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IMPLEMENTATION OF IT PROJECTS AS A TOOL OF DIGITAL TRANSFORMATION OF SMALL AND MEDIUM-SIZED ENTERPRISES

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Hanechko I. H., Afanasyev K. M. Implementation of IT Projects As a Tool of Digital Transformation of Small and Medium-Sized Enterprises

The article is devoted to the study of implementation of IT projects as a tool for the digital transformation of small and medium-sized enterprises (SMEs) in Ukraine. The relevance of the study is determined by the opinion that the efficient implementation of IT projects is a key driver of SME adaptation to the requirements of the digital economy, enabling business process optimisation, scalability, and sustained competitiveness. The aim of the article is to substantiate the IT project as a key tool for the digital transformation of SMEs and to develop adaptive models for its management, taking into account the resource constraints of enterprises. Research methods were: analysis and synthesis of scientific sources, comparative and empirical data analysis. The study identifies and substantiates the main directions of digitalisation's impact on SME activity: reduction of administrative costs, expanded access to financing, enhanced competitiveness, and optimisation of staffing. Digital transformation of an enterprise is considered as a managed process of transition from traditional to digital business models, and the specificity of IT projects in SMEs is shown. The research results indicate the limited efficiency of classical large-business management methodologies for SMEs, determining the need to apply simplified and hybrid management approaches. A comparative analysis of SaaS solutions and custom development for SME IT projects showed that, for the majority of small-business IT projects, the choice of ready-made SaaS solutions is economically and managerially substantiated, whereas custom development for a medium-sized enterprise is warranted when the losses from adapting business processes to a standard SaaS solution exceed the budget and project risks of custom development. An uneven pattern of SME digital transformation was revealed: for basic digital indicators (internet access), the gap between small, medium, and large enterprises is virtually absent, whereas for complex corporate systems the gap widens, which is an indicator of insufficient project managerial capacity among enterprises. On this basis, typical barriers to IT project implementation in SMEs were systematised (resource-related, competence-related, organisational-psychological, and technological), and adapted management models were proposed: simplified Agile approaches, phased implementation, and prioritisation of ready-made SaaS solutions over custom development. The practical value of the results lies in their applicability for SME owners and managers to increase the likelihood of successfully completing digitalisation projects under resource constraints, as well as for public economic policy bodies to improve business digitalisation support programmes.

Keywords: *IT project; digital transformation; digital economy; small and medium-sized enterprises; project management; adaptive management models; optimisation; efficiency indicators.*
Fig.: *1.* ***Tabl.:*** *5.* ***Bibl.:*** *22.*

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Ганечко І. Г., Афанасьєв К. М. Реалізація ІТ-проєктів як інструмент цифрової трансформації малого та середнього бізнесу

Стаття присвячена дослідженню питань реалізації ІТ-проєктів як інструменту цифрової трансформації малого та середнього бізнесу (МСБ) в Україні. Актуальність дослідження зумовлена тим, що ефективна реалізація ІТ-проєктів є ключовим драйвером адаптації МСБ до вимог цифрової економіки, що дозволяє оптимізувати бізнес-процеси, масштабуватися та забезпечити тривалу конкурентоспроможність. Метою статті є обґрунтування ІТ-проєкту як ключового інструменту цифрової трансформації МСБ і розробка адаптивних моделей управління ним з урахуванням ресурсних обмежень підприємств. Методи дослідження: аналіз і синтез наукових джерел, порівняльний та емпіричний аналіз даних. У роботі визначено й обґрунтовано основні напрями впливу цифровізації на діяльність МСБ: скорочення адміністративних витрат, розширення доступу до фінансування, посилення конкурентоздатності та оптимізація кадрового забезпечення. Цифрова трансформація підприємства розглядається як керований процес переходу від традиційних до цифрових бізнес-моделей, показано специфіку ІТ-проєктів у МСБ. Результати дослідження свідчать про малоефективність класичних методик менеджменту великого бізнесу для МСБ, визначаючи потребу в застосуванні спрощених і гібридних управлінських підходів. Проведений порівняльний аналіз SaaS-рішень та індивідуальної розробки для ІТ-проєктів МСБ показав, що для більшості ІТ-проєктів малого бізнесу економічно й управлінськи обґрунтованим є вибір готових SaaS-рішень, тоді як індивідуальна розробка для середнього підприємства є виправданою у випадку, коли втрати від адаптації бізнес-процесів під стандартне SaaS-рішення перевищують бюджет і проєктні ризики custom-розробки. Виявлено нерівномірний характер цифрової трансформації МСБ: за базовими цифровими показниками (доступ до інтернету) розрив між малими, середніми та великими підприємствами практично відсутній, тоді як за складними корпоративними системами розрив зростає, що є індикатором недостатньої проєктної управлінської спроможності підприємств. На цій основі систематизовано типові бар'єри реалізації ІТ-проєктів у МСБ (ресурсні, компетентнісні, організаційно-психологічні, технологічні) та запропоновано адаптовані моделі управління: спрощені Agile-підходи, поетапне впровадження, пріоритет готових SaaS-рішень над індивідуальною розробкою. Практична цінність результатів

