DOI: http://doi.org/10.31617/1.2026(165)09
UDC 339.13:338.46:[004.4:316.3=111

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TRANSFORMATION OF THE SOFTWARE DEVELOPMENT SERVICES MARKET IN SOCIETY 5.0

The research is due to the structural transformation of the global software development services market, caused by the explosive growth of investments in digital technologies, AI (GenAI) and the shift in demand from the production of abstract IT programs to the requirements of fast, measurable ROI in the context of systemic crises, global imbalances and structural and functional changes in the markets of digital products and services. For the Ukrainian software and digital technologies market, the relevance is increasing in the context of the implementation of the principles of society 5.0, which is determined by global digitalization, the shortage of qualified human resources (Senior experts), and the need to integrate the requirements of the EU AI Act into service contracts and digital products. It is hypothesized that stabilizing the operating margin of service providers is possible through a strategic reorientation of management focus on productized GenAI-offers with a short ROI cycle (4-12 weeks) and priority investments in Data/AI-engineering with increased regulatory compliance of activities. To diagnose the market conditions for software development services, a

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ТРАНСФОРМАЦІЯ РИНКУ ПОСЛУГ З РОЗРОБКИ ПРОГРАМНОГО ЗАБЕЗПЕЧЕННЯ У СУСПІЛЬСТВІ 5.0

Дослідження зумовлено структурною трансформацією світового ринку послуг з розробки ПЗ, спричиненою вибуховим зростанням інвестицій у цифрові технології, ШІ (GenAI) та зміщенням попиту від виробництва абстрактних ІТ-програм до вимог швидкого, вимірюваного ROI в умовах системних криз, глобальних диспропорцій та структурно-функціональних змін ринків цифрових продуктів і послуг. Для українського ринку програмного забезпечення та цифрових технологій актуальність посилюється у контексті імплементації принципів суспільства 5.0, що визначається глобальною цифровізацією, дефіцитом кваліфікованого людського ресурсу (Senior-фахівців) та необхідністю інтеграції вимог EU AI Act у сервісні контракти та цифрові продукти. Висунуто гіпотезу, що стабілізація операційної маржинальності постачальників послуг можлива через стратегічну переорієнтацію фокусу менеджменту на продуктизовані GenAI-пропозиції з коротким циклом ROI (4–12 тижнів) та пріоритетні інвестиції у Data/AI-інженерію з посиленням регуляторного комплаєнсу діяльності. Для діагностики кон'юнктури ринку послуг з розробки ПЗ застосовано комплексний

comprehensive system analysis, corporate benchmarking (Gartner, EPAM), and regional competitiveness analysis (CEE, LATAM) were used. The projected growth of global IT spending to 5.43 trillion. USD dictates the concentration of strategic management decisions on the business processes "finance" and "retail". The results confirm that optimal strategies require a focus on ROI cases and systematic investment in the competencies of IT personnel.

Keywords: software (software), artificial intelligence (AI), service market, market conditions, cloud technologies, projects, project management, digitalization, digital technologies, competitiveness, innovation, Society 5.0..

JEL Classification: L86; C52; M21; O33; F42.

системний аналіз, корпоративний бенчмаркінг (Gartner, EPAM) та регіональний аналіз конкурентоспроможності (CEE, LATAM). Прогнозоване зростання глобальних IT-витрат до 5.43 трлн дол. США диктує концентрацію стратегічних управлінських рішень на бізнес-процесах "фінанси" та "ритейл". Результати підтверджують, що оптимальні стратегії вимагають фокусу на ROI-кейсах та системного інвестування в компетенції IT-персоналу.

Ключові слова: програмне забезпечення (ПЗ), штучний інтелект (ШІ), ринок послуг, кон'юнктура ринку, хмарні технології, проєкти, менеджмент проєктів, цифровізація, цифрові технології, конкурентоспроможність, інновації, суспільство 5.0.

Introduction

The research is due to the structural transformation of the global market for software development services, caused by the explosive growth of investments in digital technologies, artificial intelligence (AI), and the shift in demand from the production of abstract IT programs to the requirements of a fast, measurable ROI (Return on Investment) in the context of systemic crises, global imbalances, and structural and functional changes in the markets of digital products and services. For the Ukrainian software and digital technology market, the relevance is increasing in the context of the implementation of the principles of society 5.0, which is determined by global digitalization, the shortage of qualified human resources (Senior experts), and the need to integrate the requirements of the EU AI Act (2024, June 13) into service contracts and digital products.

Stabilization of operating margins for service providers is possible through a strategic reorientation of management focus on productized GenAI offerings with a short ROI cycle (4–12 weeks) and priority investments in data and AI engineering, along with increased regulatory compliance. The global software development services market is undergoing a profound transformation caused by the explosive growth of the scale of digitalization, the production volumes of digital services and products, investments in AI, especially in generative AI (GenAI) and machine learning operations (MLOps), as well as the implementation of the principles and foundations of Society 5.0 – from the information industry to a human-centered digital society (Fonseca and Palomes, 2026, January 15). Despite the projected growth in global IT spending, digital service and product providers are facing a critical shift in customer expectations: from abstract transformation programs to the demand for rapid, measurable results (ROI). The relevance of the research is enhanced by the complexity of the situation in the Ukrainian IT market, which, while demonstrating the resilience of IT production and IT exports, faces a shortage of highly qualified Senior

specialists and the need to quickly adapt to new international regulatory requirements, in particular the European AI Act (EU AI Act, 2024, June 13).

Thus, the problem lies in the need for a comprehensive analysis and forecasting of market dynamics, monitoring of conditions and factors that determine its situation in the conditions of society 5.0, which will allow software suppliers to develop optimal development strategies, solve issues of effective positioning, choose competitive pricing models and justify the feasibility of investments in technological competencies of IT personnel (Data/AI engineering) to stabilize margins.

A critical analysis of theoretical and applied research in the field of digitalization and development of the IT services and products market indicates a scientific interest in the issues of IT market development and monitoring of factors and conditions that determine its trends and development strategies. In particular, the analysis focused on identifying global trends (AI-adoption, regulation, costs), substantiating AI as the main driver of economic growth was carried out in the works of Gartner (2025, July 15), Craig Hale (2025, July 16), GitHub (2024, October 29), at the same time, the researchers put forward a hypothesis about the possibility of a decrease in the competitiveness of Ukrainian IT companies due to a large-scale war; according to McKinsey analytical reports, AI ceases to be an experiment and becomes the main source of value creation for McKinsey business (2025). Monitoring of the global market and financial results of IT companies was carried out by EPAM (2025, August 7), Accenture (2025, June 20), and Globant (2025, May 15), which proved that the global demand for quality digital services and products is growing.

