

FACTORS OF THE ECONOMIC COMPETITIVENESS OF THE IT OUTSOURCING MARKET IN UKRAINE*

ФАКТОРИ ЕКОНОМІЧНОЇ КОНКУРЕНТОСПРОМОЖНОСТІ РИНКУ ІТ АУТСОРСИНГУ В УКРАЇНІ

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The study carried out a bibliometric analysis of publications in Scopus regarding the IT outsourcing market in 2014–2023. The dynamics of publication activity and citations were determined, and the TOP-5 most cited publications and TOP-50 popular keywords were analyzed. The factors of the economic competitiveness of the IT outsourcing market in Ukraine were determined and analyzed, in particular: labour force, cost efficiency, government support, variety of services, location, cultural similarity, English language proficiency, and sustainability of companies. The main challenges to developing the IT outsourcing market in Ukraine are identified, in particular: difficulty in finding a foreign customer, possible blackouts, providing a protected workplace and banning the mobility of specialists abroad.

Key words: IT outsourcing, market, pricing, competitiveness, digitalization.

Вивчення факторів конкурентоспроможності ринку ІТ-аутсорсингу є важливим і актуальним, оскільки це допомагає компаніям-замовникам приймати об'єктивні рішення, підвищувати ефективність, знижувати витрати та ризики, а також покращувати якість наданих та отриманих послуг. Прогнозується, що до 2028 р. розмір світового ринку ІТ-аутсорсингу зросте до 2,32 млрд дол США. У 2023 році сімнадцять ІТ-аутсорсингових компаній України досягли найвищого рейтингу найбільших аутсорсингових компаній світу. В дослідженні за допомогою інструменту SciVal було проведено бібліометричний аналіз 165 публікацій щодо ринку ІТ аутсорсингу, які індексуються базою даних Scopus в 2014–2023 рр. Визначено, що динаміка публікаційної активності та цитування у 2014–2023 рр. є спадною. Найбільшу кількість публікацій було опубліковано у 2015 р., а найбільшу кількість цитувань публікацій отримано у 2016 р. Визначено ТОП-5 найцитованіших публікацій щодо розвитку ринку ІТ аутсорсингу. Перше місце займає стаття, опублікована у 2016 р. з 188 цитуваннями, а п'яте місце – стаття, опублікована у 2014 р. з 93 цитуваннями. Встановлено ТОП-50 найчастіше згадуваних ключових слів, які зустрічаються у досліджуваному масиві публікацій щодо розвитку ринку ІТ аутсорсингу. Найбільш популярним є термін «outsourcing», який зустрічається у 92 із 165 публікацій. Визначено та проаналізовано фактори економічної конкурентоспроможності ринку ІТ аутсорсингу в Україні, зокрема: робочу силу, ефективність витрат, підтримку уряду, різноманіття сервісів, місцерозташування, схожість культури, володіння англійською мовою, стійкість компаній. Проаналізовано медіанні та середні заробітні плати ІТ-фахівців аутсорсингових компаній України. Медіанна заробітна плата ІТ-фахівців коливається від 800 до 5000 дол США, а середня заробітна плата розробників програмного забезпечення знаходиться в межах 1000–4425 дол США. Визначено головні виклики розвитку ринку ІТ аутсорсингу в Україні, зокрема: складність в пошуках іноземного замовника, можливі блекаути, надання захищеного робочого місця і заборона мобільності фахівців закордон. Встановлено, що облаштування робочих місць залишається важливим фактором для ринку ІТ аутсорсингу від початку пандемії COVID-19 і до тепер.

Ключові слова: ІТ аутсорсинг, ринок, ціноутворення, конкурентоспроможність, цифровізація.

