukraine's reputation for producing high-quality interactive entertainment

The Xbox Game Camp Ukraine, a new initiative launched by Microsoft, further underscores Ukraine's growing prominence in the global gaming market. This event aims to empower Ukrainian game creators, offering training and networking opportunities to elevate Ukrainian game development. Moreover, 4A Games, the studio behind the Metro series, and other contributors to major global titles like Overwatch, Diablo IV, and Call of Duty, continue to push the boundaries of interactive entertainment

Such a development is yet not promising in any aspect of game development because it is an emerging wing within the digital services sector of Ukraine, and only a few are reported to have made it really big. The game is world-class, with global sales figures indicating that it will certainly overshadow quite a number of global phenomena. This goes in line with the successful examples like S.T.A.L.K.E.R. 2. At its peak, projections for expenditure hits are reaching up to around \$1 billion within the first year after the expecting launch, making this title one of the biggest releases

in history into 2024. This represents the most significant moment for a developing country within the game industry, as it shows that a country from such comparatively poorer regions can compete globally.

Impact Both cultural and global S.T.A.L.K.E.R. 2 is not an achievement for the gaming arena alone; it has rather attained the status of a cultural event. The theme of the game includes aspects from the contemporary history of Ukraine, its culture, and the notorious Chernobyl disasters that molded the globe's perception of the country. This game confers to the tragedy-the immersive narrative-not only rethinks identity for the Ukraine on a world stage but also positions the country as the center of innovative cultural products.

The triumph of S.T.A.L.K.E.R. 2 speaks volume about the fact that a really good product could do wonders to the image of a country internationally. The global popularity of the game elevates the cultural prestige of Ukraine, signaling how effective digital storytelling can be in altering perceptions across the globe. In many ways, S.T.A.L.K.E.R. 2 as a cultural product displays the reality of Ukrainian cultures, which resonates strongly with players and critics worldwide.

Economic and Industry Growth

S.T.A.L.K.E.R. 2 would, to many, act as a catalyst for the growth of the creative industries in Ukraine. It may well be that such recognition abroad would, in addition, attract investment into the more extensive Ukrainian tech and gaming sectors, opening new avenues towards economic growth. It is all the more impressive given that it demonstrates the possibility of private-sector innovation in Ukraine. S.T.A.L.K.E.R. 2 shows the growth opportunities that lie in success without large-scale state support. This success mirrors that of many other countries such as Poland and Japan, where game development has played a major role in creating jobs and in economic growth.

Moreover, the ongoing dialogue between developers and players, coupled with the constant improvement of the game based on player feedback, enhances the trust and credibility of Ukrainian developers. This direct engagement not only strengthens the brand reputation but also fosters a loyal, global fan base. The success of S.T.A.L.K.E.R. 2 demonstrates the increasing ability of Ukrainian developers to

produce world-class content that resonates on a global scale.

Broader Implications for Ukrainian Culture and Tourism

In addition to the economic and technological benefits, S.T.A.L.K.E.R. 2 offers a potential boost to tourism and international relations. The game's representation of Chernobyl, combined with Ukraine's growing tech reputation, could lead to an increase in global interest in Ukraine's cultural and historical landmarks. The success of this game could serve as a springboard for other Ukrainian cultural products, attracting attention to the country's heritage and fostering international partnerships.

The expanding success of Ukraine's game production business demonstrates its ability to spur broader economic growth, attract investment, and improve the country's global image. With continuous investment in innovation and education, Ukraine's gaming sector is poised to remain a driving force in the country's digital economy.

3. BARRIERS AND DEVELOPMENT STRATEGIES FOR DIGITAL SERVICE EXPORTS FROM UKRAINE

3.1 Barriers to Development

Potential growth is bright in Ukraine's digital services export sector, but there are many challenges blocking its full bloom. Some issues that need to be tackled include geopolitical instability, infrastructure limitations, and regulatory challenges, as well as an exodus of talent within the country.

Geopolitical Instability.

The war in Ukraine remains the most significant obstacle to the growth of digital service exports. Ongoing military operations have led to substantial disruptions in infrastructure and security concerns, making it harder for Ukrainian firms to maintain stable operations and secure long-term contracts with foreign clients. The ongoing crisis has also contributed to a rise in talent migration, as skilled IT professionals leave the country for safety or better opportunities abroad. Although remote work and decentralized operations have allowed many companies to continue serving international clients, the unpredictable nature of the war deters some potential investors and clients.

While the sector managed to generate \$6.7 billion in 2023, its share of total service exports dropped from 45.3% in 2022 to 42% in 2023, further emphasizing the adverse impact of geopolitical instability. [26]

Infrastructure Challenges.

Ukraine has taken a substantial leap towards modernization of its digital infrastructure; however, much still needs to be accomplished. Ongoing hostilities have damaged critical infrastructure such as data centers and internet connectivity in some regions. While high-speed internet and other digital services are available in cities, rural areas experience a lack of connectivity affecting business expansion outside city limits. Investment in infrastructure and works will be necessary to ensure that digital services offered and expected continue to grow in Ukraine. [27]

Regulatory Hurdles and Taxation Issues.