The issue of ensuring the stability of the IT market and the diagnosis of signs, conditions, and factors of its development, the problem of IT spending growth, and global stagnation is quite seriously worrying the markets. In the Ukrainian context, this is confirmed by the stagnation of IT export volumes, which in the first half of 2025 showed a minimal growth of only 0.1% (3.21 billion USD), stopping at the level of the previous year. Even though the industry provides almost half of all Ukrainian service exports (43%), its stability is under pressure due to unstable dynamics: the June figure of 526 million USD was one of the lowest for the year, which indicates the absence of a stable trend for recovery. Global stagnation is manifested in the reduction of demand in the largest markets, in the USA (a drop of 6.4%) and Israel (by 13.1%). This forces companies to work in conditions of strict cost optimization. Thus, the market faces a double challenge: the need to adapt to internal military risks and overcome the consequences of the global cooling of interest in technological outsourcing (Khandusenko, 2025, August 12; Pikalo, 2025, June 2; Zakhalov, 2025, July 31). The focus of scientific interest to ensure sustainable economic growth in the context of overcoming the consequences of global crises through the implementation of social transformations from Industry 4.0 to Society 5.0 was formed by Mazaraki et al. (2020). Diagnostics of Ukraine's competitive position in the global IT market are

provided by TECHVIFY (2025, February 7), Inno8world (2025, July 23), ScaleupAlly (2025, April 1), FullStack Labs (Jackson, 2025, October 1). The regulatory environment for the functioning of the IT market was analyzed by White & Case (Hickman et al., 2024, July 16).

The arguments presented allow us to state that currently in the scientific community there are no studies of the root causes and the impact of factors on the stagnation of the Ukrainian IT market (loss of qualified personnel, difficulties with sales in wartime, changes in the structure of customer demand); insufficient attention has been paid to the diagnosis of structural changes, in particular, the problem of reorientation of companies from classical outsourcing to AI, GenAI and other high-margin areas; no analysis of the impact of AI on the business models of companies and their development strategies has been carried out. Instead, the presented scientific discourse has formed a theoretical framework for interpreting the global trend of digitalization, and AI has been substantiated as a technological basis for building Society 5.0.

The existing scientific research also does not consider the peculiarities of the functioning of the Ukrainian IT market, which is focused on the outsourcing of IT products and risks remaining an "executor" rather than an "architect" of the global digital socio-economic society. The promising task of IT companies in the current conditions is to move from performing technical tasks to participating in the creation of comprehensive, human-oriented solutions that meet the principles of Society 5.0.

The aim of the research is to substantiate the theoretical and applied principles of forming an adaptive strategy for the development of IT service providers, based on the results of diagnostics of the global and national market situation, scenario modeling until 2027, and taking into account the transformational effects of the concept of Society 5.0.

To achieve the aim, the following tasks were formulated and solved:

- Diagnostics of the state and conditions of the software development services market at the global and national levels were carried out.
- Benchmarking of software development markets was carried out according to key indicators of the effectiveness of the functioning of IT markets by countries of the world.
- Scenario forecasting of the short-term strategy of a software development company until 2027 was substantiated.
- Strategic recommendations were developed for IT service providers in the context of the formation of Society 5.0, structural changes, and transformations.

The research is based on the hypothesis that the IT sector of Ukraine has a positive impact and is of strategic importance for the country’s economy; The strategic success of IT service providers in the conditions of Society 5.0 will be determined not so much by absolute export volumes, but

by their ability to transition from the category of "Outsourcing Performers" to the category of "Leading Suppliers" by forming their own product strategy, implementing AI technologies, integrating the principles of responsible AI into the business processes of companies, and flexibly adapting the business models of companies to the new market conditions of the global digital space.

The research methodology is based on a comprehensive analysis of data from primary sources, including statistical data from Gartner, McKinsey, and ISG Index; financial reports of leading IT companies (Accenture, EPAM, Globant); and official data from the NBU and IT Ukraine Association. The methods of strategic analysis, comparative benchmarking of software development markets, and scenario forecasting of market development were used.

The main part of the article is divided into three sections. The first reveals the current state and global market conditions of the software development services market, highlights the impact of the Society 5.0 concept and investments in artificial intelligence on the dynamics of global IT spending, and also diagnoses the level of resilience of the Ukrainian IT sector in the context of a systemic crisis. The second is devoted to comparative benchmarking of key global IT markets in terms of hourly rates, human resource potential, English language proficiency, and regulatory compliance, which allows us to determine Ukraine's competitive position in the regional dimension. The third section substantiates a scenario forecast of the development of the IT market until 2027 and develops strategic recommendations for service providers on adapting business models to the requirements of the EU AI Act, integrating MLOps, and using cloud marketplaces to increase operating margins.

1. Analysis of the software development services market

The global software development services market in 2025 is in a phase of sustained recovery after the correction of 2023–2024. According to Gartner (2025, July 15) (*Figure 1, 2*), global IT spending in 2025 should exceed USD 5.43 trillion (+7.9%), with the data center infrastructure segment remaining the growth leader – primarily due to the boom in artificial intelligence; at the same time, spending on application software is growing at double-digit rates. This directly fuels the demand for cloud modernization, building Data platforms, MLOps, and security by default. At the same time, leading analysts warn: generative artificial intelligence in large companies is moving from a peak of excessive attention to moderate expectations – some of the initiatives in 2024 did not bring the expected ROI, so budget decisions are being made more carefully and in relation to quickly measurable results (Craig Hale, 2025, July 16).