Formulation of the problem. In recent years, Ukraine has established itself as a competitive IT outsourcing hub. It has built a reputation for delivering top-notch software development solutions at competitive rates. Despite all external circumstances of the war that began in February 2022, the Ukrainian IT sector continues to grow. According to Statista [1], the growth forecast for the IT outsourcing market in Ukraine is 16.74% (CAGR 2023-2028). In 2028, the market size will be 2.32 billion US dollars (Fig. 1). The Ukrainian IT outsourcing market has demonstrated resilience and will reach revenues of \$1.07 billion in 2023. This is 35.44% more than in 2022.

In 2023, seventeen IT outsourcing companies in Ukraine reached the highest rating of the world's largest outsourcing companies. The International

Association of Outsourcing Professionals (IAOP) included them in its annual ranking of the leading outsourcing companies, “100 Global Outsourcing Companies of 2023” [2]. This fact demonstrates the country's capabilities in providing high-quality services to international clients and confirms its competitive position in the global outsourcing market.

Analysis of recent research and publications. Based on data retrieved from the Scopus database, we have conducted a bibliometric analysis of the publication performance on IT outsourcing. The search request was “IT outsourcing”. It was found 1,525 publications from 1992 to 2024. For analysis of recent publications, a period was limited to the last 10 years (2014–2023), which resulted in 532 publications. Subject areas were limited to

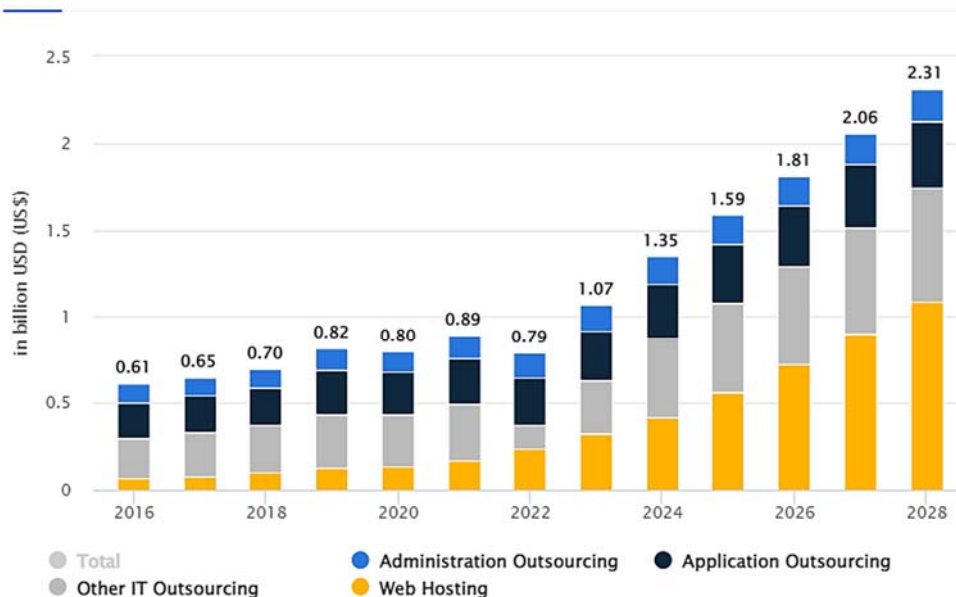
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REVENUE



Notes: Data shown is using current exchange rates and reflects market impacts of the Russia-Ukraine war.

Figure 1. Dynamic of the IT outsourcing market

Source: [1]

"Business, Management and Accounting" and "Economics, Econometrics and Finance", which resulted in 248 publications. The source type was limited to "Journal" and the language to "English". The final data sample included 165 documents that were analysed in SciVal.

Fig. 2 presents an analysis of the publication activity in IT outsourcing in 2014–2023. We can oversee the descendent trend with a maximum of scholarly outcomes in 2015 (22 articles) and 2019/2020 (19 articles), and a minimum in 2018 (14 articles) and 2022 (8 articles). The total number of publications has decreased twice from 2015 (22 articles) to 2023 (11 articles).

Fig. 3 represents a dynamic of citations received by publications in IT outsourcing in 2014–2023. The total number of citations is 2,764. The maximum number of citations was received in 2016 (767), and the minimum number was in 2023 (27). The number of citations did not exceed 300 in 2015, 2017–2022, although it had the second highest value in 2014 (587).