The business atmosphere of Ukraine is difficult in spite of introducing new measures under Diia.City for easy navigation through governmental regulations and taxes. Most such companies are likely to come across really aggravating inconsistencies involving data privacy, taxation policies, and cross-border transactions, making them much less valuable for foreign clients. Furthermore, uncertainty, ambiguity, and a lack of uniformity in data protection and intellectual property create compliance risks for exporters of digital services, increasing their complexity and costs of doing business. Adding fuel to the fire are fragmented regulations controlling cross-border data flows that drastically limit the expansion and the ease with which these services can disburse on a global scale.

Talent Shortages.

Indeed, the Ukrainian IT sector is replete with a highly professional workforce, but the ongoing geopolitics has left it with an enormous talent shortage. Much of the talent has developed itself through mandatory mobilization or relocated outside the country in search of professional safety. This brain drain leaves the country with enormous challenges about the level of meeting demand as it rises for digital services. Talent outflow would create a limit on the ability of the industry to keep a good service standard unless appropriate policies for retention were introduced.

Global Competition.

Ukraine's digital service sector is already heavily competitive, as the main outsourcing destinations include India, the Philippines, as well as several Eastern-European countries. These countries charge lower labor costs and have established client bases, making competition really hard for Ukrainian companies to be differentiated based purely on prices. Thus, it makes sense for any Ukrainian company, or better still, raise the stakes with high-quality, specialized services-such as in AI development, cloud computing, or even cybersecurity-where Ukraine is increasingly excelling. Strengthening branding will be necessary here to counter global competition, as well.

3.2 Strategies for Overcoming Barriers and Fostering Growth

The digital export sector services of Ukraine face numerous challenges, such as geopolitical instability, migration of talents, infrastructure deficiencies, and regulatory complexity. A combination of strategic investments, policy reforms, and international partnerships will help overcome obstacles and support the sector's vibrant growth. This is a detailed analysis of strategies as per latest data and reports.

Strengthening Government Support and Policy Reform.

The Ukrainian government has made significant strides in improving the regulatory environment for digital services through initiatives like Diia.City, a flagship program that provides:

- Favorable tax conditions, such as reduced payroll taxes and exemptions on dividends.
- Simplified legal frameworks for tech companies, supporting intellectual property (IP) protection and data privacy compliance.
- Enhanced protections for intellectual property, ensuring secure global operations

A sure number of above 800 companies, as of 2024, joined Diia.City bringing not only their own local companies but also foreign-in-participants as Samsung or even Revolut to an innovative program for bringing forth Ukraine's competitiveness. Besides, the government promises to further ease regulatory restrictions by standardizing data protection laws in line with GDPR to allow smooth two-way data movement, especially across various borders, within sectors such as fintech and e-commerce. [28]

Recommendations for Policy Enhancements:

- Expand Diia.City to smaller towns and regions, increasing accessibility for startups and SMEs outside major tech hubs.
- Address remaining inconsistencies in tax policies to streamline cross-border transactions and reduce compliance costs for exporters.
- Strengthen bilateral agreements with major trading partners to ensure smoother

regulatory harmonization and facilitate entry into high-demand markets like North America, Western Europe, and Asia-Pacific

Investing in Digital Infrastructure

Robust digital infrastructure is essential for scaling Ukraine's digital services. Programs like the Digital Transformation Activity (DTA), backed by USAID and UK International Development, are driving improvements with a \$150 million investment in:

- Expanding high-speed broadband in rural areas to support IT-enabled businesses.
- Developing resilient cloud infrastructure to mitigate risks from geopolitical conflicts and cyberattacks.
- Streamlining export-related processes through digitization, enabling small and medium enterprises (SMEs) to integrate into global supply chains

Key Areas for Investment:

- Build data centers in Western Ukraine to decentralize critical operations away from conflict-affected zones.
- Establish public-private partnerships to co-fund digital infrastructure, ensuring sustainability and scalability.
- Continue post-war reconstruction efforts with a focus on green technology and energy-efficient data centers, enhancing the country's attractiveness for foreign investors

Addressing Talent Shortages and Retaining Skilled Professionals

There remains a considerable obstacle hindering growth, the outflow of IT professionals. It is more than 10% of professional IT workers leaving Ukraine during 2022-2023, notes IT Ukraine Association. This has added to the already existing labor shortage in the industry. Even as over 15,000 STEM graduates are churned out every looking year, one will have to state strong incentives for retention. [28]

Solutions to Talent Migration:

- Expand remote work policies and international collaboration to allow displaced professionals to remain engaged with Ukrainian firms from abroad.
- Strengthen Diia.City's talent incentives, including competitive salaries and

professional development programs.

- Launch national initiatives to promote digital literacy and upskilling programs to increase the availability of mid-level and senior IT professionals

Fostering Global Partnerships and Trade Relations

Expanding international networks is vital for Ukraine's integration into global value chains. Programs like the IT Arena and TechUkraine connect Ukrainian firms with global investors, enabling strategic partnerships in high-growth sectors like AI, MedTech, and cloud computing.

Enhancing International Collaboration:

Strengthen ties with EU digital markets through harmonization of tech standards and data-sharing protocols.