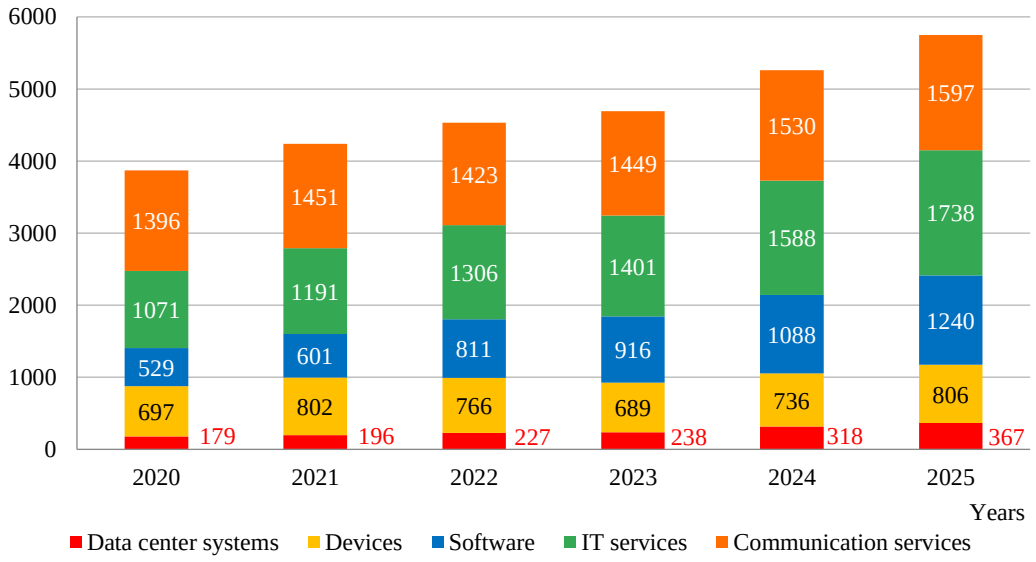

Figure 1. Global IT services spending, 2025,
in USD millions

Source: Compiled by the authors based on Gartner (2025, July 15).

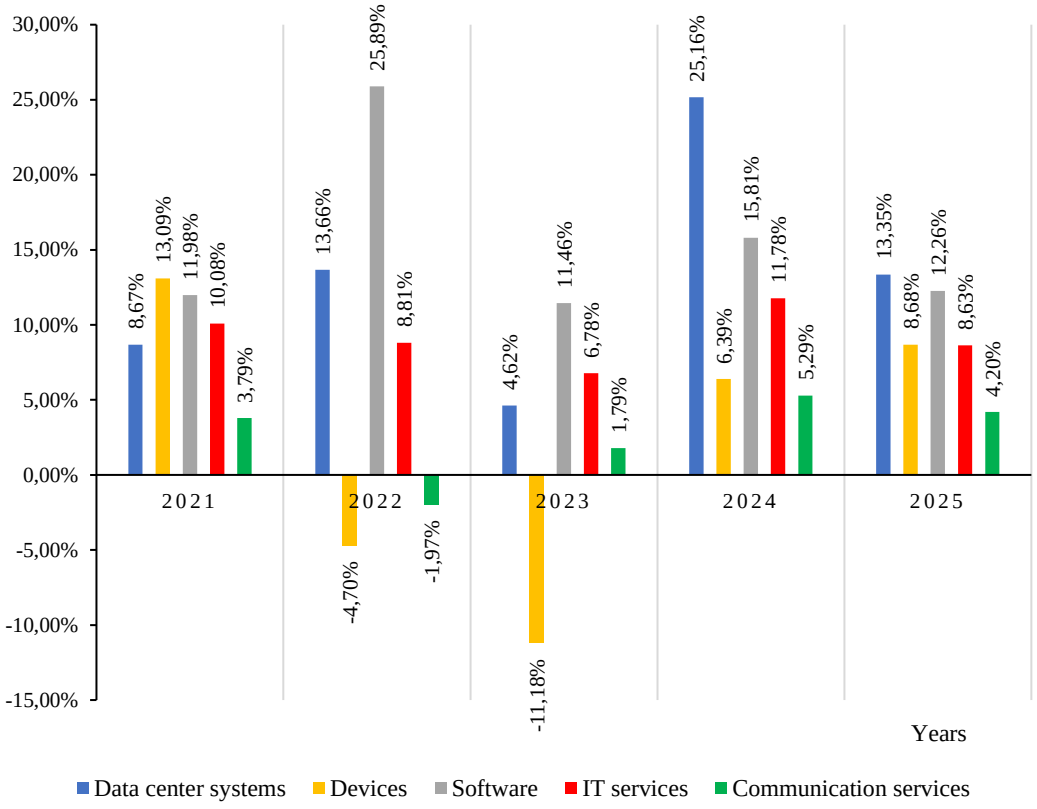

Figure 2. Level of IT service spending worldwide, 2025, %

Source: Compiled by the authors based on Gartner (2025, July 15).

Corporate benchmarks confirm the recovery of effective demand for engineering services with a clear trace of artificial intelligence. Accenture estimates USD 17.7 billion in revenue (+8%) from IT services in Q3 2025, of which USD 1.5 billion is for generative artificial intelligence projects (Accenture, 2025, June 20). Analysts directly point to a shift in client priorities towards implementations that accelerate productivity and reduce costs. Engineering and service players demonstrate a similar dynamic: EPAM increased revenue to USD 1.3 billion in the second half of 2025 (+18%) (EPAM, 2025). Globant (2025) recorded USD 0.6 billion in revenue in Q1 2025 (+7%). Collectively, these signals indicate that corporate customers are resuming medium and large-scale modernization programs with an emphasis on artificial intelligence components.

The Ukrainian market segment remains resilient despite high uncertainty (*Figure 3*, *4*). In the first half of 2025, IT services exports amounted to about USD 3.21 billion, which is 0.1% more annually than in 2024 (IT Ukraine Association, 2025, August 12; Handusenko, 2025, August 12). Monthly dynamics confirm a "flat" corridor with seasonal fluctuations: in April – USD 569 million (local peak of the year) with a seasonal decrease of -5% in subsequent months, which is explained by the dynamics of new contracts; the share of IT services in all services exports in the first half of 2025 increased to 43% (Pikalo, 2025, June 2; Zakhalov, 2025, July 31).