Table 1 shows the top 5 most cited publications in IT outsourcing by number of citations. The publication "Determinant factors of cloud-sourcing decisions: Reflecting on the IT outsourcing literature in the era of cloud computing" is the first most cited article, with 188 citations and 12.9 of a filed-weighted citation impact. The article provides valuable insights into the

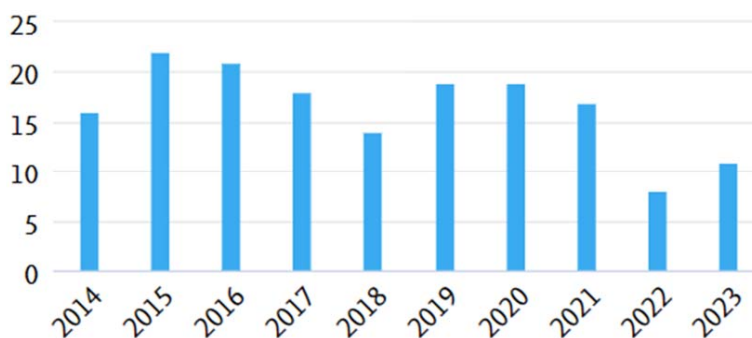


Figure 2. Dynamic of the publication activity in IT outsourcing in 2014–2023

Source: compiled by authors based on SciVal

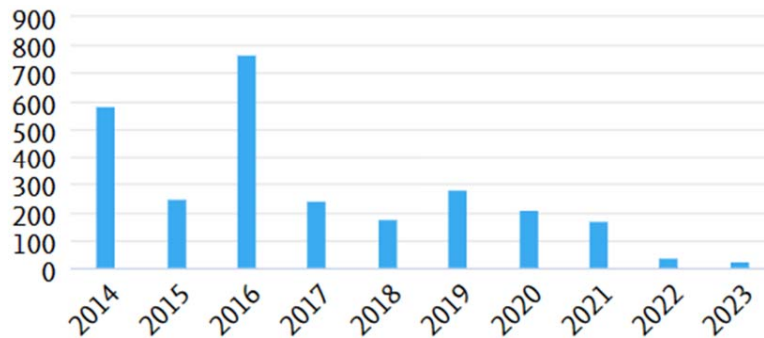


Figure 3. Dynamic of citations in 2014–2023

Source: compiled by authors based on SciVal

Table 1

Top 5 most cited publications in IT outsourcing in 2014–2023 in Scopus

Publication	Citations	Field-Weighted Citation Impact
Determinant factors of cloud-sourcing decisions: Reflecting on the IT outsourcing literature in the era of cloud computing. Schneider, S., Sunyaev, A. (2016) <i>Journal of Information Technology</i> , 31 (1), pp. 1–31.	188	12.9
Firm-level outsourcing decision making: A balanced scorecard-based analytic network process model. Tjader, Y., May, J.H., Shang, J. and 2 more (2014) <i>International Journal of Production Economics</i> , 147 (C), pp. 614–623.	117	8.53
IT outsourcing research from 1992 to 2013: A literature review based on main path analysis. Liang, H., Wang, J.-J., Xue, Y. and 1 more (2016) <i>Information and Management</i> , 53 (2), pp. 227–251.	103	4.16
The impact of IT outsourcing on information systems success. Gorla, N., Somers, T.M. (2014) <i>Information and Management</i> , 51 (3), pp. 320–335.	99	4.13
Knowledge transfer and utilization in IT outsourcing partnerships: A preliminary model of antecedents and outcomes. Teo, T.S.H., Bhattacharjee, A. (2014) <i>Information and Management</i> , 51 (2), pp. 177–186.	93	4.54

