

# “Leadership potential of innovation-oriented managers and its impact on project management effectiveness”

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# LEADERSHIP POTENTIAL OF INNOVATION-ORIENTED MANAGERS AND ITS IMPACT ON PROJECT MANAGEMENT EFFECTIVENESS

## Abstract

As economic systems become more complex and external environmental instability increases, managers' characteristics play a more vital role in project management effectiveness. This study aims to evaluate the impact of the leadership potential of innovation-oriented managers on project management effectiveness in the regions of Ukraine. Leadership potential is operationalized as an integral psychometric construct comprising emotional intelligence, leadership behavior, and innovation orientation, enabling a comprehensive assessment of managerial competencies. The study draws on a survey of 210 managers from 68 commercial companies in the Poltava region of Ukraine, providing micro-level evidence on the relationship between leadership potential and project management effectiveness. Additionally, a meso-level comparative analysis of seven Ukrainian regions (Kharkiv, Kyiv, Dnipropetrovsk, Lviv, Poltava, Odesa, and Vinnytsia) was conducted using aggregated statistical indicators reflecting investment, innovation, and project activity. The results demonstrate a statistically significant positive relationship between managers' leadership potential and project management effectiveness ( $r = 0.68, p < 0.01$ ). The findings indicate that leadership potential is statistically associated with higher project effectiveness under relatively stable conditions; however, this relationship weakens significantly under structural shocks and external constraints. This confirms that the managerial effect of leadership potential is context-dependent and mediated by regional economic and institutional conditions. After the full-scale Russian aggression in 2022, a significant weakening of the relationship between leadership potential and project management effectiveness is observed, indicating the dominance of exogenous factors (e.g., security, infrastructure, and institutions) over managers' managerial characteristics.

## Keywords

management, leadership potential, transformations,  
project, innovations, evaluation, managerial  
competencies, effectiveness

## JEL Classification

M12, M14, O32

## INTRODUCTION

Amid increasing global instability, digital transformation, and the growing complexity of organizational systems, improving the efficiency of managing innovation-oriented organizations is especially crucial. In Ukraine, these processes are complicated by the influence of martial law and the associated economic and institutional challenges, which further increase the role of adaptive management approaches. The effectiveness of project management under wartime conditions differs substantially between frontline and rear regions because the operational environment, security risks, infrastructure availability, and stakeholder accessibility are fundamentally different. Frontline regions face continuous disruptions caused by military operations, damaged transport and energy infrastructure, interruptions in lo-

gistics, and increased uncertainty, requiring adaptive planning, decentralized decision-making, and enhanced organizational resilience. In contrast, rear regions generally operate under relatively stable institutional and logistical conditions, allowing greater predictability in project implementation and resource allocation. Thus, the project approach to management becomes a key tool for implementing innovative changes, strategic initiatives, and development programs. Under such conditions, managers' leadership potential is an important factor in determining the effectiveness of management processes and the success of project implementation. The practical significance of measuring the leadership potential of innovation-oriented managers lies in the need for organizations to combine leadership competencies, innovative thinking, and effective project management tools amid increasing uncertainty. This issue is vital both for the development of theoretical foundations of management and for increasing the effectiveness of project activities in modern organizations.

Despite significant scientific attention to leadership, innovation management, and project management, the relationship between the leadership potential of innovation-oriented managers and the effectiveness of project management remains insufficiently studied. Leadership competencies, innovative behavior, and project outcomes are mainly analyzed separately, whereas their complex interactions within innovation-oriented management systems are covered only fragmentarily. This creates a research gap regarding how leadership potential affects the quality of management decisions, teamwork coordination, and the achievement of project goals across different environmental conditions.

## 1. LITERATURE REVIEW AND HYPOTHESES

In contemporary conditions of innovative development, the effectiveness of project activities depends not only on technological capabilities but also on the quality of managerial human capital, leadership potential, and the organizational environment in which projects are implemented. Contemporary studies consistently show that effective leadership contributes to project success by fostering innovative behavior, strengthening organizational adaptability, and improving managerial decision-making. Leadership is therefore increasingly viewed not merely as an individual characteristic but as a strategic organizational capability that enhances project resilience and long-term competitiveness (Costa et al., 2023). At the same time, investments in human capital, professional development, and managerial competencies significantly improve organizational performance and the effectiveness of managerial processes, particularly under conditions of environmental uncertainty (Stepanova, 2026; Furman et al., 2023). Gryshchenko et al. (2021) reach similar conclusions, showing that innovation-oriented organizational ecosystems and collaborative knowledge environments strengthen managerial competencies, facilitate human capital development, and create favorable conditions for implementing innovative projects.

Recent project management research increasingly considers leadership within a broader framework of managerial capability that combines behavioral, cognitive, technological, and organizational dimensions. Transformational leadership positively affects project effectiveness by increasing employee motivation, strengthening organizational commitment, and facilitating strategic alignment between project objectives and organizational goals (Zaman et al., 2020; Han & Zhang, 2024; Verhun et al., 2022). However, sustainable project success depends not only on formal leadership styles but also on managers' behavioral flexibility, emotional competencies, and ability to coordinate organizational learning and innovation processes (Xue et al., 2020; Faulks et al., 2021).