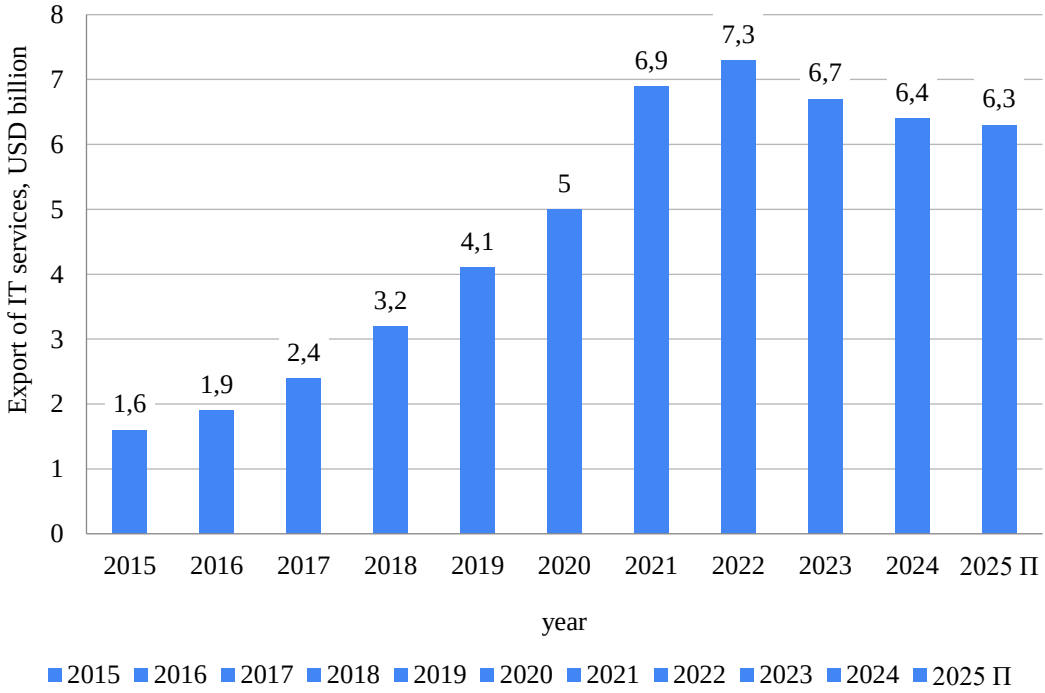

Figure 3. Dynamics of IT services exports from Ukraine, USD billion, 2015–2025

Source: Compiled by the authors based on NBU (2025, August).

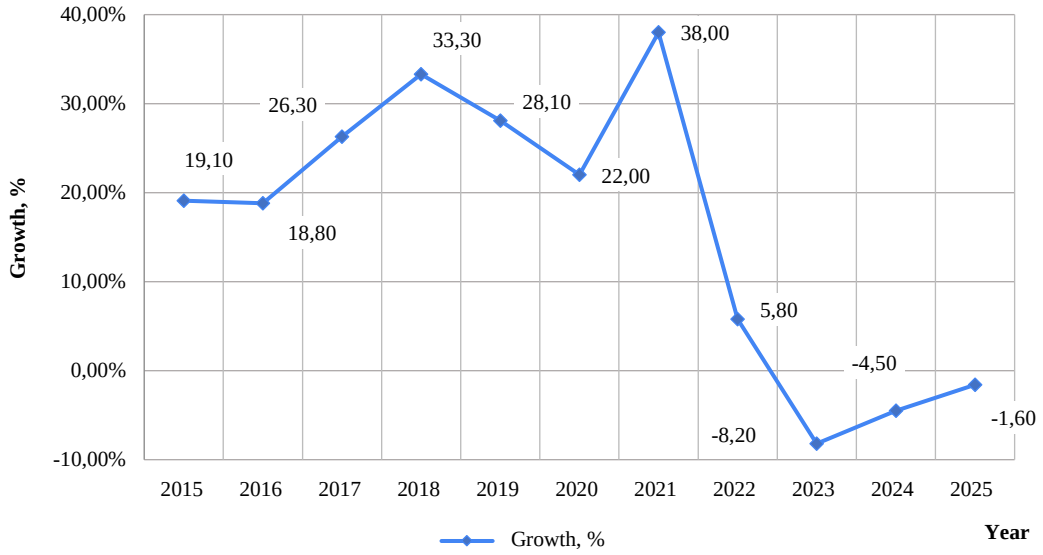

Figure 4. Dynamics of IT services exports from Ukraine, %, 2015–2025

Source: Compiled by the authors based on NBU (2025, August).

The demand structure in 2025 is more pragmatic and result oriented. The typical trajectory of deals – from a short Discovery to a Minimum Viable Product/Proof of Concept (MVP/PoC) with subsequent phased scaliresult-oriented reducing the risks of expectations mismatch and quickly recording the effect in the performance metrics of the software development life cycle (SDLC). Application scenarios of generative artificial intelligence (integration of the Large Language Model (LLM) (Federico et al., 2025, April 29) into internal services, knowledge automation), building and "landing" of Data-Foundation, MLOps/observability, and data and model protection come to the fore. According to McKinsey research, 78% of organizations are already using artificial intelligence in at least one business function; most often in IT, development, marketing, and sales, which correlates well with the growth of RFPs for data platforms and LLM tooling (McKinsey, 2025, March 19).

The labor market supply has stabilized, but "senior" roles in Data/ML, Platform/Cloud, DevSecOps (Development, Security, & Operations), and SRE (Site Reliability Engineering) remain scarce. Public salary cuts record the convergence of medians and a gradual normalization after the turbulence of 2022–2023. According to DO, the median for Middle-level developers is kept at around USD 2,500 "on hand", while in QA in the summer of 2025, the average payment increased to around USD 2,200. When interpreting these indicators, it is important to consider that DOU surveys reflect a cross-section of active IT market participants and are not official statistics but remain the most representative open source for quarterly dynamics (DOU, 2025, July 31).

The pricing environment in 2025 demonstrates a wide inter-regional range of rates, and this is what shapes the competitive niches of suppliers. According to specialized guides and benchmarks, the spread of hourly rates for teams and specialists ranges from approximately USD 20–50/h in some countries of the Asia-Pacific region (APAC) to USD 35–70/h in the Latin American region (LATAM) for mid-levels, while in Central and Eastern Europe (CEE) (in particular, in Ukraine, Poland, Romania) the "median" corridor for most roles lies in the range of USD 25–60/h, with higher values for Senior/Lead and for AI/LLM competencies (TECHVIFY, 2025, February 7; Inno8world, 2025, July 23). In Western Europe and North America, rates are significantly higher; for mid-sized and enterprise-class projects, US providers often operate in the range of approximately USD120–250/h and higher (ScaleupAlly, 2025, April 1; David Jackson, 2025, October 1).