Source: compiled by authors using SciVal

factors driving cloud-sourcing decisions, reflecting on the evolution of IT outsourcing in the era of cloud computing. It is foundational for understanding the complexities and strategic considerations of adopting cloud-based solutions [3]. A publication obtains the second seat, "Firm-level outsourcing decision making: A balanced scorecard-based analytic network process model". It received 117 citations and has a value of the filed-weighted citation impact of 8.53. This research presents a comprehensive model for outsourcing decisions at the firm level. It integrates the balanced scorecard (BSC) and analytic network process (ANP) methodologies to provide a structured approach for qualitative and quantitative factors. This model aids in evaluating potential outsourcing options by considering various perspectives such as financial, customer, internal business processes, and learning and growth. The study demonstrates how this hybrid model can enhance decision-making processes by providing a more holistic and balanced view of

outsourcing impacts, ultimately helping firms to make more informed and strategic outsourcing decisions [4]. The publication "IT outsourcing research from 1992 to 2013: A literature review based on main path analysis" takes the third seat with 103 citations and 4.16 of a filed-weighted citation impact. The article offers a comprehensive review of IT outsourcing literature over two decades using main path analysis to identify key research trends and developments. The study maps out the evolution of IT outsourcing research, highlighting influential papers and core themes, such as cost reduction, strategic alignment, and risk management. By analyzing citation networks, the authors uncover the primary research trajectories and pivotal contributions that have shaped the field. This literature review provides valuable insights into the progression of IT outsourcing research, helping scholars understand past trends and identify future research directions [5]. The fourth and fifth seats are taken by publications "The impact of IT outsourcing

on information systems success” [6] and “Knowledge transfer and utilization in IT outsourcing partnerships: A preliminary model of antecedents and outcomes” [7] received 99 and 93 citations, respectively.

Fig. 4 displays the 50 most popular keywords that occurred in 165 publications examined. “Outsourcing” is the keyword that occurred the most, with a 16.7% scholarly output growth in 2014-2023. This keyword appeared 92 times in the data sample. The second seat is taken by “Information Technology”, with a 14.3% scholarly output growth for ten years and 81 occurrences. “Case Study” is the third most common keyword, with a 200% scholarly output growth and 24 occurrences. “Contract law” and “Industry” have shared fourth place with zero scholarly output growth and a 50% decline in scholarly output, respectively, with 23 occurrences. The fifth place is taken by “Information System” with 14 occurrences.

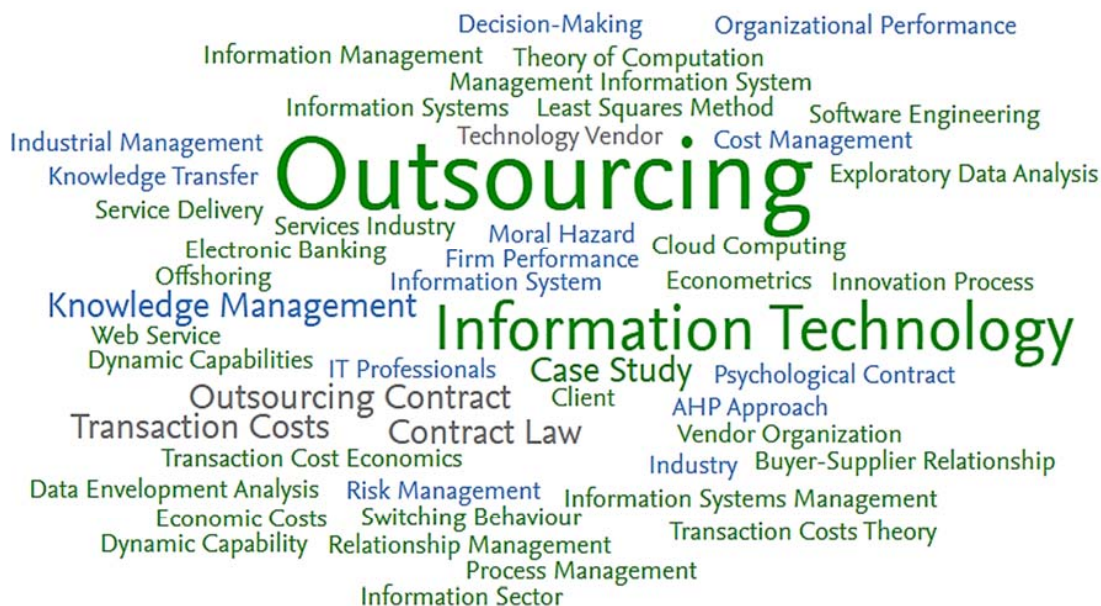
Highlighting previously unresolved parts of the general problem and formulating the goals of the article. This research aims to cover a gap in the analysis of factors of the economic competitiveness of the IT outsourcing market in Ukraine, as well as its challenges due to the war.