Partner with global organizations like USAID and the European Union to develop programs focused on boosting exports and improving compliance with global tech standards.

Encouraging Specialization and Innovation

Where Ukraine shines is its high-kinked, niche services applied to the realm of AI development, cyber-solutions, and applications in other blockchain goods. This way, specialization would help Ukrainian firms carve a niche outside of the usual outsource countries such as India and the Philippines.

Promoting Innovation:

- Increase government and private investments in R&D, with a focus on emerging fields such as AI, IoT, and MedTech.
- Launch national innovation hubs to encourage product-based entrepreneurship, leveraging successful examples like Grammarly and S.T.A.L.K.E.R. 2 as role models.
- Incentivize export diversification by promoting growth in non-traditional markets like Southeast Asia and Africa.

CONCLUSION

A sturdy lifeblood amply assured by the Ukrainian digital services sector in national economy and a renowned player on the global grounds of technology. The last decade has hardly brought anything less than the crest in the achievements of the sector—a certified skilled workforce, innovative companies, and government support initiatives. Ukraine has strong resistance, withstanding challenges in geopolitics and infrastructure, both defunct and running, that gave birth to great strengths that are now at pace with the world.

Contribution to the National Economy

During the year 2023, the contribution of digital services of Ukraine was more than \$7.34 billion of export revenues of the country that stood at nearly 42% of all service exports. This makes it one of the most significant sectors, especially at a time when geopolitical challenges motivate the country. With over 300,000 IT professionals employed in this area, most work at internationally famous companies such as Grammarly, GitLab, and EPAM. These companies not only earn quadrillion revenues but also bring Ukraine's international image of innovation and technological prowess. This part has its GDP contribution bringing along importance in stabilizing the national economy and moving ahead toward a knowledge-based economic model.

Innovation and Global Competitiveness

Niche market wins of Ukrainian companies, such as in artificial intelligence, cybersecurity, blockchain, and game development, are proofs of the industry's global competitiveness. Some flagship products include Grammarly and BetterMe, which have won the international market, while S.T.A.L.K.E.R. 2 already showed some promise in what mighty creative industries can do within the digital services ecosystem. Product-oriented innovation, together with traditional IT outsourcing services, would be the best advantage for tech companies in Ukraine to add real value to international clients.

Emergence technologies are speedily adapting the digital services sector in the country. Investment in AI, IoT, and MedTech has placed the country among the foremost in the world in terms of these emerging high-growth sectors. Not

surprisingly, Ukrainian companies have matched these developments with specialization in these formulating areas to enable them to rake in foreign direct investments while establishing stronger linkages with global players for a solid foundation towards long-term growth.

Challenges and Barriers

Despite these achievements, the sector continues to face critical barriers, including:

- **Geopolitical Instability:** The conflict has severely disrupted business operations, damaged important infrastructure, and caused talent migration. It poses huge risks to business continuity and investor confidence.
- **Infrastructure Deficiencies:** Limited access to reliable high-speed internet and damaged physical infrastructure hinder the expansion of digital services, especially in rural and conflict-affected areas.
- **Regulatory Complexity:** The inconsistent and fragmented nature of taxation and the data protection rules further enhance the compliance costs of businesses, critically restricting their global competitiveness.
- **Migration of Talent:** The "brain drain" due to geopolitical turbulence and better opportunities abroad adds fuel to the fire of talent shortages, which is a threat to that sector and its growth potential.

Government and Private-Sector Initiatives

Ukrainian governments have initiated various projects to address the issues. The most interesting, most beneficial being Diia.City, has made provisions for offering tax incentives, easing regulations, and providing legal safety nets for tech companies which has already attracted more than 800 firms without much convincing themselves that it can really happen. Besides, there are collaboration efforts with international organizations like the Digital Transformation Activity (funded by USAID and UK Dev), which is mostly focused on infrastructural improvements and enhanced digital literacy towards making the businesses more transparent. These projects help position Ukraine even more as a place to consider when planning to attract foreign investments.

The private sector has made a great contribution to driving innovation and

extending international outreach. It has established partnerships with multinational companies and thus partakes in international technology fairs, such as IT Arena, to create a bigger visibility for Ukrainian digital services internationally.

Future Prospects. At the moment, however, the future of Ukraine's digital services industry is brightening up. It is projected to grow by 9.5 percent a year during the period until 2030 due to sustained investments in R&D, talent growth, and infrastructure improvements. The nation is going to be at the forefront with Ukraine Digital Solutions by concentrating on high-end, specialized services. The formation of a collaborative ecosystem involving government, private sectors, and educational institutions will be critical for continued success in the sector.

Final Remarks. Conclusively, the Ukrainian digital services sector is an economy-wide sector in the nation which has shown resilience, innovation, and global competitiveness. If the sector works towards addressing the challenges inherited in the system as well as those classes of strength in its arsenal, fully unleashing its potential to contribute to the economic recovery of Ukraine and the world at large as a global digital powerhouse, it might also mean good news for Ukraine. Continued government support as well as active involvement by the private sector will position the digital services industry in the nation to grow in the rapidly changing global technology space.

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