полягає в можливості їх використання власниками та керівниками МСБ для підвищення ймовірності успішного завершення проєктів цифровізації за обмежених ресурсів, а також органами державної економічної політики для вдосконалення програм підтримки цифровізації бізнесу.
Ключові слова: *IT-проєкт; цифрова трансформація; цифрова економіка; малий і середній бізнес; управління проєктами; адаптивні моделі управління; оптимізація; показники ефективності.*
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Digital transformation is now recognized as one of the key drivers of economic growth and business competitiveness, irrespective of firm size. For small and medium-sized enterprises (SMEs) operating in today's dynamic market environment, digital transformation makes it possible to automate routine operations, optimize costs, enhance labor productivity, and accelerate managerial decision-making. Moreover, the adoption of digital tools helps enterprises expand their markets, improve customer interaction, and adapt more flexibly to external challenges, thereby enhancing the resilience of small and medium-sized businesses under crisis conditions.

At the same time, for Ukrainian SMEs, which traditionally account for a substantial share of employment (over 80%) and of the country's GDP (more than two-thirds) [1], the resource capacity for the systemic implementation of digital technologies is considerably more limited than that of large businesses. Given the consequences of the full-scale invasion (infrastructure destruction, energy instability, workforce outflow, and limited access to financing), the digital transformation of SMEs affects not only business efficiency but also the economic resilience of the state.

The problem faced by domestic small and medium-sized enterprises lies not so much in the absence of technologies on the market or in entrepreneurs' fundamental unreadiness for digitalization, but rather in the inability of a significant proportion of SMEs to bring initiated digital implementation projects to a sustainable, completed outcome. The gap in the use of complex technological solutions (ERP, CRM, and BI systems) between small, medium-sized, and large enterprises is widening, whereas in terms of basic indicators (such as internet access) it is virtually absent. This indicates that the key barrier is not the technology itself but the manner of its implementation – that is, the quality of managing the digitalization process as a distinct, structured project.

At the same time, IT project management in Ukrainian SME practice largely remains informal: decisions on implementing digital solutions are made situationally, without a clear business case, risk assessment, or change management plan, and the role of project manager is often performed by the business owner without appropriate professional training. This creates a contradiction between the objective necessity of accelerated SME digitalization and the practical absence of IT project management models adapted to its resource constraints. This research area requires the development of a theoretical and methodological apparatus that combines project management theory with the issues of digital transformation specifically for the SME segment.

LITERATURE REVIEW AND ANALYSIS OF PRIOR RESEARCH

The issue of digital transformation of small and medium-sized businesses has been actively developed in recent years by both Ukrainian and foreign scholars. An analysis of existing publications shows that a significant proportion of studies is devoted to the macro-level assessment of countries' digitalization levels. Thus, V. Khaustova, Ye. Kryachko, and D. Bondarenko [2] systematize international indices and rankings (GCI, WDCI, IDI, NRI, EGDI, and others), demonstrating that Ukraine shows an average and sector-heterogeneous level of digital development. This study is valuable for shaping a methodology for assessing digitalization at the national level; however, it operates with aggregated country-level indices without accounting for firm size. The results of study [3] show that digital transformation has a positive effect on Ukraine's economy, in particular contributing to the growth of IT-service exports; the study notes that the development of information and communication technologies enables the modernization of various sectors of the economy.