Presentation of the primary research material. Ukraine is home to approximately 2.300 IT companies [8]. Only 2% of Ukrainian IT companies faced closure because of the conflict. Remarkably, 85% of developers in Ukraine have successfully maintained full-time employment despite the ongoing war [9]. The

leading exporter of Ukrainian IT services is the United States, with 40.4% revenue from IT exports in the first quarter of 2023. The TOP five exporters include the UK, Malta, Israel, and Switzerland [10]. In 2023, export revenue of IT services increased by 5.85% and brought in \$7.3 billion. In 2023, 77% of Ukrainian IT companies welcomed new clients. GitLab and Grammarly, two Ukrainian-born companies, have achieved unicorn status, valued at over \$1 billion.

Searching for specialists for specific projects takes a long time, and time these days is money. Companies have long used outstaffing for software development, testing, quality assurance, and IT consulting to save resources and optimise business processes. Outsourcing is the optimal solution for creating a development team or supplementing an existing team by delegating services to third-party vendors without risks and the need to expand staff. Outsourcing to Ukraine has advantages as follows:

Skilled workforce. Ukrainian developers have an excellent reputation. They are highly professional, available 24/7, and known for their expertise and commitment to projects. Ukraine has strong schools and universities with good technical education, which provides a large pool of highly skilled software developers, engineers and IT professionals. Ukrainian developers' high level of knowledge remains a solid competitive advantage. It also indicates that Ukraine took 1st place in Science and Technology according to The Good Country Index [11].



Word cloud s

A A A relevance of keyphrase | declining A A A growing (2014-2023)

Figure 4. Top 50 key phrases by relevance, based on 165 publications

Source: compiled by authors using SciVal

Cost-effectiveness. Compared to Western European and North American countries, Ukraine offers cost advantages, maintaining high-quality work at lower labour costs.

Table 2 summarises the hourly rate range commonly observed in various regions, as per the information provided in the 2023 Global Software Outsourcing Trends and Rates Guide [12]:

Table 2

Analysis of the hourly rate range in regions

REGION	HOURLY RATE, USD
North America	\$62 to \$209
Latin America	\$34 to \$96
Central and Eastern Europe	\$26 to \$95
South Asia	\$24 to \$71
Southeast Asia	\$18 to \$70

Source: compiled by authors based on [12]

Furthermore, in 2023, Statista [1] reported the following average costs per employee by segment in Ukraine: web hosting – \$16.73; application outsourcing – \$15.42; administration outsourcing – \$7.91; and other IT outsourcing – \$16.39 (Fig. 5).

A study of regional differences in average IT outsourcing costs highlights the cost-saving potential of outsourcing to Ukraine for small businesses and start-ups while providing access to top-notch skills.

Government support. The Ukrainian government has taken steps to support the growth of the IT industry. Initiatives include tax incentives and educational programs to develop IT skills.

