PROJECT MANAGEMENT UNDER CONDITIONS OF DIGITAL TRANSFORMATION AND THE BANI ENVIRONMENT

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Abstract. *The purpose* of the paper is to substantiate theoretical and methodological principles for integrating digital tools, hybrid methodologies, and human capital development, and to build a comprehensive conceptual model of the motivational determinants of project managers under conditions of digital transformation, labor market change, and the BANI environment. *Methodology of the study.* The study is based on a systematic approach to analyzing modern trends in project management, methods of comparative and structural-functional analysis, bibliometric and empirical research, the PMI Talent Triangle framework, and theories of motivation (including the Job Characteristics Model and Self-Determination Theory). The empirical base includes data from international project management institutes (PMI, IPMA), statistical indicators from the Ukrainian labor market (DOU), and the authors' own survey of project management practitioners (2026). *Results.* The findings show that modern project management is undergoing a fundamental shift from traditional utilitarian-technocratic approaches and standalone tools to integrated digital environments, hybrid methodologies, and human-centric models. The empirical analysis reveals a gap between the perceived usefulness of digital tools and the level of their actual systemic integration within organizations. The study also demonstrates that project success is determined not only by technical and strategic competencies (in line with the PMI Talent Triangle) but also by a multilevel motivational structure encompassing personal drivers, psychological safety, organizational support, and financial guarantees.

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Practical implications. The proposed conceptual model of motivational potential can be used by organizations to diagnose imbalances in project managers' competency profiles and to design targeted development and retention programs covering personal, team, organizational, and financial-hygiene factors. Strategic cooperation between business and higher education – dual education, mentor-practitioner integration, and corporate bootcamps – is identified as a practical pathway for closing the competence gap and supporting sustainable project delivery in volatile environments. *Value/originality.* The originality of the study lies in the development of an author's systemic structure of determinants of motivational potential and its integration with the PMI Talent Triangle competency model, forming a unified framework that links professional competencies, motivation, and the specifics of the BANI environment. This is one of the first attempts to systematize such a framework specifically for project managers operating under the conditions of Ukraine's post-war recovery and market transformation.

INTRODUCTION

Relevance of the topic and scientific novelty. The modern paradigm of project management is undergoing large-scale transformation driven by digitalization, the spread of hybrid approaches, the integration of artificial intelligence technologies, and the growing instability of the external environment (BANI conditions). Traditional methodologies focused on adherence to the "project triangle" (Scope, Time, Cost) are losing their self-sufficiency, requiring a shift toward human-centric management models in which human and motivational potential becomes the key determinant of success. The scientific novelty of the study lies in the theoretical substantiation and practical systematization of the relationship between the digital transformation of project management tools, the structure of professional competencies (the PMI Talent Triangle model), and the multilevel system of project manager motivation under conditions of post-war recovery and market changes in Ukraine.

Purpose and objectives of the study. The purpose of the study is to develop theoretical and methodological foundations and practical recommendations for forming an integrated system of tools and developing

human potential in project management. To achieve this purpose, the following research tasks were addressed:

– to analyze the current state and key trends in the application of project management tools in Ukrainian and international companies;

– to examine sectoral and regional demand for project specialists against the background of labor market transformation;

– to systematize the competency profile of a project manager using the PMI Talent Triangle model and identify typical managerial imbalances;

– to develop an original systemic structure of determinants of motivational potential;

– to determine the specifics of realizing human potential under BANI-environment conditions and to propose strategic directions for cooperation between business and the higher education system.

Methodology and logic of the study. The study is based on a systematic approach, methods of comparative, structural-functional, and bibliometric analysis, as well as the results of the authors' own empirical surveys (2026). The logic of presentation follows the principle of moving from a general analysis of market and technological trends in project management to the micro level – the study of human potential, competency profiles, motivational determinants, and ways of improving them through educational-professional partnership.

1. Trends in the Development of Project Management

The current transformation of project management in Ukraine and worldwide is driven simultaneously by several interrelated trends: the digitalization of business processes, the spread of hybrid approaches to project delivery, the development of cloud technologies, the automation of routine managerial operations, and the integration of artificial intelligence technologies. As a result, not only the range of tools available to the project manager is changing, but also the very logic of their application – from the use of separate planning and control tools to the formation of an integrated digital project management environment.

According to the Project Management Institute (PMI), approximately 40 million project professionals are already working worldwide [24]; however, by 2035 the global economy may require up to 30 million additional specialists capable of professionally managing projects. Thus,

the development of the project economy is accompanied not only by a growing number of projects but also by the formation of a significant global shortage of professionals and competencies.

The modern project environment is characterized by increasing project complexity. According to PMI's Pulse of the Profession 2026, 97% of surveyed project managers worked on at least one complex project during the previous year, with more than half classifying such projects as significantly complex. 81% of respondents believe that project complexity has increased in recent years, and 37% report a significant increase [26]. At the same time, teams that manage complexity effectively are five times more likely to complete a project successfully.