Digital transformation further expands the understanding of managerial effectiveness by integrating technological change with organizational restructuring and continuous learning. Under these conditions, leadership effectiveness is increasingly associated with the ability to coordinate digital technologies, organizational knowledge, and human capital development rather than merely supervising project implementation (Ferede, 2024). Accordingly, leadership becomes a central mechanism for synchronizing technological innovation with organizational adaptation, enabling firms to maintain competitiveness in rapidly changing business environments (Sacavém et al., 2025).

In project management theory, leadership is recognized as a principal determinant of project success alongside methodological, organizational, and contextual factors. Modern approaches extend the traditional “iron triangle” by incorporating organizational performance, stakeholder satisfaction, knowledge creation, and long-term value generation into project success evaluation (Pinto et al., 2022). Consequently, project managers increasingly perform strategic functions that include coordinating stakeholder interests, resolving organizational conflicts, maintaining team motivation, and ensuring effective communication throughout the project lifecycle (Rehan et al., 2024; Rehan et al., 2025).

Overall, recent literature demonstrates a gradual transition from analyzing individual leadership styles toward a more comprehensive understanding of leadership potential as an integrated managerial capability. Rather than considering leadership exclusively as a behavioral characteristic, contemporary studies increasingly interpret it as a multidimensional construct combining managerial competencies, organizational learning, digital readiness, innovation orientation, and strategic adaptability. This integrated perspective provides a more comprehensive theoretical foundation for explaining differences in project management effectiveness under conditions of environmental uncertainty.

Project management research increasingly recognizes that the relationship between leadership and project success is rarely direct. Instead, leadership influences project outcomes through a system of organizational, behavioral, and team-level mechanisms that jointly determine project performance. Meta-analytical and empirical studies consistently demonstrate that transformational leadership has a stronger positive association with project success than transactional leadership because it creates favorable conditions for collaboration, organizational learning, employee engagement, and knowledge exchange (Abbas & Ali, 2023; Costa et al., 2023; Zaman et al., 2020). At the same time, transformational leadership strengthens project performance primarily through team-building processes and the development of collaborative working environments rather than through direct managerial intervention (Ali et al., 2021).

Recent studies further show that leadership effectiveness depends on a wide range of behavioral and organizational capabilities. In particular, psychological empowerment, knowledge sharing, collective problem-solving, and organizational learning significantly enhance employees' innovative behavior and improve project implementation quality (Khan et al., 2025; Verhun et al., 2022). These mediating mechanisms increase organizational flexibility and facilitate the translation of managerial decisions into measurable project outcomes, especially under conditions characterized by high uncertainty and continuous environmental change.

Alongside transformational leadership, the literature highlights alternative leadership approaches that improve organizational adaptability through different managerial mechanisms. Servant leadership contributes to team learning, employee development, and adaptive capacity by creating supportive organizational environments (Han & Zhang, 2024). Shared leadership, in turn, distributes leadership responsibilities across project participants, increasing responsiveness to changing project conditions and improving coordination throughout different project phases (Karppi et al., 2024). Similar conclusions are presented in studies devoted to system-based and synergetic approaches to organizational management, where temporary management structures and adaptive coordination mechanisms are considered essential components of effective project implementation in complex organizational systems (Voznyuk et al., 2022). Studies on digital transformation and innovation-oriented economies likewise confirm that leadership effectiveness increasingly depends on organizational adaptability rather than solely on formal authority (Agaisina & Paliński, 2025; Sacavém et al., 2025).

Innovation is also increasingly interpreted as a managerial capability rather than exclusively as a technological outcome. Contemporary research emphasizes that managers shape innovation through strategic decision-making, organizational learning, entrepreneurial orientation, and the creation of favorable institutional conditions for change. Enterprise innovation strategies therefore become closely associated with managerial capability to identify appropriate innovation tra-

jectories and effectively coordinate project implementation (Mironova et al., 2022). Similarly, the development of enterprise innovation potential constitutes a strategic managerial process that strengthens competitive advantage and creates favorable conditions for successful project implementation (Markina et al., 2020). Studies of university innovation clusters also show the significance of innovation ecosystems and collaborative organizational environments, where knowledge integration and cooperation substantially enhance organizational competitiveness and innovation capacity (Gryshchenko et al., 2021).

The organizational environment in which leadership operates is equally critical for project success. Recent studies indicate that organizational and managerial security, along with financial and personnel support, significantly influence organizations' capacity to implement innovative projects successfully, particularly under conditions of environmental instability. Effective managerial systems therefore require coordinated development of organizational structures, human resources, financial sustainability, and innovation management mechanisms (Kushnir et al., 2024). This conclusion complements previous findings concerning entrepreneurial leadership, according to which proactive opportunity recognition, strategic risk-taking, and data-driven managerial decision-making strengthen organizational innovation and improve project effectiveness in dynamic environments (Norena-Chavez & Romani Torres, 2024; Norena-Chavez et al., 2026; Fastovets et al., 2025; Zayed et al., 2022).

Innovation potential and entrepreneurial competencies have therefore become integral elements of contemporary leadership research. Structured competency models, innovation potential assessment, and the development of creative human capital significantly improve organizational adaptability, managerial decision-making, and long-term project sustainability (Hnatenko et al., 2020). Collectively, these findings indicate that leadership contributes to project success through a combination of organizational capabilities that integrate behavioral, innovation-related, entrepreneurial, and knowledge-based mechanisms rather than through isolated managerial characteristics.