The digital transformation of Ukrainian SMEs is addressed in the work of A. Borodina, O. Mohylevska, T. Pererva [4], which examines the potential application of blockchain technologies to enhance the transparency of SME business processes. O. Kazak and R. Didushok [5] study the digital transformation of small and medium-sized enterprises under martial law and propose a typology of adaptation strategies (reactive, adaptive, transformational), empirically confirming that transformational strategies enable enterprises to increase business activity compared to reactive ones. The article by A. Ozorovych and M. Matsola [6] focuses on the advantages of using hybrid digital infrastructure (the state platforms Diia/Diia.Business, cloud services, backup communication channels, and autonomous power supply) as a factor of business digital resilience under physical, cyber, and energy-related risks. All of these studies focus on the outcomes and strategic typologies of SME digital transformation, while the mechanism of its implementation – the IT project as a unit of managerial action – remains outside their scope.

The results of an analysis of digital transformation as a tool for effective project management in SME activity are presented in the article by O. Huk [7], which summarizes the components of an effective project system and substantiates the criteria for choosing between traditional and Agile approaches depending on the dynamics of the environment. Digital ecosystems (project management platforms, cloud technologies, ERP/CRM systems, automation tools) as a factor enhancing the transparency and coordination of project activity are examined by I. Kuzmuk [8], who simultaneously investigates the risks of digitalizing project management – cyber threats, technical dependency, and a shortage of staff digital competencies. The issue of the economic justification for enterprise modernization is addressed by O. Sklyarenko and P. Huk [9], who propose an economic-mathematical model for assessing the economic feasibility of enterprise modification, which serves as a useful tool for the preliminary assessment of the economic efficiency of IT projects.

Among foreign studies, a number of works deserve attention. D. Palade and C. Møller [10] proposed a guiding framework for SME digital transformation; P. Pfister and C. Lehmann [11] presented metrics for measuring the success of digital transformation using the example of German small and medium-sized enterprises (SMEs); K. F. Awonuga and co-authors [12] link the sustainable development of manufacturing SMEs to project management and contract acquisition ("capture management"); study [13] focuses on specific technological tools (in particular, the role of AI-CRM) as drivers of the transformation of entrepreneurial processes. These studies are based predominantly on the institutional context of developed economies or economies with intensive technology transfer (Germany, Nigeria, Bangladesh), which limits the direct applicability of their models to the activity of Ukrainian SMEs, which operate under the specific conditions of resource constraints and wartime challenges.

The review conducted allows us to conclude that the Ukrainian scholarly literature has thoroughly examined the macro-level measurement of digitalization, strategic typologies of SME adaptation to crisis conditions, and the general conceptual link between digitalization and project management. The foreign literature focuses on maturity models and performance metrics of SME digital transformation within a different institutional context. Despite the considerable attention devoted by scholars to digitalization issues, we consider it appropriate, using available empirical statistical data on specific technologies (ERP, CRM, BI) in Ukraine, to deepen the study of digitalization barriers differentiated by enterprise size, as well as of adapted IT project management models.

AIM AND RESEARCH QUESTIONS

The aim of the study is to substantiate the IT project as a key instrument of SME digital transformation and to develop adaptive models for its management that take into account the enterprise's resource constraints. In accordance with this aim, the study is based on the following research questions: to what extent is the digitalization gap between SMEs and large businesses driven by a lack of technology, and to what extent by insufficient project management capacity; and which IT project management models are adequate to the resource and competency constraints of small and medium-sized enterprises.

RESEARCH METHODS

The methodological basis of the study comprises the analysis and synthesis of scholarly sources, comparative analysis, and an empirical analysis of the dynamic series of state statistical observation. The information base was formed by data from the State Statistics Service of Ukraine (Form No. 1-ICT, "Use of Information and Communication Technologies at the Enterprise"), analytical materials from the Diia.Business ecosystem, and scholarly publications on the issues of digital transformation and project management.

RESULTS AND DISCUSSION

Since 2025, Ukraine has seen a noticeable consolidation of its status as a digital state: interaction between business and public authorities has shifted almost entirely to electronic format, and the state eco-

system for entrepreneurship support, Diia.Business, has transformed from a separate service into a comprehensive platform supporting business at all stages of its life cycle [14].

Particular attention is devoted to SME digitalization, whose strategic goal lies not only in improving the operational efficiency of an individual enterprise but also in creating a multiplier effect for the national economy as a whole: digitalization contributes to improving business models, increasing profitability, and creating new jobs at the micro level, while simultaneously stimulating, at the macro level, growth of gross domestic product, increased labor productivity, human capital development, and investment attraction [15].