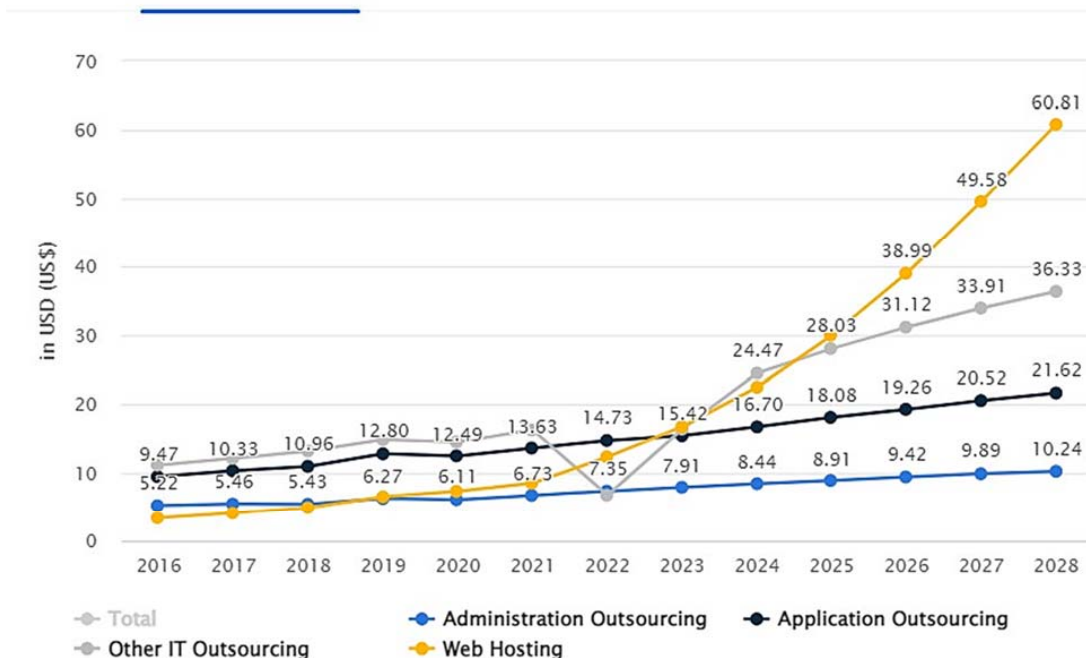
Diversity of services. Ukrainian IT companies offer various services, including software development, web development, mobile app development, quality assurance, and more. They also branch into cybersecurity, artificial intelligence, Big Data and blockchain. Ukraine's IT outsourcing industry serves clients from various sectors, including finance, healthcare, e-commerce, gaming, and technology.

Geolocation. Since the time zone of Ukraine is the Eastern European Standard (GMT+2). Thus, the time difference from the USA is 7–9 hours. It means that when a workday starts in the USA, an outsource team in Ukraine will have already made significant progress and completed updates. Moreover, the time difference from Europe is 1–2 hours. Thus, Ukraine shares time zones with many European countries, facilitating real-time communication and collaboration.

Cultural compatibility. Ukraine shares cultural similarities with Western countries. It has a similar work ethic, communication skills, and business etiquette, making it an ideal outsourcing place.

Language Proficiency of Ukrainian IT specialists. Ukrainian software engineers usually have an

AVERAGE SPEND PER EMPLOYEE BY SEGMENT



Notes: Data shown is using current exchange rates and reflects market impacts of the Russia-Ukraine war.

Figure 5. Average spending per employer by segment

Source: [1]

intermediate and upper-intermediate level of English. Many of them worked with clients from English-speaking countries due to the export orientation of the Ukrainian IT sector.

Sustainability of Ukrainian IT Outsourcing. Ukrainian IT companies quickly adapted to the challenges posed by the invasion. Most of them relocate the staff to the Western part of Ukraine or abroad and organize remote work when necessary. A year later, the industry's exceptional resilience is evident as it continues to operate almost at total capacity, being the crucial export sector in Ukraine to operate effectively during wartime. Gartner highlights the strong potential of Ukraine's IT and recommends global customers to cooperate with Ukrainian IT companies even in the context of the ongoing conflict.