The manifestation of leadership potential and project management effectiveness should also be considered within the broader institutional and socio-economic environment in which organizations operate. For Ukraine, this issue has become particularly relevant because the full-scale war has driven profound structural transformations that have fundamentally altered organizational conditions, resource availability, and managerial priorities. Crisis conditions reshape managerial behavior, organizational resilience, and strategic decision-making by increasing uncertainty and strengthening the influence of external institutional constraints (Mulska et al., 2022; Dmytryshyn & Blahun, 2016; Oliynyk et al., 2024; Zayed et al., 2022). Consequently, leadership effectiveness increasingly depends on managers' ability to adapt organizational processes to rapidly changing external environments.

The regional dimension represents another determinant of project management effectiveness. Regional disparities in economic development, institutional capacity, innovation activity, and investment attractiveness create heterogeneous conditions for project implementation, making identical managerial approaches insufficient for achieving comparable project outcomes (Strilets et al., 2024). Moreover, external institutional and regulatory environments significantly influence managerial behavior through fiscal policy, financial incentives, and governance mechanisms that shape organizational sustainability and strategic decision-making (Davydenko et al., 2023; Canoğlu & Üstüner, 2025). Financial security constitutes one of the fundamental prerequisites for sustainable enterprise development and effective managerial decision-making, particularly in the agricultural sector, where financial resilience directly affects organizations' capacity to implement long-term development projects (Davydenko, 2015).

Therefore, project effectiveness is determined by the interaction of behavioral, organizational, institutional, and contextual factors rather than by leadership characteristics alone. Leadership practices influence project performance through organizational learning, team collaboration, adaptability, knowledge sharing, innovation capability, and emotional intelligence, all of which jointly determine organizational resilience and sustainable

project outcomes (Han & Zhang, 2024; Zhang & Hao, 2022; Rodrigues & Matos, 2024; Verhun et al., 2022; Prokofieva & Biletskyi, 2025).

Despite the considerable body of research on leadership and project management, several gaps remain. First, most empirical studies examine either leadership styles or individual managerial competencies separately, without integrating them into a comprehensive concept of managers' leadership potential. Second, relatively few studies simultaneously combine psychometric assessment of managerial characteristics with objective indicators of project management effectiveness. Third, limited attention has been devoted to analyzing how regional disparities, institutional environments, and structural shocks jointly moderate the relationship between leadership potential and project performance, particularly in transition economies affected by prolonged crises. Addressing these gaps provides the theoretical foundation for the empirical analysis presented in this study (Ferede, 2024; Martin et al., 2025; Palašćáková et al., 2024).

In view of the above, this paper empirically evaluates the impact of the leadership potential of innovation-oriented managers on project management effectiveness in the seven studied regions of Ukraine. The hypotheses of the study are as follows:

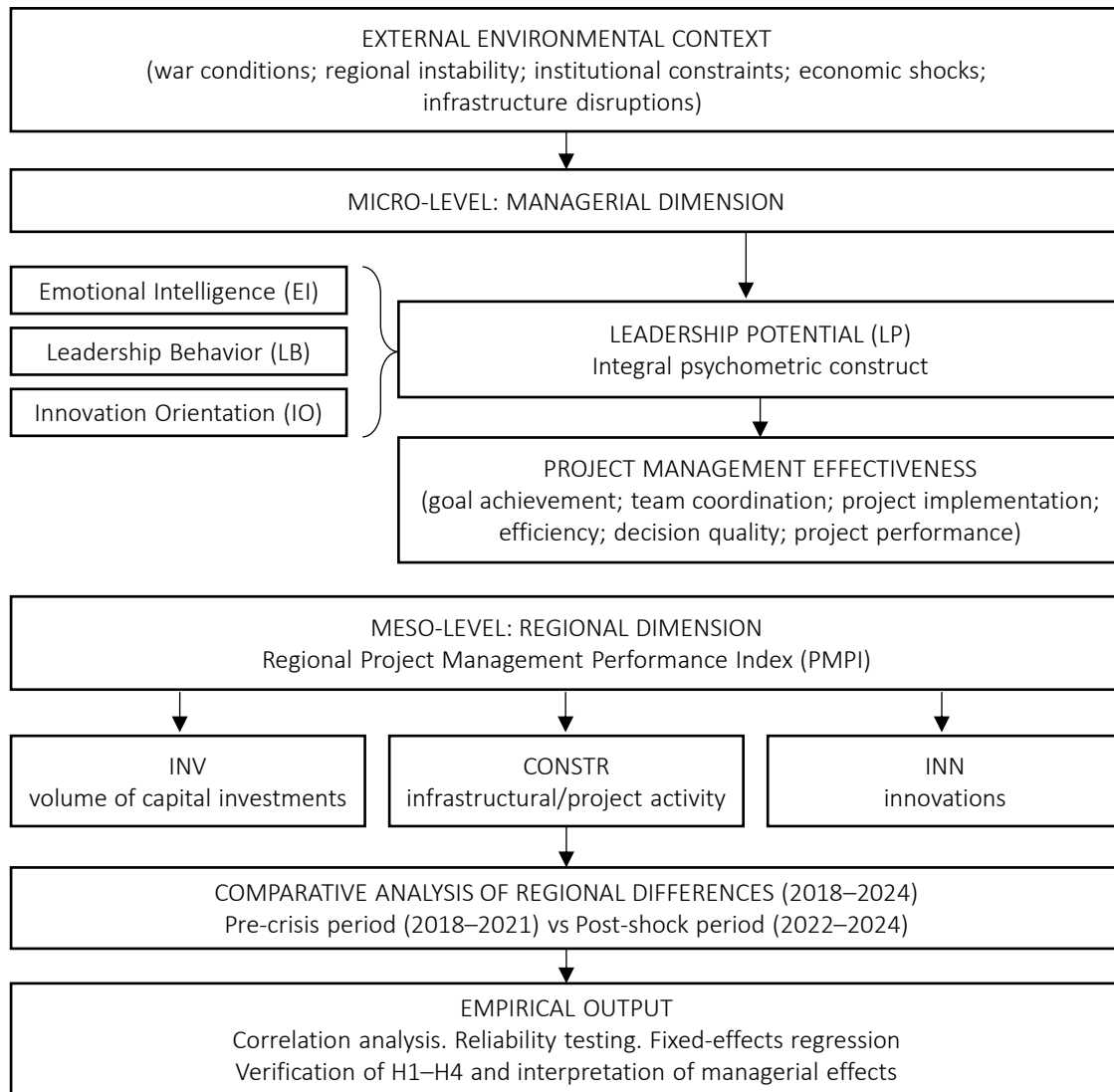
- H1: *The leadership potential of innovation-oriented managers demonstrates a positive and statistically significant association with project management effectiveness.*
- H2: *The integrated indicator of leadership potential better explains project management effectiveness than its individual components (emotional intelligence, leadership behavior, and innovation orientation) taken separately.*
- H3: *Regions with higher average levels of managers' leadership potential demonstrate higher project management effectiveness.*
- H4: *The influence of managers' leadership potential on project management effectiveness remains stable regardless of external environmental changes and structural shocks.*