The very concept of effective management is changing. Whereas the traditional approach in project management focused mainly on meeting schedule, budget, and scope, modern PM increasingly focuses on value creation, strategic alignment, and the management of interdependencies, stakeholders, risks, and change. According to PMI Pulse 2025, based on a survey of nearly 3,000 professionals, only 18% of respondents demonstrated a high level of business acumen, 66% a medium level, and 16% a low level. Professionals with a high level of business competence more often achieve project business goals (83% vs. 78%), stay within budget (73% vs. 68%), and meet deadlines (63% vs. 59%) [25].

In parallel, the digital transformation of project management tools is taking place. Modern PM relies less and less on standalone spreadsheets, documents, and local software, shifting instead toward cloud environments, BI analytics, workflow automation, and decision-support systems. The IPMA AI Survey 2024, conducted among 345 representatives of the international professional community, revealed considerable interest among project managers in the use of AI [17].

Russia's full-scale invasion of Ukraine in February 2022 fundamentally changed the operating conditions of Ukrainian companies and substantially transformed the role of project management in their activities. Whereas before that time project management in Ukraine had developed mainly through natural processes – via the gradual spread of international standards and professional certification of specialists – under wartime conditions the project approach has become a tool for business survival and a means of rapid adaptation under conditions of constant risk and uncertainty.

Key trends in the development of project management in Ukraine:

1. War and Recovery as a Key Driver of the Projectization of the Economy

The most distinctive condition shaping the development of project management in Ukraine is the sheer scale of recovery and reconstruction needs. According to the Rapid Damage and Needs Assessment, as of December 31, 2025, Ukraine's total recovery and reconstruction needs are estimated at almost USD 588 billion over the next ten years [36]. The scale of these needs means the formation of an extraordinarily large field of project activity in Ukraine. This is not limited to the construction or repair of physical infrastructure. Recovery encompasses energy, transport, housing, healthcare, education, water supply, digital infrastructure, entrepreneurship, municipal development, the social sphere, and institutional modernization.

Accordingly, project management is gradually acquiring the significance of infrastructure for implementing state policy and economic reconstruction.

It is particularly important that the scale of recovery requires a shift from implementing isolated projects to program-and-portfolio management. Reconstruction projects must be linked to the strategic goals of the state, regions, and territorial communities, and coordinated in terms of resources, timelines, and funding sources.

2. Institutionalization of the Project Approach in Public Administration

One of the most important trends of 2024–2026 is the spread of the project approach beyond business and the IT sector into public administration and public investment management.

In 2024, Ukraine launched the Public Investment Management (PIM) reform, which envisages the formation of a unified approach to the preparation, evaluation, prioritization, financing, and monitoring of public investment projects. The DREAM ecosystem has become the central digital element of this reform.

The scale of digitalization of this process is telling. In April 2025, it was reported that 1,280 communities were working with DREAM, and more than 11,500 active projects with a combined budget of approximately UAH 1.3 trillion had been entered into the system [16].

This example demonstrates a transition from managing individual projects to the digital management of project portfolios. Thus, the portfolio

approach is becoming not merely a methodological recommendation but an institutional requirement for the management of public resources.

3. European Integration and Harmonization of Management Practices

European integration is an important institutional factor for Ukraine. The gradual alignment of Ukrainian procedures with EU practices raises the requirements for transparency, the justification of project selection, risk management, investment performance evaluation, and reporting. European integration is shaping a new institutional environment for project management, in which professional project management becomes a necessary condition not only for an organization's internal efficiency but also for gaining access to international financing.

4. Active Digital Transformation

At the same time, the war has become a powerful catalyst for the digital transformation of management practices. The state is actively supporting the digitalization of business processes through the Diia.Business platform. According to available estimates, approximately 28% of Ukrainian companies use cloud services, and 32% apply elements of data analytics and artificial intelligence in their management activities [12]. On the one hand, these figures demonstrate positive dynamics in the digitalization of management tools; on the other hand, they indicate that most organizations are still at the early stages of digital maturity, which directly confirms the relevance of studying the conditions for forming an integrated system of project management tools.

Research by Ukrainian scholars shows that the digitalization of enterprise management, amid market instability, a shortage of financial and human resources, and the spread of remote and hybrid work, is regarded not only as a means of increasing productivity but also as a mechanism for ensuring organizational resilience. In particular, T. Omelianenko and D. Ilienkov identify Jira, Slack, Microsoft Teams, Trello, CRM systems, and other digital solutions among the relevant digital tools of Ukrainian business, while at the same time highlighting the problems of financial constraints, the cost of IT products, and an insufficient level of digital skills among personnel [19].

To study the current state of project management tool use, the authors conducted their own survey of specialists involved in project management (May–October 2026). The study involved practicing project managers

and representatives of the IT sector, the construction sector, public administration, the services sector, and other fields. Selected findings of the survey are presented below.

Despite the large number of specialized PM systems (Jira – 44%, Microsoft Project – 34%, Trello – 24%), the tool base for project management in Ukrainian organizations remains predominantly universal and weakly specialized: 76% of surveyed organizations use Excel/Google Sheets (Fig. 1). This indicates the hybrid, fragmented nature of tool support for PM processes, whereby specialized solutions coexist with general office tools rather than fully replacing them. A notable share of organizations still rely on paper documents or boards (32%), which points to incomplete digitalization of project management processes even where modern digital alternatives are available.