A telling example of institutional support for SME digitalization in 2025 was the introduction of two interconnected tools within the Diia.Business ecosystem. The first is the Digital Solutions Marketplace, which provides small businesses with access to vetted suppliers of IT tools for automating accounting, logistics, and sales [16]. Among the solutions presented, it is worth noting an accounting module localized for the needs of Ukrainian business, built on the Odoo ERP system [18], which illustrates the practical accessibility of technology even for enterprises with limited IT resources. The second is the "Digital Maturity Compass" self-diagnostic tool, which allows an enterprise to assess its own level of digital maturity free of charge and receive individualized recommendations for further technology implementation [17]. Since the mere availability of a technological solution on the market does not guarantee its successful implementation, state SME support policy is increasingly shifting from providing access to technology toward supporting the implementation process itself.

The level of digitalization of Ukraine's micro, small, and medium-sized enterprise sector in 2026 is characterized as average: the integral indicator stands at 2.81 out of 5. The largest share of enterprises (44.8%) corresponds to an average level of digital maturity, while 32.2% remain at a basic level, limited to the use of simple tools (*Fig. 1*) [19].

The impact of digitalization on SME activity is best examined along four main dimensions. First, the reduction of administrative costs: through the transition to electronic document management and the abandonment of paper-based intermediary procedures, the business sector saves, according to available estimates, more than UAH 2.5 billion annually [14]. Second, expanded access to financial capital: the digitalization of grant and credit application procedures shortens processing times, while automated verification of applicant data increases the probability of approval for enterprises with transparent financial reporting [13; 14]. Third, strengthened positions in global competition: the use of digital tools for electronic document management and digital trade standards facilitates the integration of Ukrainian SMEs into European supply chains, which is of particular importance in the context of European integration processes. Fourth, it is worth noting the role of digitalization in addressing the workforce problem, which is one of the barriers to IT project implementation: the automation of routine operational processes and the possibility of transitioning to remote forms of employment increase the operational flexibility of SMEs and partly compensate for the shortage of qualified personnel characteristic of the sector under martial law.

Enterprise digital transformation is not a one-off event but a managed process of transition from traditional to digital business models, and it is precisely the project-based approach that turns this process

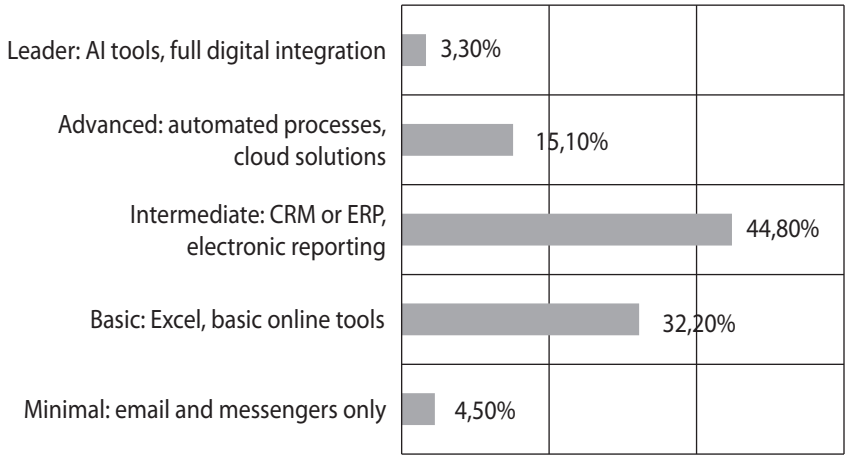


Fig. 1. Overall level of digitalization of business processes among Ukrainian SMEs (2026)

Source: compiled by the authors based on [19].

from spontaneous into managed. Unlike large companies, where digitalization is often implemented as a portfolio of parallel programs with dedicated PMOs, SMEs are characterized by certain specific features of IT projects. *First,* a short life cycle – projects lasting 1–6 months predominate (implementation of a CRM, an e-commerce module, a cloud service), rather than multi-year programs. *Second,* the absence of a dedicated project role – the business owner or operations manager performs the functions of sponsor and project manager simultaneously. *Third,* resource constraints, whereby budget and time are hard constraints (a constraint-driven rather than scope-driven approach). *Fourth,* high dependence on external contractors, where outsourcing of development and implementation is the norm rather than the exception. Fifth, fragmentation: SME digitalization often takes the form of a series of unrelated local projects (a website separately, a CRM separately, accounting separately) rather than a unified architectural strategy.