## 2. METHOD

The study uses a mixed-methods design. It combines quantitative and qualitative methods of data analysis (Figure 1). This approach enables a comprehensive assessment of managers' leadership potential and its relationship to project management effectiveness. The research is cross-sectional in nature and focuses on the commercial sector.

The analysis was conducted in 2023 in Ukraine, focusing on commercial companies in the Poltava region. For the meso-level analysis, the study used data from seven regions of Ukraine: Kharkiv, Kyiv, Dnipropetrovsk, Lviv, Poltava, Odesa, and Vinnytsia. The regional sample was intentionally designed to reflect Ukraine's territorial heterogeneity after 2022. It includes regions with significantly different economic structures, security conditions, infrastructure stability, and intensity of project activity. In particular, the sample combines regions directly affected by hostilities and security violations (Kharkiv and partly Dnipropetrovsk regions), central regions with relatively stable business activity (Poltava and Vinnytsia regions), the capital region with the highest concentration of investment and project resources (Kyiv region), and western regions with relatively safer operating conditions and increased business activity associated with relocation (Lviv region). The Odesa region was included as a strategically important logistics and port-oriented region with specific constraints on project implementation. This regional composition allows comparison of project management effectiveness under significantly different external conditions. The empirical survey of managers was conducted in the Poltava region and provides a micro-level view of managerial characteristics. The regional analysis of project management effectiveness was conducted at the meso-level using aggregated regional indicators. Regions of Ukraine with different economic structures and project activity levels were selected for comparative analysis. Combining micro- and meso-level analysis allows evaluation of the stability of managerial effects in a broader regional context.

The psychometric survey of managers ( $N = 210$ ) was conducted exclusively in the Poltava region and was used only for micro-level analysis of the relationship between managers' leadership poten-



**Figure 1.** Multi-level conceptual framework of the study

tial and the effectiveness of project management. Accordingly, indicators of emotional intelligence, leadership behavior, innovation orientation, integral leadership potential, and self-assessment of project management effectiveness were obtained only from data on respondents from the Poltava region.

The meso-level analysis has a different analytical purpose and is based not on additional surveys of managers in the regions, but on aggregated statistical indicators that characterize the investment, innovation, and project activity of the regions. Therefore, the regional component of the study is not a direct measurement of the leadership potential of managers in the relevant regions, but is used to assess the contextual conditions for the imple-

mentation of project activities and check the stability of the patterns identified at the micro-level in different external environments.

Thus, micro- and meso-level studies are complementary, but do not form a single multi-regional sample of respondents. Therefore, the results of the psychometric analysis should not be interpreted as representative assessments of the leadership potential of managers from all regions of Ukraine, but only as the results of a study of a sample of managers of commercial enterprises in the Poltava region.

To analyze the indicators' temporal dynamics, the study period was divided into pre-crisis (2018–2021) and post-shock (2022–2024) intervals to

compare project management effectiveness before and after the structural environmental shift. The study involved managers directly engaged in managing or coordinating project activities. Inclusion criteria included managerial functions, participation in projects, and at least one year of managerial experience. The sample was purposive and based on respondent availability. The total sample comprised  $N = 210$  managers from 68 commercial companies. The sample included micro-, small, medium, and large companies from various sectors of economic activity. The sample included managers at various levels, including line and middle managers. The minimum socio-demographic characteristics included gender, age, managerial position, and managerial experience. The demographic and managerial characteristics of the respondents are presented in Table 1.