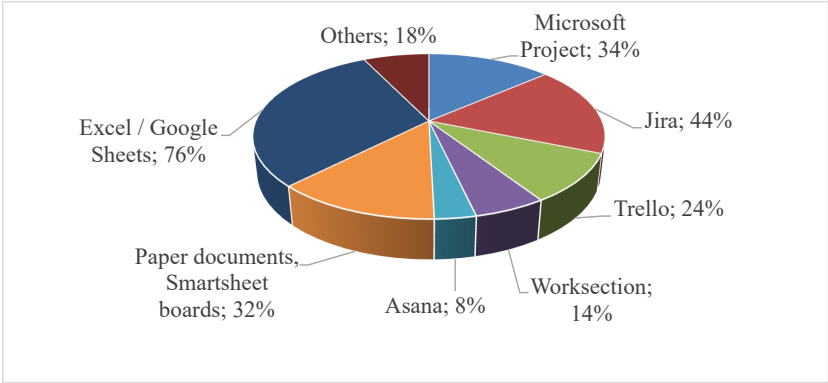


Figure 1. Distribution of respondents by use of digital project management tools

The results of the study also reveal an important feature of digital transformation. Respondents rate the usefulness of digital tools for project management fairly highly – 4.22 out of 5 – and their intention to continue using digital tools at 4.52 points. At the same time, the level of digital integration is rated at only 3.02 points. Ratings for individual areas of integration are even lower: interaction between PM systems and CRM, ERP, and financial systems – 2.92 points; automatic report generation –

2.86 points; stakeholder access to project status information through the PM system – 2.80 points.

Thus, the sample studied shows a gap between the perceived usefulness of digital tools and the level of their systemic integration. This gives grounds to argue that the next stage of digitalization of Ukrainian project management should be not simply an increase in the number of software products used, but the formation of an integrated system of tools in which individual technologies interact with one another and support a single project management cycle.

Therefore, an organization's digital maturity should be assessed not merely by the presence of modern software but, above all, by the degree of systematicity, integration, and effectiveness of its use.

5. The Transition from Using Separate Digital Tools to Integrated Management Systems

An important trend is the shift from the local use of digital tools to the digital transformation of the entire project management system.

At the same time, Ukrainian scholarly discourse shows a shift from analyzing individual software products to understanding digital tools as a component of the management system. Thus, I. Kohut and D. Horeiko examine the choice of software products for project management in small and medium-sized businesses in Ukraine, comparing Microsoft Project and Worksection and emphasizing the need for a well-grounded choice of software solution according to the organization's needs [14]. O. Pshyk-Kovalska, in a 2026 study, examines Microsoft Project, Trello, and Asana as project administration tools in consulting companies, identifying the standardization of procedures, the optimization of communications, the automation of document flow and reporting, resource management, and the flexibility of management mechanisms among the criteria for their effectiveness [27].

Researchers also note the growing role of cloud platforms, ERP and CRM systems, Business Intelligence, Big Data, electronic interaction, and AI in planning, control, resource management, and decision-making [18; 31].

In this context, the very concept of a digital tool is fundamentally changing. Whereas previously project digitalization meant mainly transferring traditional procedures into a software environment, it now involves the integration of various sources of information, automatic

data exchange, the creation of digital dashboards, real-time analytics, the automation of recurring operations, forecasting, and the use of AI to support management decisions. Such a transformation changes the very architecture of project management.

Whereas at earlier stages digital technologies were mainly used to automate individual operations – planning, task tracking, schedule formation, or report preparation – the current stage is characterized by a transition to integrated digital environments that combine planning, communication, document management, monitoring, analytics, and resource management.

6. The Transition from Traditional to Hybrid (Adaptive) Methodologies

Another trend is the spread of hybrid project management.

Research by H. Tarasiuk shows that the current development of project management is characterized by a combination of traditional and agile methodologies, with the choice between Waterfall, Agile, Scrum, Kanban, and hybrid models increasingly depending on the specifics of a particular project.

This trend is particularly relevant for Ukraine, since recovery, infrastructure, social, digital, and innovation projects differ substantially in their level of uncertainty, regulation, and complexity. This directly points to the need to form an adaptive system of project management tools.

The authors' own research confirms the spread of this practice among the surveyed project managers (Fig. 2).

40% of respondents describe their organization's approach as hybrid, combining traditional, digital, and AI tools, while another 24% predominantly use a digital Agile approach. The traditional approach remains the main one for 10% of respondents, while 26% reported the absence of a formalized approach.

At the same time, the results show that digital transformation does not mean the complete displacement of traditional tools. The average rating of the importance of traditional methods and tools is 3.64 out of 5, indicating their continued use in management practice. Thus, the modern evolution of PM is not linear, with new methods completely replacing previous ones, but convergent, whereby traditional planning, control, and documentation are combined with Agile practices, digital platforms, and AI.