IT labour market. In the world of technology, talent is the most asset. IT Ukraine Association [14] gives vital numbers and trends concerning the current situation in Ukraine:

- Total IT Specialists. There are 362.9 thousand IT specialists in Ukraine.
- Entrepreneurs vs. Employees. There are 299.8 thousand individual entrepreneurs and 63.1 thousand hired employees.
- Military Service. For now, up to 3,500 people are booked by IT companies. Another 5 thousand IT specialists serve in the Armed Forces.
- Outsourcing Dominance. Approximately 40% of IT specialists work in outsourcing.
- Gender Diversity. The representation of women in the IT sector is on the rise. Women are expected to comprise 28% of all individual entrepreneurs in 2023 [14].

Analysis of job market insights. According to the Ukrainian job search site for IT specialists Djinni, the number of applicants for vacancies has doubled [15]. In the summer of 2023, the most prominent IT community of Ukraine, "Developers of Ukraine", conducted a survey among Ukrainian IT specialists regarding salaries by specialization [16]. Table 3 represents the median salaries, and Table 4 shows the average salaries for IT specialists in outsourcing companies in Ukraine. These arguments highlight the economic benefits of choosing Ukraine as a destination for outsourcing quality IT services and strengthening the competitiveness of the Ukrainian IT outsourcing market.

However, there are *challenges* in the Ukrainian and the Global IT outsourcing markets. Accelerance [12] noted that the disruptions caused by the 2022 war had a profound impact on Ukraine and the global technology market, especially in IT outsourcing. Ukrainian IT companies survived last year extremely stably. They systematically work with risks and are ready for most of them. IT outsourcing companies effectively meet customer demands by prioritizing

the satisfaction of their current clientele. Since COVID-19, the remote format has dominated the work of the IT sector. Last winter, when the power went out, many employees returned to their offices and worked from there. Many developers work remotely today, but they can come to their offices at any time, prepared for potential winter risks.

Table 3

Median salaries for IT specialists

Specialization	Senior SE, USD	Middle SE, USD	Junior SE, USD
Backend development	\$ 5000	\$ 2800	\$ 1000
Mobile development	\$ 4900	\$ 2550	\$ 1000
Frontend development	\$ 4750	\$ 2500	\$ 950
Full Stack development	\$ 4750	\$ 2475	\$ 980
Others	\$ 4550	\$ 2300	\$ 800

Source: compiled by authors based on [16]

Table 4

Average salaries for IT specialists in outsourcing companies in Ukraine

Position	Salary
Junior Software Engineer	\$ 1000
Middle Software Engineer	\$ 2500
Senior Software Engineer	\$ 4425

Source: compiled by authors based on [16]

However, there are still notable challenges when considering developers from Ukraine:

- Difficulties in negotiating with new clients since it is difficult for management to obtain permission to travel abroad temporarily.
- Threats of blackouts.
- There is a need to ensure safe working conditions for specialists.
- Restrictions on employee mobility across borders.

Arranging workspaces is another crucial factor in the IT outsourcing market in Ukraine.

Remote conditions. The Ukrainian IT industry has spent two years adapting to the demands of the COVID-19 pandemic. IT professionals are armed with power backup solutions such as accumulators, EcoFlow, batteries and Starlinks for uninterrupted operation. IT staff can choose where it is more comfortable to work: at home, in the office, or a mixed format. At the same time, IT specialists regulate their working hours, recording them in the corporate reporting system.

Safety Measures. IT companies have invested in office infrastructure, including safe shelters,

generators, alternative communication channels, and provisions for water and food supplies.

Successful relocation. IT companies managed to quickly help their employees move to safe regions of Ukraine and abroad. They opened additional offices in Lviv, Vinnytsia, Ivano-Frankivsk, and Zakarpattia Region.

However, Kyiv has already surpassed Lviv in median developer salaries: \$3750 compared to \$3725. As more experienced specialists often left the capital with the onset of the full-scale war, this could indicate a gradual return of IT professionals to Kyiv. These measures ensure that remote and on-site work environments are resilient and support high productivity.

Conclusion. Despite challenging circumstances, the Ukrainian IT sector has consistently demonstrated its resilience. The IT outsourcing industry continues to grow and adapt to changing circumstances.