**Table 1.** Demographic and managerial characteristics of respondents

| Characteristics       | Category                   | Share, % |
|-----------------------|----------------------------|----------|
| Gender                | Male                       | 58.1     |
|                       | Female                     | 41.9     |
| Age                   | Under 25 years             | 6.2      |
|                       | 26–35 years                | 34.8     |
|                       | 36–45 years                | 38.6     |
|                       | 46–55 years                | 16.7     |
|                       | 56 years and older         | 3.7      |
| Management Position   | Line managers              | 46.2     |
|                       | Middle managers            | 44.3     |
|                       | Other management positions | 9.5      |
| Management Experience | Up to 3 years              | 14.3     |
|                       | 3–5 years                  | 21.0     |
|                       | 6–10 years                 | 29.5     |
|                       | Over 10 years              | 35.2     |

This distribution indicates the dominance of managers with medium and significant managerial experience in the sample, which increases the relevance of the obtained assessments for analyzing leadership potential in project management. The survey was conducted electronically via an online questionnaire. The questionnaire link was distributed through professional contacts and the companies' organizational channels. Participation in the study was voluntary, and all responses were collected anonymously. The study followed the ethical principles of social and behavioral sciences. Respondents were informed about the research's scientific purpose and the confidentiality of data processing. Questionnaires included informed consent.

In this study, the term “projects” refers to business projects of organizational development and innovation-oriented business projects implemented by commercial companies. These include investment projects, business expansion projects, organizational change projects, innovation implementation projects, infrastructure modernization projects, and projects to implement new products, services, or management solutions. The main focus is on projects characterized by defined goals, time frames, allocated resources, and measurable implementation results. Routine operational activities that lacked project characteristics were excluded from the analysis.

The questionnaire consisted of structured and open-ended questions. The full list of questionnaire items is provided in Appendix A. The structured part of the questionnaire is original and was developed by synthesizing contemporary research on leadership, emotional intelligence, and innovation management. The statements were formed based on theoretical models and empirical approaches proposed in contemporary scientific literature. The content validity of the scales was ensured by expert evaluation and preliminary logical verification of construct alignment. These questions were used to measure the components of leadership potential and project management effectiveness. The open-ended section of the questionnaire included text-based questions regarding managerial values, practices, and perceptions of effectiveness. The textual responses served as the basis for qualitative content analysis.

To analyze the impact of leadership potential on project management effectiveness in the broader context of the study, the analysis shifted from the micro level of individual assessments to the meso-level of regional integral indicators. This approach allows for accounting for the influence of external project implementation conditions and evaluating the stability of managerial impact under conditions of structural change.

The next stage of the study is to develop integral indicators of project management effectiveness at the regional level (the PM Index). The PM Index is formed as an integral indicator reflecting regional “project effectiveness” through official statistics proxies (2018–2024). INV (Investment

subindex) is capital investments (volume of capital investments, “Total”, all types of economic activity). CONSTR (Construction subindex) is infrastructural/project activity measured by commissioning: the total area of residential and non-residential buildings, aggregated from quarters to a year. INN (Innovation subindex) is the share of innovation-active enterprises. The data for 2018–2021 served as the baseline pre-crisis period for comparison, enabling an accurate assessment of changes in project management effectiveness following the structural shift of 2022.

The leadership potential of managers is operationalized as an integral psychometric construct. It includes emotional intelligence, behavioral characteristics, and innovative-cognitive orientation. Each component was measured using a set of scale indicators. Leadership potential (LP) is considered a latent variable measured through a set of observable indicators (1) (Hair et al., 2019):

$$LP_i = \lambda_1 EI_i + \lambda_2 LB_i + \lambda_3 IO_i + \varepsilon_i, \quad (1)$$

where  $EI_i$  is the manager's emotional intelligence;  $LB_i$  is leadership behavior;  $IO_i$  is innovative orientation;  $\lambda$  is factor loadings;  $\varepsilon_i$  is measurement error.

Project management effectiveness was evaluated through subjective indicators of project implementation efficiency. Additionally, regional indicators of project and investment activity were used for aggregated analysis. The project management effectiveness index is calculated as the average of normalized indicators (Mironova et al., 2022):

$$PMPI_{rt} = \frac{1}{n} \sum_{j=1}^n Z_{jrt}, \quad (2)$$

where  $r$  is region,  $t$  is year.

Descriptive statistics methods were applied to analyze quantitative data. The mean and standard deviation of the indicators were calculated. Independent samples  $t$ -tests were used for group comparisons. Correlation analysis evaluated relationships among variables. Correlation analysis was used to evaluate the association between leadership potential and project management effectiveness. Pearson correlation coefficient was applied to assess relationships among quantitative

scale variables. Comparative regional analysis was used to examine differences in project management effectiveness indicators before and after the structural shock of 2022. To analyze qualitative data, a content analysis of textual responses was applied. The content analysis included the stages of open coding, code grouping, and analytical category formation. The resulting categories were used to interpret managerial values and practices. Quantitative and qualitative analyses were used in complementary ways within a single analytical framework. A correlation analysis was conducted to evaluate the relationship between components of leadership potential and project management effectiveness. Pearson correlation coefficient was used for quantitative scale variables. The assessment of the impact of leadership potential on project management effectiveness is carried out using a fixed-effects panel regression (Baltagi, 2005):

$$PMPI_{rt} = \beta_0 + \beta_1 LP_{rt} + \beta_2 Shock_t + \beta_3 (LP_{rt} \cdot Shock_t) + \mu_r + \tau_t + \varepsilon_{rt}, \quad (3)$$

where  $Shock_t = 1$  for 2022–2024;  $\mu_r$  is regional fixed effects;  $\tau_t$  is time fixed effects.