The IT sector remains the flagship industry in terms of the maturity of project practices, accounting for approximately 4.4% of Ukraine's GDP and

38% of total service exports. It is in the IT sector, where agile (Agile) and hybrid approaches to project management have historically dominated, that digital PM tools are being implemented most systematically, and a specific trend of 2023–2025 has been the rapid growth of the MilTech direction, which forms a separate class of projects with heightened requirements for speed, secrecy, and adaptability of management processes [12].

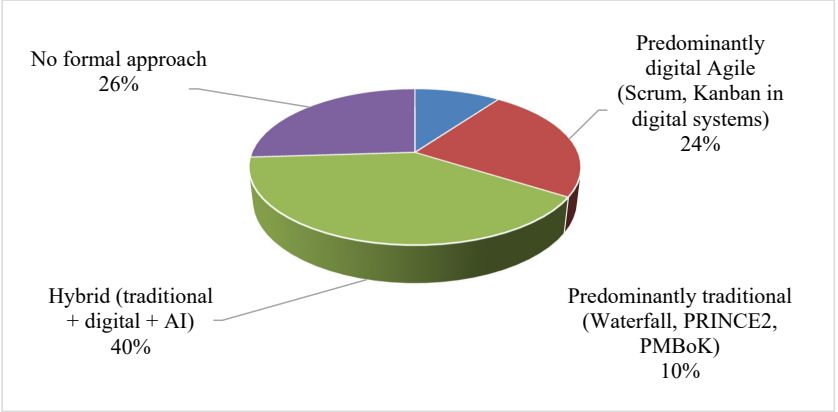


Figure 2. Distribution of respondents by project management methodology used

Another important trend relates to the field of reconstruction and infrastructure projects. As a significant share of capital investment is directed toward restoring destroyed facilities and relocating production, demand is growing for methodologically sound management of large, resource-intensive projects that are, at the same time, uncertain in terms of timelines and budgets. This increases the relevance of hybrid methodologies that combine the structuredness of traditional (waterfall) approaches – necessary for capital construction and the utilization of budgetary and donor funds – with the flexibility of adaptive practices needed to respond to constant changes in the security situation.

This makes it possible to view hybridization not only as a methodological trend but also as an important precondition for forming a system of project management tools. An organization increasingly needs not a single universal

tool but a combination of instruments capable of providing different management functions depending on the nature of the project.

7. The Growing Importance of Resilience and Adaptability

The macroeconomic conditions under which projects in Ukraine are currently implemented are characterized by high volatility. Studies of small and medium-sized business resilience show that whereas only 57% of Ukrainian SMEs continued operating in March–April 2022, this figure had already risen to 84% by 2023 and stabilized at around 85% during 2024–2025 [32]. Among the main challenges shaping the conditions of project activity, surveys from 2023–2025 consistently identify demand instability, staff shortages due to mobilization and emigration, power supply disruptions, limited access to financing, infrastructure destruction, and regulatory uncertainty. This is why project activity is increasingly carried out under conditions in which the initial assumptions may change radically even during project implementation.

These factors directly affect the planning of project timelines, budgets, and resource provision, forcing project managers to build in significantly higher reserves and revise planning horizons. Under these conditions, the classical understanding of a project plan as a stable sequence of works becomes insufficient. Adaptability, scenario planning, risk management, rapid replanning, and resource reservation come to the fore.

Studies of Ukrainian IT companies also record the growing role of Agile, Scrum, and Kanban as adaptive management models in a crisis environment [21].

This is consistent with international PMI research showing a general move by organizations toward flexible, fit-for-purpose project delivery, that is, choosing the mode of implementation according to the specific context of the project.

8. Artificial Intelligence as a New Stage of Transformation

The most dynamic trend of 2024–2026 is the integration of AI into project activity. International IPMA research shows that AI is gradually moving from experimental use to practical application for data analysis, task automation, risk management, and decision support. At the same time, organizations face a shortage of relevant competencies, confidentiality issues, and uncertainty about the economic effect.

Ukrainian studies from 2024–2026 also identify artificial intelligence as one of the key directions in the development of innovative and digital project management [29].

The future system of project management tools should be viewed as a human-machine system in which AI does not replace management but expands its analytical and operational capabilities.

The results of the authors' own research show that 34% of respondents actively use Generative AI in project work, 38% are at the stage of partial or trial use, and another 16% plan to implement it. Thus, in the sample studied, 72% of respondents already use GenAI to some extent, and the potential for further diffusion of this technology remains significant (Fig. 3).