The technology landscape highlights why AI competencies have become systemic. GitHub reports a 59% increase in contributions to AI projects and a 98% increase in new AI projects in 2024 (GitHub, 2024, October 29). These markers reflect the instrumentalization of AI in the daily practice of teams – from code generation and automated documentation to building Retrieval-Augmented Generation (RAG) architectures on top of vector knowledge bases.

The regulatory background in the EU significantly affects the requirements for service contracts and proposals. The European AI Act (EU) 2024/1689 (AI Act, 2024, June 13) entered into force in August 2024 and is being applied in stages: from February 2025, prohibited practices and AI literacy requirements will be in effect, from August 2025, the obligation for general-purpose models to comply with the Global Partnership on Artificial Intelligence (GPAI) will be in effect, while some of the requirements for high-risk systems will be implemented in 2026–2027 (Hickman et al., 2024, July 16). An analysis of the current state of the software development market in the world and Ukraine is summarized in *Table 1*.

Table 1

Strategic diagnosis of the software development market in Ukraine and worldwide as of 2025

Block	Indicator	Value	Description of impact
Global Market	Global IT Spending 2025	$5.4 trillion (+7.9% YoY)	Growth driven by data centers (AI infrastructure) and software; demand for modernization, data platforms, MLOps, and security
	Growth Segments 2025	Data Centers: +42% YoY; Software: +11% YoY (Gartner estimates)	AI servers and infrastructure drive CAPEX boom; Software sees double-digit growth driven by embedded AI
Corporate Benchmarks	Accenture (Q3 2025)	Revenue $17.7 billion (+8%); GenAI revenue $700 million in Q3 2025	AI orders peak; shift to measurable ROI cases; steady demand for AI-enabled digital engineering
	EPAM (Q2 2025)	Revenue $1.3 billion (+18%) in Q2 2025	
	Globant (Q1 2025)	Revenue $0.6 billion (+7%) in Q1 2025	

End of Table 1

Block	Indicator	Value	Description of impact
Market in Ukraine	IT Services Exports H1 2025	Revenue $3.2 billion in H1 2025; share in all services exports – 43%	AI orders peak; shift to measurable ROI cases; steady demand for AI-enabled digital engineering
	Salaries (Summer 2025)	Middle Software Engineer: $2,500 net; QA mid: $2,200 net	Normalization after 2022-2023; Data/ML, Cloud/Platform, DevSecOps, SRE shortfall
Technology Demand	Global Adoption of Artificial Intelligence (McKinsey Survey)	78% of organizations use AI in at least one business function	Most often, AI is used by organizations in IT and marketing-sales, fuels RFPs for Data platforms and LLM integrations
	Community Activity (GitHub Octoverse 2024)	+59% contributions to GenAI projects; +98% number of such projects; Python is the #1 language on GitHub	Confirms the instrumentalization of AI in the daily practice of teams
Prices and developers' labor rates	Hourly Rate Ranges (Estimated)	APAC regions: $20–45/hr; CEE: $45–70/hr; LATAM: 35-70 USD. US/h; NA: $120-$250. US/h	Wide interregional dispersion forms niches; a premium for LLM competencies
Regulatory field (EU)	AI Act – Implementation Stages and Penalties	Starting August 2024; Prohibited Practices February 2025; GPAI & Governance August 2025; High-Risk AI Systems August 2026; Fines up to €35 million or 7% of turnover	Increases requirements for transparency, data, and model documentation, security; affects contract terms and compliance
Stage of the GenAI cycle	Market Expectations	Moving from peak hype to "moderate expectations"	Some of the 2024 initiatives did not deliver the expected ROI; the priority was to quickly achieve measurable results

Source: compiled by the authors.

A combination of factors forms a cautiously optimistic forecast for 12–24 months. At the global level, investment cycles are recovering, but customers demand a quick materialization of the effect of AI productivity. In Ukraine, IT exports retain their endurance, moving in a narrow corridor. Growth is most likely to occur in niches where AI is an applied "module" of processes, in data platforms, and automation of service operations – if attention is paid to security and compliance issues.

It is most rational to build the focus of software development service providers where there is already tangible solvent demand. According to the International Data Corporation (IDC), in 2024, the three largest consumers of the public cloud – banking, software development, and retail – together provided about USD 190 billion in spending; in 2025, these verticals remain the "anchors" of demand. Geographically, North America and Europe remain the top priorities; however, the Middle East and North Africa (MENA) region is seeing acceleration, with IT spending growing by nearly 9% in 2025 and reaching USD 169 billion in 2026, according to Gartner; the fastest growth is in data center systems (estimated at +69% in 2025). This is directly fueling demand for core modernization, cloud analytics, and enhanced

security across finance, retail, manufacturing, and government across the EU and UK, as well as the Gulf Cooperation Council (GCC) region (UAE, Saudi Arabia).

The value proposition should directly reflect a rapid return on investment (ROI) against the backdrop of overall growth in IT budgets and cloud consumption. Gartner expects total IT spending to exceed USD 723 billion in 2025 (+21.5%). This means that customers are willing to pay for data platforms, MLOps, and built-in security with a measurable impact on a 4–12 week time horizon. "Discovery – MVP" trajectories with clear KPIs (such as Digital Operational Resilience Act (DORA), Mean Time to Repair (MTTR), Cost-To-Serve) and productized packages of the "Data Foundation in 8–10 weeks" or "MLOps-Ready in 6–8 weeks" level work best for this, replacing abstract "resource" sales with concrete business value.

Pricing and contract models should be linked to customer benefit and minimize friction in the procurement phase. For projects with high uncertainty, a Time and Materials (T&M) model with an upper "ceiling" is appropriate; for recurring tasks – Fixed-Fee model; for mature areas, elements of result-oriented agreements (bonus for achieving agreed metrics). Cloud marketplaces additionally accelerate the deal cycle: according to the Total Economic Impact assessment for AWS Marketplace, suppliers selling through the marketplace reduce procurement stages by 45%, speed up the sales cycle by approximately 40%, and increase the share of won deals by 27%.

Investments in competencies should reflect the real structure of demand. Today, 78% of organizations already use artificial intelligence in at least one function, and in the structure of global IT spending, data center systems are growing the fastest precisely because of the load of artificial intelligence.

Security certifications directly affect access to Enterprise tenders and compatible sales with hyperscalers. A public and up-to-date dossier of controls, policies, and audit trails significantly increases conversion at the Due Diligence stage and reduces the time spent by the client on inspections.