The IT project as a transformation instrument should be examined at two levels. The technological level relates to the implementation of a specific tool (ERP, CRM, BI, cloud service), while the transformational level concerns changes in business processes, the decision-making model, and customer interaction channels. An IT project becomes an instrument of digital transformation only when the outcome at the technological level is converted into changes at the transformational level. The availability of technology is a necessary but not a sufficient condition for transformation; the second level specifically requires project management (planning, stakeholder engagement, change management).

Classical management methodologies developed for large companies are often too cumbersome for small and medium-sized businesses. To act efficiently, without excessive bureaucracy, SMEs employ simplified and combined management approaches. Simplified Agile/Scrum [20] implies that, instead of rigid annual planning, a project is broken down into short working cycles (iterations) lasting 1–2 weeks; at the end of each cycle the team assesses what has been accomplished and adjusts tasks in light of the actual situation. SMEs have no need to expand staff and hire dedicated "Scrum masters" or hold numerous meetings – it is sufficient to preserve the underlying principle: move in small steps, continuously verify results, and adapt quickly to change. Incremental (staged) implementation is applied instead of launching on a "Big Bang" basis, which involves prolonged preparation and a single simultaneous launch of a fully finished product, accompanied by high risk and significant costs; the incremental approach, by contrast, means creating and launching a basic working version first, followed by gradual refinement of the product based on feedback from real customers, which reduces financial risks, preserves the budget, and allows timely correction of errors. Hybrid models combine the advantages of traditional cascade (Waterfall) planning and flexible (Agile) methodologies: the classical approach is applied to tasks that require strict discipline (for example, budgeting or the preparation of financial statements), while the operational execution of tasks is subordinated to flexible principles, giving the team freedom in choosing tools and ways of achieving objectives within the approved budget.

The choice of a specific management model cannot be a universal solution for any SME IT project: a simplified Agile iteration is appropriate for implementing a cloud-based CRM service but does not meet the needs of a cybersecurity audit project, where the sequence of stages is strictly regulated. In other words, the management model is derived from the type of project, not the other way around [21]. This necessitates a preliminary classification of SME IT projects in order to provide practical recommendations regarding management models.

By functional purpose, SME IT projects can usefully be divided into five groups, each with its own implementation specifics and corresponding to separate indicators by which the State Statistics Service of Ukraine records the level of enterprise digitalization [22]. ERP/CRM system implementation projects are the most resource-intensive and time-consuming, since they require integration with existing business processes and the migration of accumulated data. Cloud service implementation projects are, as a rule, the fastest and least risky, since they do not require a firm's own IT infrastructure. E-commerce development projects (creating or upgrading online sales channels) are oriented toward the external user (the customer) rather than internal processes alone, which adds a requirement for UX quality of the outcome. Cybersecurity projects, unlike other project types, do not directly increase operational efficiency but rather reduce risk, which complicates justifying their budget to the business owner. Finally, projects implementing artificial intelligence tools are characterized by the highest outcome uncertainty and require the most iterative implementation approach.

By mode of implementation, SME IT projects are divided into two types – the choice between which is one of the first managerial decisions in any digitalization project: ready-made standardized solutions (SaaS / out-of-the-box) and custom-built solutions (custom software). A comparative analysis of these two types by the criteria of "cost – timeline – effectiveness" is presented in *Tbl. 1*.

Table 1

Comparative characteristics of SaaS solutions and custom development for SME IT projects

Criterion	SaaS / Ready-made solution (out-of-the-box)	Custom development (custom software)
Cost	Low initial cost (subscription model); no expenses for own infrastructure; total cost of ownership grows in proportion to the scale of use	High initial cost (development "from scratch"), but potentially lower long-term total cost of ownership at significant scale
Implementation timeline	Short (days/weeks); immediate testing is possible without waiting for development	Long (months); includes the full cycle from requirements specification to testing
Fit with business processes	Limited – the enterprise adapts its own processes to the logic of the ready-made product	High – the solution is designed for the enterprise's specific processes
Project risks	Low: responsibility for technical implementation rests with the vendor; the risk is vendor dependency (vendor lock-in)	High: risks of schedule overruns, budget overruns, and discrepancies between requirements and outcome
Managerial competency requirements	Minimal – the managerial role is reduced to vendor selection and implementation oversight	Substantial – full-scale management of requirements, changes, and outcome acceptance is required
Suitability for SMEs	The priority option for small enterprises – corresponds to resource and competency constraints	Appropriate mainly for medium-sized enterprises with specific processes that cannot be covered by a ready-made solution

Source: compiled by the authors based on a generalization of IT solution implementation practice in SMEs.