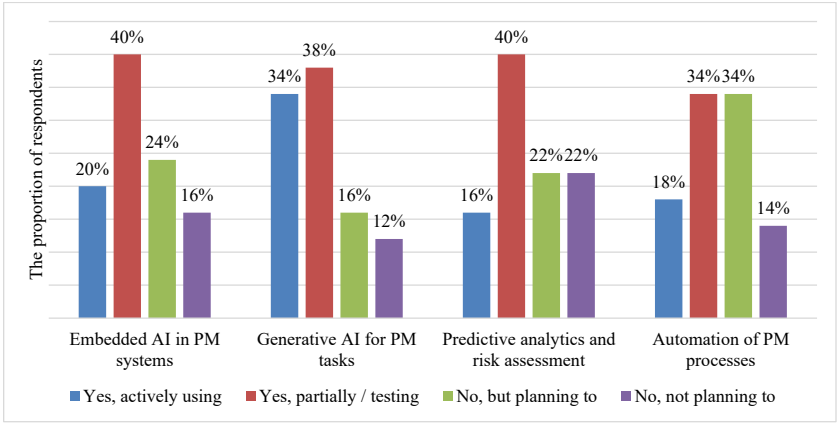


Figure 3. Degree of use of various types of AI in the surveyed organizations

At the same time, the use of more complex AI functions remains at a lower level. Predictive analytics and risk forecasting are actively used by 16% of respondents, 40% are testing relevant solutions, and 22% plan to use them. AI automation of project processes is actively used by 18%, while 34% are at the testing stage and another 34% plan its implementation.

Thus, the results obtained indicate the phased nature of the AI transformation of project management: from the experimental use of generative AI to predictive analytics, process automation, and, prospectively,

AI-integrated management systems. At the same time, AI should not be viewed as a replacement for traditional tools. It forms a new technological layer of the PM system that complements planning, monitoring, risk analysis, forecasting, and decision-making.

9. The Increasing Role of Human Potential

Technological transformation does not diminish the importance of the human factor in project management; rather, it changes the structure of the competencies required.

The changing requirements for a project manager are reflected, in particular, in the PMI Talent Triangle approach, which combines Ways of Working, Power Skills (leadership and interaction with people), and Business Acumen. Thus, the professional competence of a PM extends beyond technical proficiency in project management tools and includes the ability to link project decisions to the organization's strategic goals.

At the same time, digitalization and the spread of artificial intelligence do not diminish the importance of the human factor but change the structure of the competencies required. The automation of routine operations, data analysis, and information preparation creates the preconditions for managers to concentrate on tasks where contextual thinking, communication, leadership, ethical judgment, negotiation, and decision-making under uncertainty remain critical. IPMA research on the use of AI in project management also shows that, alongside technological opportunities, there are barriers related to a lack of knowledge and competencies, confidentiality issues, the cost of technologies, and uncertainty about their effectiveness (Momčilović et al., 2024). Human potential is therefore becoming not an alternative to technological development but a necessary precondition for it.

Summarizing the conditions and trends discussed above, several defining vectors in the development of project management in Ukraine at the current stage can be identified: first, a shift from predominantly traditional to hybrid and adaptive management approaches as a response to the high level of wartime uncertainty; second, an accelerated but uneven digitalization of project management tools, accompanied by a shortage of digital competencies; third, the emergence of new classes of projects (MilTech, relocation, and reconstruction projects) that require specific methodological support; and fourth, the persistence of a gap between the

availability of individual modern tools and their systemic integration at the organizational level.

At the same time, the cross-cutting factor determining the effectiveness of all these transformations is the human potential of project activity.

2. Human Potential and the Competency Profile of a Project Manager in the Modern Project Environment

The transformation of the paradigm of modern project management is characterized by a shift in direction from a purely utilitarian-technocratic approach toward a deep understanding of the significance of the personal dimension of managerial processes. The classical methodological concept of the so-called "project triangle" (Scope, Time, Cost), which for a long period served as the absolute criterion of project performance, is losing its self-sufficiency under conditions of a nonlinear and volatile environment. The direct success of project-oriented initiatives today is determined by the integration of a fourth core component – human potential – which transforms the resource-based management paradigm into a human-centric model.

Human potential in project activity is not simply a collection of hired labor or a mechanical set of professional skills. It is a complex, integrative system that encompasses intellectual resources, dynamic competencies, motivational factors, value orientations, adaptive flexibility, and the cognitive readiness of team members for innovation and solving atypical tasks [2;15]. While technical management tools, digital instruments, and optimization algorithms are becoming increasingly accessible and standardized, the qualitative characteristics of the human factor are gaining particular importance for ensuring the effectiveness and adaptability of project activity under conditions of change [13; 37].

The projected demand for project management specialists is being shaped primarily in sectors characterized by large-scale technological, infrastructural, and organizational transformations.

At the same time, the scale of this growth in demand is not uniform: the need for project-profile specialists varies considerably depending on sectoral specifics, the level of project activity, and the nature of the transformation processes. This is why it is important to identify the sectors of the economy in which the largest volume of new opportunities for project specialists will be formed (Table 1).

Thus, the data presented show that demand for project management specialists is shaped primarily in sectors affected by large-scale technological, infrastructural, and organizational transformations. At the same time, the sectoral dimension is only one aspect of assessing the prospects for project-related employment. Equally important is the spatial dimension, since the intensity of demand formation differs substantially between national labor markets.