Partnerships with cloud vendors and independent software vendors (ISVs) have become an independent growth channel. According to Canalys, sales through hyperscale marketplaces will reach USD 45 billion in 2025 and USD 85 billion by 2025. USD 16 billion in 2028 (already doubled to USD 16 billion in 2023). According to 2025 surveys, 89% of companies are currently transacting in at least one marketplace, and 59% are seeing higher win-rates in co-sale deals – but without process discipline, these benefits are difficult to scale.

Accordingly, the optimal strategy for a software development service provider in 2025–2027 is to focus on verticals with the largest cloud budgets (banking, IT, retail) in the EU, the UK and North America with targeted initiatives in the Arabian Peninsula markets; a transition to productized offerings with a measurable effect in a 4–12 week horizon; contractual models that remove unnecessary procurement barriers; and systematic investments in Data/AI engineering and compliance.

Benchmarking analysis (*Table 2*) indicates that the Central and Eastern European region (Poland, Romania, Ukraine) currently provides the best balance of cost and capacity in IT markets. Typical rates for mid-level engineers here are in the range of approximately USD 45–70 (Poland: USD 50–70/h; Romania: USD 45–65/h; Ukraine: USD 45–65/h). The quality of communication is confirmed by the EF EPI index: Poland has 588 points, Romania has 593, and Ukraine has 535. According to the Corruption Perceptions Index (CPI 2024), Poland has 53 points (53rd place), Romania has 46 (65th), and Ukraine has 35 (105th), which correlates with the difference in regulatory risks. The Peace Index (GPI 2024) records relatively stable conditions in Poland (32nd place) and Romania (36th) and a high security risk in Ukraine (159th place). At the same time, this particular cluster has a high human (staff) development potential: approximately 400–650 thousand developers in Poland, 200–250 thousand in Romania and about 302–346 thousand IT employees in Ukraine; time zones conveniently overlap with the EU (7–9 common working hours) and partially with North America (1–4 hours). For compliance, it is important that Poland and Romania, as EU countries, are naturally compatible with the General Data Protection Regulation (GDPR), while Ukraine works through standard contractual mechanisms, such as the Data Processing Annex and Standard Contractual Clauses (SCC), DPA, and industry security standards.

Table 2

Benchmarking results for software development markets in key countries

Location	Typical rates, USD/hour (Middle)	*EF EPI* 2024 (score)	*CPI* 2024 (score/rank)	*GPI* 2024 (rank)	Estimated talent availability	Overlap hours with CET / ET	Compliance
Ukraine	45–65	535	35 / 105	159	302–346k in IT	7–8 h / 1–2 h	Non-EU; GDPR via SCC/contracts
Poland	50–70	588	53 / 53	32	400–650k developers	8–9 h / 3–4 h	EU; full GDPR compliance
Romania	45–65	593	46 / 65	36	200–250k developers	7–8 h / 2–3 h	EU; full GDPR compliance
Portugal	19-48	605	57 / 43	7	230k IT professionals	8–9 h / 4–5 h	EU; full GDPR compliance
India	18–30	490	38 / 96	116	15.4m IT professionals (GitHub)	1–2 h / 0–1 h	Non-EU; widespread ISO/IEC 27001
Vietnam	28–35	498	40 / 88	97-108	530–560k IT professionals	1–2 h / 0 h	Non-EU; active implementation of ISO 27001
Brazil	40–65	466	34 / 107	131	630k	3–5 h / 8–9 h	Non-EU; compliance via ontracts/SOC/ISO

Source: compiled and calculated by the authors.

Asian hubs vary significantly in profile. India offers the lowest rates among major locations (USD18–30/hr.; average USD 29.4) and the largest

talent pool in the world (estimated 15.4 million developers on GitHub), but has a more modest EF EPI[1] score (490), an average CPI score[2] (38; 96th place), and a lower overlap of working hours with Europe and the US. Vietnam maintains a price corridor of USD 28–35/h. (average USD 31.8), EF EPI: 498, and CPI: 40 (88th place), and is in the third quartile of the GPI[3] 2024 rating; at the same time, the market is growing rapidly and has about 530–560 thousand IT professionals. In both countries, security standards are typically confirmed through ISO/IEC 27001, which is an acceptable standard for most corporate procurement.

South America, in terms of benchmarking, is a compromise between cost and time zones for US customers. In Mexico, Brazil, and Argentina, typical rates for mid-level specialists are in the range of USD40–65/h, with Argentina having a relatively higher level of English proficiency (EF EPI: 562) compared to Mexico (464) and Brazil (466). The CPI/GPI risks are moderately higher here (e.g., Mexico – 26 points CPI and 138th place in GPI), but the talent pools are significant: Brazil alone is estimated to have around 630k developers. A key advantage is the large overlap with the ET time zone (8–9 shared hours), which reduces transaction costs for communication.

From a compliance perspective, the situation is relatively simple: in EU countries (Poland, Romania, Portugal), "Out-of-the-Box" within the framework of GDPR is in effect; outside the EU (Ukraine, India, Vietnam, South American countries), standard contractual instruments and security certifications are required. In addition, according to ISO Survey 2023, the number of ISO 27001 certificates in EU countries is growing significantly (for example, an additional 1.782 certificates in Poland, 3.184 in Romania, and 2.672 in Portugal per year), which simplifies admission to regulated tenders.

2. Strategic recommendations for IT service providers in the context of the formation of Society 5.0, structural changes, and transformations

Based on the analysis, a short-term forecast and development scenario for 6–12 and 12–24 months is presented. As of September 2025, the market for software development services for service providers is determined by three interrelated trends. First, the general acceleration of IT spending

[1] The EF English Proficiency Index is the world's largest annual ranking of countries and regions based on the English proficiency of adults, published by the education company EF (Education First). It serves as an important international standard, using data from the free EF SET test to assess average proficiency levels and compare nations, ranking them by proficiency level (from Very High to Very Low).

[2] The Corruption Perceptions Index (CPI) is an indicator that has been calculated by the international organization Transparency International since 1995.