To evaluate the internal consistency of the psychometric scales, Cronbach's alpha ( $\alpha$ ) coefficient was used. Values of  $\alpha$  greater than 0.7 were considered acceptable levels of reliability for the measurement instruments. The research was conducted in several sequential stages using a single data collection instrument. Psychometric testing used a structured questionnaire designed to assess managerial characteristics. The questionnaire included scale statements for measuring emotional intelligence, leadership behavior, and innovation orientation. All psychometric components were measured simultaneously within a single survey. Respondents completed the assessment through self-report on a five-point Likert scale. The survey was conducted among managers of commercial companies in the Poltava region. It was administered electronically via an online questionnaire. Participation in the study was voluntary and anonymous. After data collection, the completeness of the responses was checked, and preliminary data cleaning was performed. The prepared dataset was used to verify scale reliability, perform descriptive statistics, and conduct correlation and regression analyses.

The survey sample was intentionally limited to managers from commercial companies in the Poltava region and therefore does not claim statistical representativeness for the entire population of managers in Ukraine. Accordingly, the findings should be interpreted primarily within the context of the selected regional and sectoral sample. Future research may expand the empirical base by including a larger cross-regional sample and broader sectoral coverage.

### 3. RESULTS

The results allow for an empirical evaluation of the role of managerial human capital in ensuring the effectiveness of project activities. The analysis focuses on identifying stable relationships between managers' leadership potential and project implementation efficiency. Special attention is given to the differences in the manifestation of these relationships across various organizational and regional contexts. The empirical results lay the groundwork for further interpretation of the managerial mechanisms influencing project outcomes. Project management effectiveness was measured using a separate self-assessment scale for project implementation efficiency (Table 2).

The results indicate high internal consistency across all psychometric scales ( $\alpha = 0.82\text{--}0.91$ ), con-

firmed the reliability of applied instruments. The leadership potential indicator shows the strongest relationship with project management effectiveness, underscoring the need for a comprehensive approach to evaluating managerial competencies.

The correlation analysis revealed a statistically significant positive relationship between all components of leadership potential and project management effectiveness. The highest correlation coefficient was recorded between the integral indicator of leadership potential and project implementation effectiveness ( $r = 0.68, p < 0.01$ ). This means that managers with higher levels of emotional competence, pronounced leadership behavior, and an innovation orientation, on average, demonstrate greater project management effectiveness. At the same time, the integral leadership potential indicator explains project management effectiveness better than any individual component, confirming its analytical value. To analyze the relationship between leadership potential and project management effectiveness at the meso-level, the individual survey results were aggregated by region.

Table 3 indicates clear regional differentiation in both leadership potential and project management effectiveness. Regions with higher average leadership potential levels (Kharkiv, Kyiv, and

**Table 2.** Descriptive statistics and reliability of psychometric scales

| Components and indicators           | Number of questions | Average value (M) | Standard deviation (SD) | Cronbach's coefficient ( $\alpha$ ) | Correlation with efficiency (r) |
|-------------------------------------|---------------------|-------------------|-------------------------|-------------------------------------|---------------------------------|
| Emotional intelligence (EI)         | 6                   | 5.42              | 0.82                    | 0.86                                | 0.48                            |
| Leadership behavior (LB)            | 7                   | 5.81              | 0.65                    | 0.89                                | 0.61                            |
| Innovative orientation (IO)         | 6                   | 5.24              | 0.94                    | 0.84                                | 0.55                            |
| Leadership potential (LP)           | 19                  | 5.49              | 0.80                    | 0.91                                | 0.68                            |
| Effectiveness of the projects (RES) | 4                   | 5.12              | 1.12                    | 0.82                                | —                               |

**Table 3.** Regional distribution of leadership potential and effectiveness indicators

| Region                | EI (M) | LB (M) | IO (M) | LP (M) | LP (SD) | RES (M) | Correlation LP-RES (r) |
|-----------------------|--------|--------|--------|--------|---------|---------|------------------------|
| Kharkiv region        | 5.49   | 5.73   | 5.35   | 5.52   | 0.95    | 5.38    | 0.94                   |
| Kyiv region           | 5.37   | 5.66   | 5.29   | 5.44   | 0.89    | 5.25    | 0.93                   |
| Dnipropetrovsk region | 5.33   | 5.70   | 5.28   | 5.44   | 0.83    | 5.26    | 0.96                   |
| Lviv region           | 5.07   | 5.43   | 5.00   | 5.17   | 0.74    | 4.91    | 0.96                   |
| Poltava region        | 5.08   | 5.43   | 4.97   | 5.16   | 0.84    | 4.97    | 0.93                   |
| Odesa region          | 4.99   | 5.37   | 4.89   | 5.08   | 0.78    | 4.80    | 0.93                   |
| Vinnitsia region      | 4.86   | 5.22   | 4.73   | 4.94   | 0.90    | 4.69    | 0.96                   |
| Total                 | 5.18   | 5.51   | 5.07   | 5.25   | 0.85    | 5.04    | 0.95                   |

Note: EI = Emotional intelligence; LB = Leadership behavior; IO = Innovative orientation; LP = Leadership potential; RES = Effectiveness of the projects.