Table 1

Sectoral distribution of prospective demand for project management specialists

Sectoral segment of the economy	Projected number of new jobs (million/ thousand)	Key factors shaping demand for human potential
Manufacturing and construction sector	9.7 million	Large-scale reindustrialization, infrastructure transformation, and a high rate of generational turnover and retirement of specialists.
Information technology, services, and media	5.5 million	Digitalization of business models, high environmental entropy, and the rapid scaling of cloud and mobile products.
Financial institutions and insurance	4.6 million	Regulatory compliance, FinTech transformation, and the need to integrate analytics and data protection.
Consulting and professional services	1.7 million	The need to optimize operating systems, implement change, and support clients' digital projects.
Utilities and power supply sector	279 thousand	Grid modernization, the transition to renewable energy sources, and the implementation of energy-efficiency standards.
Oil and gas industry and extraction	49 thousand	High-budget capital projects and the management of technological and environmental risks.

Source: compiled based on data from [23]

The geographical structure of demand for project specialists shows a clear concentration in economies oriented toward technological and infrastructural innovation. The main drivers of demand are China, India,

and the United States of America, which account for the largest share of the global increase in open vacancies. While global trends determine the overall scale and geographical configuration of demand, it is important, for assessing the prospects for the development of project potential, to trace how these trends manifest at the national level.

In the Ukrainian context, the high-tech sector is of particular importance, as the project-based format of activity is one of the fundamental mechanisms for implementing digital and organizational change. According to DOU, in August 2026 demand was observed on the Ukrainian labor market for specialists across various categories, including project managers. In terms of the absolute number of open vacancies (239 offers), the Project Manager specialization ranks second, behind only the quality-control segment (QA – 320 vacancies) and substantially ahead of key engineering development directions (Python, Node.js, .NET, Front End). At the same time, the competition indicator among project managers (67.0 applications per vacancy) is almost three times lower than in the Front End segment (200.3), which indicates steady employer demand for managerial potential amid a moderate level of candidate market saturation [11].

Thus, the modern labor market shows not only a quantitative increase in demand for project management specialists but also stricter requirements regarding the quality of their professional potential. The existence of demand alone does not guarantee that candidates will meet employers' expectations, which raises the question of defining the set of competencies and managerial characteristics required for the effective performance of a project role.

The steady demand for project managers identified on the labor market necessitates a more precise specification of the requirements for their professional profile. In this context, human potential management involves not only determining the quantitative need for specialists but also a detailed formalization of the competencies and managerial characteristics that determine their ability to perform project functions effectively [7; 25]. One of the most systematic approaches to structuring such requirements is the PMI Talent Triangle model, which makes it possible to group the complex of a project manager's attributes into three interrelated domains: technical project management, leadership, and strategic business thinking (Table 2).

The competency structure presented makes it possible to view a project manager's professional profile not as a set of isolated characteristics but as a balanced combination of technical, leadership, and strategic-business components. Excessive concentration on one of these, with insufficient development of the others, can produce a one-sided professional profile that limits the manager's ability to act effectively under conditions of complexity, uncertainty, and cross-functional interaction. To illustrate such imbalances, it is useful to distinguish three typical profiles.

Table 2

Structure of balanced competencies in the project manager talent model

Competency domain	Content (Hard / Soft / Strategic)	Functional impact on project effectiveness
Technical Project Management (TPM)	Proficiency in methodologies for charter development, schedule planning, budgeting, risk analysis, and quality control.	Ensures rhythm of execution, compliance with regulations, financial discipline, and the integrity of project outcomes.
Leadership Qualities (Power Skills)	Emotional intelligence, staff motivation, facilitation of conflict resolution, stress resilience, and communicative flexibility.	Builds psychological safety, consolidates the cross-functional team, and sustains high employee engagement.
Strategic and Business Management	Deep understanding of the subject domain, analysis of the competitive environment, and value orientation of project outcomes toward the company's strategy.	Ensures commercial viability, delivery of the business case, and alignment with stakeholder expectations.

Source: compiled by the author based on [23; 24; 25]

The «Graduate methodologist» profile (dominance of technical project management). Such a specialist possesses a substantial arsenal of methodologies, templates, forms, and regulations but, given insufficient practical managerial training, may have difficulty making decisions in non-standard situations, managing uncertainty, and may require constant mentoring.

The «Coach-facilitator» profile (dominance of the leadership component). Developed empathetic, communicative, and facilitation skills contribute to a favorable psychological climate in the team. At the same time, insufficient orientation toward business results, planning, and control can create risks of schedule delays and deviation from the project's key financial targets.

The «Technical performer» profile (dominance of domain expertise). Transferring a leading engineer or developer to a managerial position without a corresponding development of managerial competencies can lead to a loss of effectiveness in both specialized and managerial functions. Such a specialist may be prone to micromanagement, excessive focus on operational details, and an insufficiently systemic vision of the project.

Thus, the effectiveness of a project manager is determined not only by the structure and level of development of his or her professional and leadership competencies. Even a high level of competency readiness does not guarantee the full realization of managerial potential in the absence of internal readiness to act, sustained engagement, and result orientation. This makes it necessary to consider the motivational component as one of the key factors in the formation and realization of a project manager's potential.

3. Determinants of the Formation and Realization of a Project Manager's Motivational Potential

The motivational component is an important precondition for the formation and realization of a project manager's potential, as it determines the direction of his or her professional activity, the willingness to make efforts to achieve results, and the ability to sustain engagement under challenging conditions. This is particularly important in project-oriented organizations, where activity is characterized by the uniqueness of tasks, limited time and resource parameters, and uncertainty.