A large pool of highly qualified specialists, a variety of IT technologies and competitive pricing models make outsourcing to Ukraine in demand, so it remains an attractive outsourcing destination for businesses worldwide. The commitment to quality and customer satisfaction makes Ukrainian IT outsourcing a reliable partner to companies seeking qualified, cost-effective IT solutions.

REFERENCES:

1. IT outsourcing – Ukraine. Statista Market Forecast. 2024. Available at: <https://www.statista.com/outlook/tmo/it-services/it-outsourcing/ukraine#revenue>
2. 100 Global outsourcing companies of 2023. IAOP. 2024. Available at: <https://www.iaop.org/Content/19/165/5657>
3. S. Schneider, A. Sunyaev. Determinant factors of cloud-sourcing decisions: Reflecting on the IT outsourcing literature in the era of cloud computing. *Journal of Information Technology*, 2016. Vol. 31. No. 1. P. 1–31. DOI: <https://doi.org/10.1057/jit.2014.25>
4. Tjader Y., May J.H., Shang J., Vargas L.G., Gao N. Firm-level outsourcing decision making: A balanced scorecard-based analytic network process model. *International Journal of Production Economics*. 2014. Vol. 147. No. C. P. 614–623. DOI: <https://doi.org/10.1016/j.ijpe.2013.04.017>
5. Liang H., Wang J.-J., Xue Y., Cui X. IT outsourcing research from 1992 to 2013: A literature review based on main path analysis. *Information and Management*, 2016. Vol. 53. No. 2. P. 227–251. DOI: <https://doi.org/10.1016/j.im.2015.10.001>
6. Gorla, N., Somers, T.M. The impact of IT outsourcing on information systems success. *Information and Management*, 2014. Vol. 51. No. 3. P. 320–335. DOI: <https://doi.org/10.1016/j.im.2013.12.002>
7. Teo, T. S. H., Bhattacharjee, A. Knowledge transfer and utilization in IT outsourcing partnerships: A preliminary model of antecedents and outcomes. *Information and Management*, 2014. Vol. 51. No. 2. P. 177–186. DOI: <https://doi.org/10.1016/j.im.2013.12.001>
8. Digital transformation of Ukraine's economy during the war. 2023. National Institute for Strategic Studies. Available at: <https://niss.gov.ua/news/komentari-ekspertiv/tsyfrova-transformatsiya-ekonomiky-ukrayiny-v-umovakh-vyiny-veresen-2023>
9. Atlas Sequoia's guide to Europe's technical talent. June 2023. Sequoia. Available at: <https://www.sequoiacap.com/wp-content/uploads/sites/6/2023/06/Sequoia-Atlas-Final.pdf>
10. Gaidai, Y., Landa, V., Samoiliuk, M., Tomilina, M. Ukrainian Economy in 2023: Key figures. 11 January 2024. Centre for Economic Strategy. Available at: <https://ces.org.ua/en/ukrainian-economy-in-2023-key-figures/>
11. The Good Country Index. 2024. Available at: <https://www.goodcountry.org/index/results#UKR>
12. 2023 Global Software Outsourcing Trends and Rates Guide. 2023. Accelerance. Available at: <https://www.accelerance.com/hubfs/2023%20Accelerance%20Software%20Outsourcing%20Trends%20Rates%20Guide%20vFinal.pdf>
13. Market Guide for Ukrainian Information Technology. 2024. Gartner. Available at: <https://www.gartner.com/en/documents/4344699>
14. Incredible Tech: Investors Guide to Ukrainian IT. 2023. IT Ukraine Association. Available at: <https://itukraine.org.ua/files/ITIGUIT.pdf>
15. Djinni. 2024. Available at: <https://djinni.co/>
16. Ippolitova, I. Salaries of Ukrainian developers – summer 2023. 2023. DOU. Available at: <https://dou.ua/lenta/articles/salary-report-devs-summer-2023/>