[3] The Global Peace Index is a ranking of peaceful countries by the Institute for Economics and Peace.

continues; second, budgets are noticeably redistributed in favor of cloud solutions and cybersecurity; third, expectations from the "revolutionary" nature of artificial intelligence projects are leveling off to more pragmatic ones. The scenario framework is formed by expectations of market dynamics (according to Gartner, total IT spending in 2025 is expected to be USD 5.43 trillion (+7.9%), end-user spending on public cloud at USD 0.7 trillion (+21.5%), which directly supports the demand for data modernization, MLOps implementation, and security enhancement. Also, Gartner's forecast of information security spending growth to USD 213 billion in 2025 (from approximately USD 193 billion in 2024) effectively establishes the "mandatory" nature of cyber controls in contracts and tenders. The outsourcing channel confirms this picture with real orders. According to the Information Services Group Index (ISG Index), in Q3 2025, the "combined" market (Managed Services + Anything as a Service (XaaS) grew in actual monetary value (ACV – Actual Cash Value) by 17% to USD 29.2 billion. The driver was cloud XaaS models (+28%), while Managed Services added only +2%. In Europe, over the same period, the combined market grew by 14%, but a decline of 4% was recorded in managed services, indicating caution with long transformation programs and the preference for shorter work waves.

The results of leading integrators confirm the recovery of demand, albeit uneven: Accenture in Q3 2025 had USD 17.7 billion in revenue and USD 19.7 billion in future contracts, of which $ 1.5 billion was for generative artificial intelligence. The market interprets these figures as normalization after the wave of pilots. EPAM in Q2 2025 grew by 18% to USD 1.3 billion, and Globant in Q1 2025 showed USD 0.6 billion in revenue (+7%) and an operating income margin of 8.2%, which is a guideline for "healthy" service margins.

The labor market, ahead of the conjuncture, demonstrates mixed dynamics. According to CompTIA, in June 2025, employers opened 455 thousand technical vacancies (about 47% of them were posted in June), while IT unemployment was held at around 2.8% – an annual low. At the same time, Indeed Hiring Lab records that ads for developers in the US remain 36% below the level of the beginning of 2020, which reflects a combination of cyclical factors and structural shifts (automation, artificial intelligence tools, normalization after the peak of 2021–2022). For IT product providers, this means demand for senior roles and platform competencies is increasing, and internal replacement of middle and junior positions at clients is recovering more slowly.

Another early indicator is the capital expenditure of hyperscalers. Alphabet/Google has raised its 2025 capital investment plan to approximately USD 85 billion; Microsoft's quarterly capital investment is approaching $30 billion; Amazon is targeting $118 billion for the year, with Amazon Web Services (AWS) leading the way. Dell'Oro estimates that data center infrastructure spending in Q1 2025 grew 53% year-on-year. Such investment levels directly correlate with the flow of Request Proposals (RFPs) for cloud engineering, migrations, data platform building, and

security hardening. Over the 6–12-month forecast horizon (mid-2026), the baseline scenario assumes a stable or moderately growing flow of RFPs with a shift towards short MVPs/PoCs with clear KPIs. After strong ACV in Q2 2025 and weaker Managed Services in Europe, it is reasonable to expect a 0–10% increase in cloud/XaaS requests due to AI use cases and unchanged budgets for classic transformations. Rates in the CEE region are likely to remain flat with a possible increase of 0-3% (typical ranges according to Indexed: Poland USD 50-70/h., Romania USD 45–65/h, Ukraine USD 45–65/h), while prices in Asia remain the lowest. The expected workload of the teams is about 77–83% (working "norm"), gross and operating margins, without sharp changes, which is consistent with the benchmarks of public companies (Globant operating income margin: 9% for 2025; EPAM: 9% for 2025). With this configuration, the average margin of the portfolios is more likely to stabilize in the range of 1 bp with a gradual increase in the cloud component.

The optimistic scenario for 12–24 months (mid-2027) is based on three drivers: sustained growth in cloud spending, increased security budgets, and increased private capital in the AI and cybersecurity sector. The forecast for public clouds is USD 723.4 billion in 2025 (+21.5%), and cybersecurity is about USD 213 billion. According to ISG, the growth rate of XaaS is about 21%, and ACV in Q2 2025 set a historical maximum. On the venture investment side, according to Crunchbase, global financing is recorded at $91 billion in Q2 2025 (+11%), with deals dominated by the AI sector. In North America, AI startups raised USD 34.5 billion in Q2 2025, and cybersecurity attracted USD 9.4 billion in the first half of 2025. US dollars. In such a situation, the volume of RFPs may increase by 15–25%, rates increase by 5–8% in scarce competencies (Data/ML, Platform, Security), workload shifts to the range of 82–88%, and operating margin expands by 1–3 bp due to better workload and productized service packages.

A stress scenario is possible in the event of budget cooling or a wave of skepticism about the real ROI from projects in the artificial intelligence sector. The following signals are already noticeable: –4% in Managed Services in Europe in Q2. 2025, muted demand for technical vacancies on Indeed (–36% compared to the level of the beginning of 2020) and spot bookings at large integrators (for example, a decline of 6–7% year-on-year at Accenture in Q3 2025). In this case, RFPs fall by 10–20%, workload is reduced to 70–76%, and margins are compressed by 1–3 pp. This can be partially compensated for by cloud marketplaces and result-oriented models that reduce the procurement cycle and increase the probability of winning even in the "cool" phase of the market.

To avoid "blind" movement, it is advisable to maintain a regular panel of key indicators. An indicator of demand for services is the volume of RFP/ACV according to the ISG Index (globally and by region). For a quick sense of the labor market, it is worth monitoring the number of active vacancies in CompTIA reports (in June, about 455 thousand) and the Indeed Hiring Lab index trends (the software category is still -36% to the base).

The budget "ceiling" is set by Gartner estimates for the public cloud (USD 723.4 billion, +21.5%) and cybersecurity (USD 213 billion), and the "shoulder" of long programs is the capital expenditures of hyperscalers for 2025 (Google about USD 85 billion; Microsoft – USD 90 billion; Amazon USD 118 billion). An additional predictor is venturing capital investments: USD 91 billion of global financing in Q2. 2025, USD 34.5 billion for AI startups, and USD 6.5 billion for cybersecurity in North America in Q2 2025 – all of which indicate where the next corporate initiatives will come from. The analysis by strategy is summarized in *Table 3*.