Given the specifics of project activity, traditional motivation theories require adaptation to the context of project teams. In this regard, it is useful to systematize the main theoretical approaches to motivation and assess their potential for explaining the behavior of project managers and team members (Table 3).

Table 3

Systematization of theoretical approaches to the motivation of project personnel

Theoretical approach	Main provisions	Significance for project activity
Job Characteristics Model	Skill variety, task identity, task significance, autonomy, feedback	Development of responsibility, intrinsic motivation, and engagement (Hackman & Oldham, 1975)
Self-Determination Theory	Autonomy, competence, relatedness	Sustaining stable intrinsic motivation under conditions of stress and uncertainty (Ryan & Deci, 2000)
Model of Motivational Factors of Project Managers	Identification of critical factors affecting the motivation of project managers	Substantiation of a comprehensive approach to the motivation of project managers (Henkel & Haley, 2020)
Intrinsic Motivation and Extrinsic Incentives	Interaction of intrinsic motivation and extrinsic incentives in shaping performance	Intrinsic motivation is of particular importance for complex cognitive activity, while extrinsic incentives can support quantitative outcomes (Cerasoli et al., 2014)

Source: compiled by the author based on [4; 8; 30]

The theoretical approaches presented show that employee motivation in a project environment cannot be reduced solely to a system of material incentives. It is shaped by the interaction of the content of professional activity, the level of autonomy, a sense of competence and belonging, opportunities for development, recognition of results, and the characteristics of the organizational environment.

Accordingly, assessing the motivational potential of a project manager requires taking into account individual, team, and organizational factors alike. Studies of motivation in the field of project management also demonstrate the multifactorial nature of this phenomenon and the need to take into account the specifics of the project environment [1; 9; 22; 33].

Modern empirical studies confirm the importance of non-material and intrinsic factors of professional motivation [6; 35].

In particular, the significance of the work, opportunities for professional development, autonomy, and a sense of the social usefulness of the activity are regarded as important preconditions for sustaining specialists' stable engagement [33; 34].

At the same time, the realization of motivational potential depends not only on the individual characteristics of the employee but also on the organizational environment. Petrenko's study [20] draws attention to the role of the Project Management Office (PMO) in creating conditions that support autonomy, organizational support, and continuous professional learning for specialists.

Thus, motivational potential should be viewed as the result of the interaction between personal motivational factors and the characteristics of the environment in which project activity is carried out. Intrinsic motivation, a sense of the significance of professional activity, and an orientation toward a socially useful outcome can be regarded as important factors of the resilience of managerial behavior under conditions of uncertainty. For a project manager, this is manifested, in particular, in a readiness to independently overcome cross-functional barriers, take responsibility for decision-making, and constructively resolve organizational conflicts. To systematize this process, we have developed an original systemic structure of determinants of motivational potential (Table 4).

Thus, the motivational component complements the manager's competency profile and creates preconditions for the practical realization of his or her professional potential. The comprehensive model encompasses four coordinated groups of motivational vectors.

The competency and motivational components of forming a project manager's potential discussed above take on particular importance under conditions of high uncertainty and dynamic changes in the external environment. Modern conditions for carrying out project activity are characterized not only by volatility but also by the growing fragility of systems, the anxiety of participants, the nonlinearity of cause-and-effect relationships, and the complexity of interpreting information. The BANI model – Brittle, Anxious, Non-linear, Incomprehensible – is used to conceptualize these characteristics [3].

Brittleness. The brittleness of project systems increases the risk of the rapid collapse of plans and previously formed assumptions. This necessitates a shift from an excessive focus on the long-term fixation of project parameters toward continuous adaptation, scenario planning, and the step-by-step verification of decisions.

Anxiety. A heightened level of uncertainty and external stress increases the importance of the manager's emotional resilience, psychological safety, and a culture of trust within the team. Under such conditions, leadership potential is manifested not only in the ability to coordinate activity but also in sustaining constructive interaction and team engagement.

Non-linearity. The nonlinear nature of relationships complicates the forecasting of the consequences of management decisions, since minor initial changes can produce disproportionately significant outcomes. This increases the importance of systems thinking, the ability to identify interdependencies, and the timely revision of initial management assumptions.

Incomprehensibility. The limited availability, contradictory nature, or complexity of interpreting information increases the importance of a manager's ability to work with hypotheses, test assumptions through experimentation, and quickly adapt decisions based on new data. Accordingly, the role of intellectual flexibility, critical thinking, and the ability to act under incomplete information is growing.

Thus, the BANI environment changes not only the conditions for implementing projects but also the requirements for how human potential is used. The success of a project manager is increasingly determined by the ability to combine professional knowledge with adaptability, systems thinking, emotional resilience, flexibility, and a readiness to experiment. Accordingly, developing a project manager's potential should involve not only the accumulation of competencies but also the creation of conditions for their actualization and development in line with the characteristics of a specific project environment [28].