For the vast majority of small-business IT projects, choosing ready-made SaaS solutions is economically and managerially justified, even at the cost of some reduction in fit with specific business processes, since this minimizes project risks, for the management of which small enterprises generally have neither the financial reserve nor the managerial competency. Custom development for a medium-sized enterprise is justified only when the losses from adapting business processes to a standard SaaS solution exceed the budget and project risks of custom development.

To analyze the intensity of IT project implementation by Ukrainian enterprises and identify gaps between SME groups, data from state statistical observation Form No. 1-ICT, "Use of Information and Communication Technologies at the Enterprise" [22], were used, broken down by enterprise size group: small (10–49 employees), medium (50–249 employees), and large (250 employees and more); this indicator has been included in reporting since 2024. The results of the analysis are presented in *Tbl. 2*.

The digital divide widens over the study period as technological complexity increases. Over 2024–2025, the gap between large and small enterprises amounted to 29.5–33.7 pp., and between large and medium-sized enterprises to 17.4–20.2 pp. Since growth is observed simultaneously across all three groups (small, medium, large), it can be argued that digitalization is not stagnating, yet it is proceeding at a considerably faster pace among large businesses. This directly contradicts the expected logic, according to which less digitalized enterprises should move faster precisely because they start from a lower level.

The data on corporate systems reveal a common pattern: the more complex and expensive the technology, the wider the gap between small and large enterprises (*Tbl. 3*). The smallest gap was recorded for ERP in 2022 (12.2 pp.). The BI system adoption indicator, despite having been included in statistical reporting only two years ago, already shows a substantial gap between small and large enterprises (17.2 pp. in 2025). All groups show roughly the same relative growth (2.5–3 times), yet the absolute ERP gap increased from 12.2 to 32.4 pp., meaning that identical growth rates from different bases deepen the gap. Thus, small and medium-sized businesses are gradually adopting new technologies, but doing so more slowly, causing them to fall progressively further behind large companies over time. Only comprehensive, systemic IT strategies – rather than isolated, ad hoc IT projects – can narrow this widening gap.

Tbl. 4 presents the share of enterprises engaged in e-commerce and the share of sales revenue generated through e-commerce.

Unlike ERP/CRM/BI, the gap in e-commerce activity between small and large companies displays

Table 2

Share of enterprises with a basic level of digital intensity, by enterprise size, 2024–2025, %

Enterprise group by number of employees	2024	2025	Change, pp.
Small (10–49 persons)	19.7	20.0	0.3
Medium (50–249 persons)	31.8	33.5	1.7
SMEs overall (10–249 persons)	–	22.8	–
Large (250 persons and more)	49.2	53.7	4.5
Ukraine overall	23.5	24.3	0.8
"Large – small" gap, pp.	29.5	33.7	–
"Large – medium" gap, pp.	17.4	20.2	–

Source: compiled by the authors based on [22].

Table 3

Use of corporate information systems by Ukrainian enterprises, by enterprise size, %

Indicator / Enterprise group	2022	2024	2025
ERP			
Small (10–49)	4.7	12.0	12.9
Medium (50–249)	8.1	22.1	23.5
Large (250+)	16.9	37.7	45.3
Total	5.9	15.2	16.7
"Large – small" gap, pp.	12.2	25.7	32.4
CRM			
Small (10–49)	2.3	5.8	6.8
Medium (50–249)	4.4	10.9	12.5
Large (250+)	7.8	18.7	22.5
Total	3.0	7.4	8.7
"Large – small" gap, pp.	5.5	12.9	15.7
BI			
Small (10–49)	–	2.6	2.8
Medium (50–249)	–	5.9	8.3
Large (250+)	–	15.7	20.0
Total	–	3.9	4.7
"Large – small" gap, pp.	–	13.1	17.2

Note: Data for 2023 were not collected for SME groups in accordance with the approved statistical methodology.

Source: compiled by the authors based on [22].

non-linear dynamics over 2018–2024. In terms of the share of enterprises engaged in e-commerce, the gap between large and small enterprises grows gradually throughout the period, with the exception of 2024: large business widens its lead faster than SMEs manage to close it.

In 2022, the gap in the share of e-commerce revenue was negative (–0.5 persons), meaning that the share of revenue from online sales was higher among small enterprises than among large ones. This can be interpreted as a forced adaptation of small business to e-commerce channels amid the destruction of physical infrastructure and logistics. However, this effect was short-lived, and already by 2023 the gap not only recovered but exceeded its pre-war level (6.6 persons).