Dnipropetrovsk) also show higher project management effectiveness. At the same time, regions with a relatively lower level are characterized by lower average effectiveness values. Statistically significant correlation coefficients between leadership potential and effectiveness of the projects (0.93–0.96) confirm a strong association between managerial human capital and project implementation efficiency.

The statistical characteristics indicate adequate measurement quality for all the constructs and their substantive relationships with project effectiveness. Cronbach's alpha ( $\alpha$ ) values for all indicators exceed the threshold of 0.8, indicating a high level of internal consistency of the scales and allowing the obtained results to be considered reliable from the perspective of classical psychometrics. The mean values of the studied variables range from 5.12 to 5.81, indicating a generally medium to above-medium level of development of emotional intelligence, leadership behavior, innovation orientation, and leadership potential in the sample. The highest mean score was recorded for leadership behavior ( $M = 5.81$ ), suggesting its pronounced role in project management practices.

Correlation analysis reveals moderate to strong positive relationships among all the studied leadership characteristics and project effectiveness. The strongest relationship with effectiveness was recorded for leadership potential ( $r = 0.68$ ), confirming its system-forming role in achieving project outcomes.

To test the impact of the leadership potential of innovation-oriented managers on project management effectiveness, the results of the individual survey were used in a micro-level analysis. The ob-

tained correlation coefficient values indicate a statistically significant positive relationship between the integral indicator of leadership potential and project implementation effectiveness ( $r = 0.68$ ,  $p < 0.01$ ). This allows interpreting leadership potential as a statistically significant factor associated with project management effectiveness; however, the obtained results do not establish causal relationships between the variables. At the same time, the results are interpreted as managerial impact in a statistical sense, without claiming a strict causal conclusion.

The innovation orientation of managers within the leadership potential structure serves as a mechanism for translating managerial decisions into project effectiveness. Compared to emotional intelligence and leadership behavior, innovation orientation shows an independent positive relationship with project effectiveness, underscoring its particular significance for project management in a changing, unstable environment.

For each year, the indicators were min-max normalized across 7 regions to the [0, 1] scale. It is also assumed that the PM Index for the year is the arithmetic mean of the subindices with equal weights. The normalized subindices for the periods 2018–2021 and 2022–2024 are presented in Table 4.

A comparative analysis of normalized indicators for the periods 2018–2021 and 2022–2024 indicates significant territorial asymmetry in investment and construction activity after 2022. In most regions, the investment indicator (INV) declined or stagnated, most pronounced in Kharkiv and Odesa, whereas Kyiv and Dnipropetrovsk maintained relatively high values.

**Table 4.** INV/INN/CONSTR sub-indices by period (normalized scale 0–1)

Source: Our elaboration based on Ukrstat (n.d.).

| Region                | INV<br>(2018–2021) | INN<br>(2018–2021) | CONSTR<br>(2018–2021) | INV<br>(2022–2024) | CONSTR<br>(2022–2024) |
|-----------------------|--------------------|--------------------|-----------------------|--------------------|-----------------------|
| Kharkiv region        | 0.138              | 0.957              | 0.183                 | 0.022              | 0.004                 |
| Kyiv region           | 0.522              | 0.744              | 1.000                 | 0.763              | 1.000                 |
| Dnipropetrovsk region | 1.000              | 0.668              | 0.135                 | 1.000              | 0.072                 |
| Lviv region           | 0.256              | 0.744              | 0.599                 | 0.551              | 0.560                 |
| Poltava region        | 0.151              | 0.265              | 0.000                 | 0.152              | 0.060                 |
| Odesa region          | 0.135              | 0.000              | 0.382                 | 0.056              | 0.258                 |
| Vinnitsia region      | 0.000              | 0.500              | 0.193                 | 0.058              | 0.319                 |

**Table 5.** PM Index by period and change after 2022 (equal weighting of available components)

Source: Our elaboration based on Ukrstat (n.d.).

| Region                | PM Index (2018–2021) | PM Index (2022–2024) | Change |
|-----------------------|----------------------|----------------------|--------|
| Kharkiv region        | 0.293                | 0.013                | –0.280 |
| Kyiv region           | 0.761                | 0.882                | 0.121  |
| Dnipropetrovsk region | 0.590                | 0.536                | –0.054 |
| Lviv region           | 0.489                | 0.555                | 0.066  |
| Poltava region        | 0.108                | 0.106                | –0.002 |
| Odesa region          | 0.220                | 0.157                | –0.063 |
| Vinnitsia region      | 0.161                | 0.188                | 0.027  |

The interpretation of the dynamics of the integral project management effectiveness indicator for the periods 2018–2021 and 2022–2024 evidences the uneven impact of the structural shift after 2022 at the regional level. The most substantial decrease in the PM Index was recorded in the Kharkiv region (–0.280), which aligns with the sharp deterioration in project implementation conditions due to changes in the security, infrastructure, and institutional environment. Against this backdrop, the Kyiv region demonstrates positive dynamics in the integral indicator (+0.121), which, within the available components, is explained by the maintenance of high normalized investment activity levels and the commissioning of facilities in 2022–2024. For several regions, the changes in the PM Index are moderate in nature, particularly in the Dnipropetrovsk and Odesa regions, or are close to zero, as in the Poltava region, indicating the relative inertia of project effectiveness under conditions of partial loss of individual index components.