Table 3

Scenario forecasting of the short-term development strategy of a software development company until 2027

Indicator	Current signal	Scenarios for 6–24 months		
		Basic	Optimistic	stressful
Demand (RFP/ACV, ISG)	Combined ACV Q2 2025: +17% year-on-year	0–10% growth (short MVP/PoC)	15–25% growth (scaling of artificial intelligence cases)	10–20% decline (pause in long programs)
Demand model (XaaS vs MS)	XaaS: +28% year-on-year; MS: +2% (EU: –4%)	XaaS dominates; MS recovers slowly	20%+ growth in XaaS; productized packages	Postponement of large MS; shift to marketplaces
Hourly rates (CEE region)	USD 45–70/hour	0–3% growth	5–8% growth	Decrease of 0–3%
Team workload, %	80	77–83	82–88	70–76
Presence of corporate culture in teams, value orientation, %	75	72–78	77–85	68–71
Portfolio operating margin	Benchmark for public companies: 9% in 2025	±1 bps	+1–3 bps	-1–3 bps
Cloud and security (budgets)	Public Cloud: USD 723.4 Billion; Cybersecurity: USD 213 Billion	Sustained Prioritization	Expanding "Default" Controls	Selective Cloud Pauses; Security Is Inertial

Source: compiled and calculated by the authors.

Therefore, until early 2026, it is worth focusing on the basic trajectory – moderate growth with a focus on short, measurable work with flexible rates. Over the horizon of 12–24 months, demand is likely to increase, thanks to the infrastructure wave of the AI cloud and a steady increase in cybersecurity budgets. In the event of a deterioration in the macro background or a decrease in the strategic potential of AI projects, the best response should be productized packages, marketplaces, sales channels, and result-oriented flexible business models that shorten the approval cycle and stabilize margins.

Conclusions

The current stage of global economic development is characterized by the formation of a new social and economic paradigm – Society 5.0, in which advanced technologies, in particular artificial intelligence (AI),

the Internet of Things (IoT), and robotics, are integrated into all sectors and industries of the economy to solve complex social and economic problems. The software development services market plays a key role in this transformation, acting as the main driver and tool for implementing the principles of Society 5.0. The global software development services market is in a phase of accelerated growth driven by investments in AI. The projected growth of IT spending to USD 5.43 trillion (+7.9%), together with the rapid expansion of the data center infrastructure segment (+42%) indicate the formation of a new wave of technological transformation, where AI is becoming the main driver of its development. The Ukrainian IT market maintains structural stability in the conditions of a systemic crisis and full-scale war. Despite the minimal growth in services exports (+0.1% in the first half of 2025), the share of the IT sector in total services exports reached 43%, which confirms the strategic importance of the industry for the country's economy.

There is a significant transformation of the demand structure in the context of the implementation of result-oriented models with an emphasis on rapid return on investment. The typical trajectory has become "Discovery – MVP/PoC – phased scaling" with clear KPIs, which allows minimizing risks and demonstrating a tangible effect in the planning horizon of 4–12 weeks. The competitive position of Ukrainian companies in the regional dimension of the global market remains stable. The range of rates of 45–65 USD/h for mid-level specialists is competitive, and the existing human potential of Ukraine (302–346 thousand specialists) and technological expertise allow maintaining market positions.

Regulatory changes, particularly the European AI Act, are forming new requirements for the quality of IT services and products (Alejandra, 2025, February 14). The gradual introduction of requirements for transparency, documentation, and security of AI systems creates additional barriers, but at the same time opens opportunities for companies that can adapt quickly. The most promising areas of strategic development for IT companies are productized offers in the field of cloud technologies, MLOps, and cybersecurity. The forecast of growth in spending on public cloud technologies in the world to USD 723 billion (+21.5%) and cybersecurity to USD 213 billion indicates the significant potential of these markets.

Scenario forecasting indicates stable development of the IT market in the medium term. The base scenario assumes a growth in demand of 0–10% with a focus on short MVP/PoC projects, while the optimistic scenario can provide an increase of 15–25% by scaling successful cases in the field of AI.

To achieve strategic success in the new conditions, Ukrainian IT service providers are recommended to focus on implementing the principles of Society 5.0, developing a product approach, deepening expertise in the field of AI and digital security, and intensifying work through cloud marketplaces to shorten sales cycles and increase competitiveness in the market.

The development of research on the transformation of the IT market in the Society 5.0 ecosystem along defined strategic directions will contribute to the improvement of existing methodologies, increasing the efficiency of technological innovations, and ensuring a flexible response to relevant feedback from the business environment:

- monitoring of regulatory impact: detailed study of the long-term consequences of the full implementation of the EU AI Act (2026–2027) on the operating models of Ukrainian service companies, in terms of compliance costs for high-risk AI systems;
- transformation of human capital: study of the dynamics of changes in the requirements for the competencies of IT specialists (Data/AI engineering, MLOps) and development of methodological approaches to adapting higher education educational programs to new market needs in conditions of a shortage of Senior specialists;
- evolution of business models: analysis of the effectiveness of the transition of Ukrainian IT companies from the classic outsourcing model to a "product-oriented" service and integration into global cloud marketplaces as a tool for stabilizing margins in the face of global stagnation;
- industry specification: in-depth analysis of the implementation of human-oriented technologies of Society 5.0 in specific verticals of the economy (finance, retail, healthcare), where the largest increase in IT spending and the most pronounced effect from the use of generative AI are expected;
- scenario adjustment: verification and refinement of the developed market development scenarios until 2027, considering the actual pace of recovery of global investment cycles and changes in the security situation in Ukraine.

Further development of these issues will allow for the formation of a stable scientific and practical basis for strengthening the competitive positions of the Ukrainian IT sector as the architect of the future digital, social, and economic society.

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Conflict of interest. The authors certify that they don't have no financial or non-financial interest in the subject matter or materials discussed in this manuscript; the authors have no association with state bodies, any organizations, or commercial entities having a financial interest in or financial conflict with the subject matter or research presented in the manuscript. Given that one of the authors is affiliated with the institution that publishes this journal, which may cause potential conflict or suspicion of bias, the final decision to publish this article (including the reviewers and editors) is made by the members of the Editorial Board who are not the employees of this institution.

The authors received no direct funding for this research.

Bosovska, M., & Pilyukov, A. (2026). Transformation of the software development services market in society 5.0. *Scientia fructuosa, 1*(165), 122–141. http://doi.org/10.31617/1.2026(165)09

Received by the editorial office 12.11.2025.
Accepted for printing 24.12.2025.
Published online 17.02.2026.