The analysis conducted shows that, in terms of basic infrastructure (internet access), the gap between small and large enterprises is virtually absent; in terms of extensive coverage indicators (presence of e-commerce, a website), the gap grows steadily; and in terms of complex corporate systems requiring full-scale implementation management (ERP, CRM, BI), the gap grows even faster. Technologies that require the greatest managerial maturity (BI, AI) show either the widest gap recorded since observations began, or unstable, and at times negative, dynamics among small enterprises. Thus, Ukraine has a sufficient supply of technologies on the market, yet there is a shortage of a systemic project-based approach, which constitutes the key constraint on SME digital transformation. Even where technological solutions are available on the market and enterprises have the financial capacity to acquire them, a considerable share of SME IT projects either remains unfinished or fails to deliver the expected transformational effect. A number of managerial, resource-related, and organizational barriers prevent SMEs from bringing the implementation of complex solutions to a sustainable outcome. These barriers can usefully be grouped into four blocks.

The *first block* comprises resource-related barriers. Unlike large business, SMEs rarely have a dedicated IT budget, so digitalization spending competes for resources with operational needs, and the project is "frozen" at the first cash-flow gap. The lack of in-house IT specialists forces enterprises to rely entirely on external contractors, which reduces control over implementation quality and creates vendor dependency (vendor

Table 4

Share of enterprises engaged in e-commerce and share of sales revenue from e-commerce, by enterprise size, 2018–2024, %

Enterprise group	2018	2019	2020	2021	2022	2023	2024
Share of enterprises engaged in e-commerce, %							
Small (10–49)	4.2	4.1	4.1	4.2	4.5	5.6	7.2
Medium (50–249)	7.0	6.7	6.7	6.8	5.9	9.6	12.2
Large (250+)	10.6	10.3	10.5	10.5	11.7	17.8	17.6
Total	5.0	4.8	4.9	5.0	5.1	6.9	8.7
"Large – small" gap, pp.	6.4	6.2	6.4	6.3	7.2	12.2	10.4
Share of sales revenue from e-commerce, %							
Small (10–49)	1.9	1.9	2.1	2.2	3.4	1.9	2.6
Medium (50–249)	3.7	3.6	3.9	4.0	4.1	3.1	4.6
Large (250+)	4.0	6.0	6.6	6.8	2.9	8.5	7.5
Total	3.5	4.5	5.0	5.3	3.5	5.7	5.8
"Large – small" gap, pp.	2.1	4.1	4.5	4.6	–0.5	6.6	4.9

Source: compiled by the authors based on [22].

lock-in). Finally, the owner or manager, who simultaneously acts as the project sponsor, physically lacks the time for full-scale management - defining requirements, accepting outcomes, and overseeing change.

The *second block* comprises managerial and competency-related barriers. Decisions on technology implementation are often made situationally, without a formalized business case, ROI assessment, or implementation plan, which indicates the absence of a project culture. A lack of digital competencies among management, including the inability to correctly formulate technical requirements or evaluate a contractor's proposal, results in a mismatch between the chosen solution and the business's actual needs. Moreover, attention tends to concentrate on the technical implementation of the system, while change management, encompassing staff retraining and the adaptation of business processes, remains outside the scope of the project.

The *third block* comprises organizational and psychological barriers. Staff not infrequently resist change owing to fear of losing control, increased transparency (for example, a CRM system makes each employee's performance visible), and the additional workload during the system-adoption phase. Paradoxically, the source of resistance is often the SME owner personally, for whom the familiar "manual" methods of management appear more reliable than a new system. The situation is further complicated by a short-term thinking horizon – a focus on immediate results without an understanding that the effect of digitalization is often deferred in time.

The *fourth block* comprises technological and infrastructural barriers. Previously implemented local solutions (an accounting program separately, a website separately, a separate messenger for customer communication) integrate poorly with one another, which complicates and raises the cost of every subsequent project. Migration to a new system (ERP/CRM) requires organizing already accumulated data, and this work often proves more labor-intensive than the implementation itself. An additional risk factor is cybersecurity: limited resources devoted to information protection increase SME vulnerability precisely at the moment of digitalization, when the volume of critical data held in electronic form is growing.

Overcoming these barriers requires not so much an increase in funding as an adaptation of IT project management models themselves to SME realities.