Table 4

Systemic structure of determinants of motivational potential in project activity

Cluster of factors	Components and manifestations	Mechanism of influence on motivational potential
1. Personal factors (core of the system)	1.1. Content and social significance of the project; 1.2. Interest in non-standard tasks; 1.3. Complexity of innovation challenges; 1.4. Autonomy in decision-making; 1.5. Continuous professional development; 1.6. Aspiration for self-realization; 1.7. Congruence of personal values with goals.	Form a stable intrinsic drive, intellectual engagement, and subjective responsibility; prevent rapid burnout during a crisis.
2. Team factors (socio-psychological circuit)	2.1. Psychological safety of communication; 2.2. Mutual support and trust among colleagues; 2.3. High team cohesion; 2.4. Recognition of individual contribution; 2.5. A sense of shared ownership of successes; 2.6. Informal collegial interaction.	Reduce transactional communication barriers, minimize the fear of making innovative mistakes, and support psychological resilience.
3. Organizational factors (institutional environment)	3.1. Systemic HR programs and mentoring; 3.2. Transparent career paths; 3.3. A culture of openness and tolerance; 3.4. Transformational leadership style; 3.5. Involvement in strategic sessions; 3.6. Objective, systematic feedback.	Serve as a channel for effort and a multiplier of internal potential; create the infrastructure for stable professional growth.
4. Financial-hygiene factors (basic foundation of security)	4.1. Competitive market compensation; 4.2. Transparent project KPI bonuses; 4.3. Social insurance and guarantees; 4.4. Employment stability and security; 4.5. Schedule flexibility and remote work options.	Neutralize feelings of anxiety and unfairness; retain talent within the organization, freeing up cognitive resources for productive tasks.

Source: developed by the author

Strategic directions for cooperation between business and the higher education system, as a way of overcoming the shortage of practical competencies under BANI-environment conditions, are becoming critically important. Aligning educational training with the needs of project-oriented business should be viewed not as a one-time update of educational programs but as a system of continuous interaction among universities, employers, and the professional community. Such interaction makes it possible to combine theoretical training, practical experience, the development of professional and leadership competencies, and the formation of motivational readiness to work under conditions of uncertainty. The main directions of such partnership may include:

1. Implementation of a dual education model. Combining theoretical training at the university with the practical involvement of students in real enterprise projects makes it possible to develop not only professional competencies but also the ability to apply them in a specific organizational context.

2. Integration of practitioner-mentors into the educational process. Involving experienced project managers, certified specialists, and Agile coaches in developing and updating educational content, reviewing educational components, and conducting practical classes helps narrow the gap between academic models and project management practice.

3. Developing a culture of project work among students. Implementing interdisciplinary projects in cooperation with real enterprises creates conditions for developing teamwork, communication, leadership, responsibility, and cross-functional coordination.

4. Corporate bootcamps and retraining centers. Joint university-company programs can be used to accelerate the development of project competencies among specialists from related professions and to build a talent pool for Junior PM / PM Assistant positions.

The study confirms that in modern project-oriented organizations, human potential is not merely an additional resource but the fundamental strategic core of the success of any project initiative. Attempts to reduce project management solely to controlling time, cost, and scope without taking psychosocial and motivational factors into account lead to a systemic decline in effectiveness under conditions of high uncertainty.

Integrating the PMI competency triangle (technical tools, leadership, and strategic business vision) requires balanced professional development of specialists in order to prevent disproportion toward pure theorizing or unstructured visioning. At the same time, unlocking human potential is impossible without activating a multilevel system of motivation. The conceptual model developed by the authors, which combines personal intrinsic motivators, team psychological safety, a supportive organizational environment, and basic financial guarantees, provides a theoretical foundation for the comprehensive assessment and development of a project manager's motivational potential. Further development of this direction lies in the practical verification of the proposed determinants through large-scale empirical testing at domestic project-oriented enterprises.

CONCLUSIONS

The study confirms that in modern project-oriented organizations, human potential is not merely an additional resource but the fundamental strategic core of the success of any project initiative. Attempts to reduce project management solely to controlling time, cost, and scope of work without taking psychosocial and motivational factors into account lead to a systemic decline in effectiveness under conditions of high uncertainty. Integrating the PMI competency triangle requires balanced professional development of specialists in order to prevent disproportion toward pure theorizing or unstructured visioning. At the same time, unlocking human potential is impossible without activating a multilevel system of motivation. The conceptual model developed by the authors, which combines personal intrinsic motivators, team psychological safety, a supportive organizational environment, and basic financial guarantees, provides a theoretical foundation for the comprehensive assessment and development of a project manager's motivational potential. Modern project management is characterized by a shift from local tools to integrated digital environments and the use of artificial intelligence technologies, which requires a high degree of adaptability and the ability to work under conditions of a nonlinear BANI environment.

Further development of this direction lies in the practical verification of the proposed determinants through large-scale empirical testing at domestic project-oriented enterprises, in studying mechanisms for the deep integration

of artificial intelligence systems into decision-making processes and project portfolio management, and in developing practical recommendations for implementing dual education and partnership programs between universities and business in order to overcome the shortage of digital and professional competencies on the labor market.

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