The managerial model envisages a simplified project methodology in place of formal PMBOK, since classical methodologies were developed for an environment with a dedicated PMO and multi-level reporting, which does not correspond to SME realities. A simplified Agile framework with 2–4-week iterations and a single measurable goal fixed per iteration is appropriate (for example, "migrate customer records into the CRM" rather than the abstract "implement a CRM"). It is worth supplementing this with a minimal project life-cycle document – a single page answering four questions: goal, budget, milestone date, and the criterion for "project completed" – which counteracts

the project "stalling" at the stage of partial implementation. Finally, implementation should proceed incrementally (in stages): it is advisable to start with a single module or process (for example, inventory accounting alone within an ERP system) rather than the full system at once, which reduces risk and delivers an early result, sustaining the team's motivation.

The resource model is based on hybrid outsourcing combined with retained ownership of the process. Technical implementation should be delegated to a contractor, while the function of accepting the outcome against pre-agreed criteria should be retained by the business owner or a designated responsible person, thereby separating the roles of "executor" and "owner of the outcome." The budget should provide a reserve not only for purchasing the license but also for implementation: a typical SME mistake is to allocate funds to the product itself while bypassing staff training and post-launch support; the recommended benchmark is therefore to direct 30–40% of the project budget to implementation and adaptation rather than to the technology alone. It is also worth developing internal project competency: even without a dedicated project manager on staff, one employee can complete basic project management training and perform this function as an extended role.

The change management model requires staff engagement from day one. Early involvement of end users in defining requirements (rather than only in post-implementation training) reduces resistance to change and increases the likelihood that the system will actually be used. Transparent communication of the project's purpose – explaining to staff that the change saves time rather than merely strengthening control - weakens psychological resistance. An effective tool is designating one or two interested employees as "change ambassadors," who assist colleagues during the system-adoption phase.

The technological model prioritizes integration over the sheer number of solutions. Before launching a project, it is advisable to ensure an "architectural minimum" – verifying the compatibility of the new solution with already existing systems (accounting, website, messengers) – which prevents fragmentation of the IT landscape. Prioritizing cloud-based SaaS solutions reduces the need for a firm's own IT infrastructure and cybersecurity maintenance, which represent one of the most difficult barriers for small enterprises. It is advisable to allocate the staged organization of data as a separate project stage preceding technical implementation.

The digitalization gap between small and medium-sized enterprises persists even within the SME category itself, and recommendations should therefore be differentiated accordingly. *Tbl. 5* proposes differentiated IT project management models separately for small (10–49 employees) and medium-sized (50–249 employees) enterprises.

Table 5

Matrix of model applicability by enterprise size

Enterprise size	Priority management model	Key focus
Small (10–49)	Maximally simplified Agile, full outsourcing	One process at a time; minimal budget allocated to implementation rather than to the license alone
Medium (50–249)	Hybrid model (internal responsible person + contractor)	Integration between systems; development of internal project competency

Source: developed by the authors.

Applying the proposed models makes it possible to shift SME digitalization from a mode of fragmented, often unfinished initiatives to a mode of managed IT projects with a measurable and sustainable outcome.

CONCLUSIONS

The study conducted allows us to conclude that the implementation of IT projects is not an accompanying but a determining factor of the digital transformation of small and medium-sized business in Ukraine. Empirical analysis of official statistical data for recent years has revealed the uneven character of this transformation. In terms of basic digital indicators, the gap between SMEs and large business is virtually absent, whereas for more complex technological solutions (ERP, CRM, BI) it not only persists but systematically widens. This allows us to state that the key constraint on SME digitalization is not a lack of technology on the market but an insufficient level of project management capacity needed to bring technological initiatives to a sustainable outcome.

The systematization of the theoretical foundations and of the identified barriers to IT project implementation has shown that overcoming them requires a differentiated approach depending on enterprise size: management models effective for small business differ substantially from those appropriate for medium-sized enterprises, since the empirically documented gap persists even within the SME category itself. The scientific novelty of the study lies in substantiating the IT project as an independent unit of managerial analysis of SME digital transformation and in developing adaptive IT project management models differentiated by enterprise size. The practical value of the re-

sults lies in the possibility of their use by SME owners and managers to increase the likelihood of successfully completing digitalization projects under resource constraints, as well as by public economic policy authorities for improving business digitalization support programs. Further scholarly elaboration is required on the sectoral differentiation of SME digital transformation barriers, as well as on the empirical verification of the proposed IT project management models using the example of specific enterprises from different sectors of the economy. ■

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