The results indicate that, even with relatively stable leadership potential across regions, project management effectiveness after 2022 is largely determined by exogenous factors. This points to the context dependence of managerial impact and the limitations of leadership potential effectiveness under conditions of a profound structural shock.

The final stage of the study involves examining how regional values of leadership potential (LP) corre-

late with the integral PM Index assessments before and after the structural shock. For this purpose, a correlation analysis was conducted (Table 6).

A comparative analysis of Pearson correlation coefficients between leadership potential and the integral project management effectiveness indicator reveals a significant shift in the relationship after 2022. In the pre-crisis period (2018–2021), a moderately positive relationship was observed ( $r = 0.627$ ), indicating the significant role of leadership potential in shaping regional project effectiveness. In contrast, during the 2022–2024 period, the relationship's strength decreases significantly to a weakly positive level ( $r = 0.325$ ), indicating the limited impact of managerial characteristics amid the dominance of exogenous factors. The negative value of the coefficient difference (–0.389) confirms that after the structural shock, regional losses and objective environmental constraints outweigh the effect of leadership potential, reducing its correlational contribution to project management effectiveness.

The results of the content analysis indicate the dominance of the values of flexibility, teamwork, and integrity in managers' perceptions. The values of innovation, openness, and staff development were mentioned less frequently. The obtained categories align with the quantitative results regarding the role of innovation orientation and leadership behavior. Within the qualitative content analysis, textual responses to the open-ended questions of

**Table 6.** Correlation between LP and PM Index

Source: Our elaboration based on Ukrstat (n.d.).

| Period PM Index            | Correlation between LP and PM Index | Interpretation                                  |
|----------------------------|-------------------------------------|-------------------------------------------------|
| 2018–2021 (before the war) | 0.627                               | moderately positive correlation                 |
| 2022–2024 (during the war) | 0.325                               | weak positive correlation                       |
| Change (during–before)     | –0.389                              | negative correlation (regional losses dominate) |

block E were analyzed. The analysis was conducted through open coding, followed by grouping the codes into meaningful categories. At the first stage, 47 primary semantic codes were identified. The codes reflected recurring managerial meanings, behavioral orientations, and value emphases. In the second stage, the codes were aggregated into 6 generalized categories of managerial values and practices. Codes related to rapid response, decision changes, and anti-crisis actions were assigned to the “flexibility and adaptability” category. The “teamwork” category encompassed codes of collaboration, communication, trust, and collective responsibility. The “integrity and responsibility” category included ethicality, transparency of decisions, and personal responsibility for results. A separate “innovation openness” category was identified, encompassing the support of new ideas and experimentation. The “staff development” category included codes for training, mentoring, and the formation of innovative competencies. The sixth category, “result orientation,” focused on goal achievement and project effectiveness. The categories of flexibility, teamwork, and integrity received the highest frequency of mentions. The categories of innovation, openness, and staff development were mentioned significantly less often. The resulting category structure confirms the dominance of behavioral and value-based aspects of management in managers’ perceptions. The results of the qualitative analysis are consistent with the quantitative findings regarding the role of leadership behavior and innovation orientation. Thus, the content analysis complements the psychometric results and clarifies the nature of the managerial impact on project effectiveness.

Thus, the study results confirm that the leadership potential of innovation-oriented managers positively affects project management effectiveness under stable conditions. However, in the post-2022 period, its impact significantly weakens under external constraints, indicating a decrease in the controllability of regional project processes. This allows for the conclusion that the managerial impact of leadership potential is conditional, depending on the macro- and meso-economic context. The study’s hypotheses regarding the positive impact of leadership potential on project management effectiveness and the weakening of this impact following a structural shock have been empirically confirmed.

The empirical testing confirmed hypotheses H1–H3. In particular, leadership potential was positively associated with project management effectiveness at both the individual and regional levels, while the integrated leadership potential construct demonstrated stronger explanatory power than its individual dimensions.

However, hypothesis H4 was rejected. The findings indicate that the effect of leadership potential is not stable across all environmental conditions. After the full scale Russian aggression in 2022, the relationship between leadership potential and project management effectiveness weakened significantly due to structural external shocks, suggesting that managerial influence is context-dependent and constrained by regional economic, institutional, and security conditions.

## 4. DISCUSSION

The findings are generally consistent with previous studies reporting positive associations between leadership characteristics and project management effectiveness, while extending these relationships to the context of innovation-oriented management and structural environmental change. The statistically significant positive association identified at the micro-level corresponds with earlier empirical and meta-analytical evidence demonstrating that leadership-related characteristics are closely related to successful project outcomes (Abbas & Ali, 2023; Rehan et al., 2024; Pinto et al., 2022). However, given the cross-sectional correlational design of this study, these relationships should be interpreted as statistical associations rather than evidence of direct causal effects.

The results further support the conceptualization of leadership potential as a multidimensional latent construct rather than a simple aggregation of independent managerial characteristics. The integral indicator of leadership potential demonstrated stronger statistical associations with project management effectiveness than its separate dimensions, which is consistent with contemporary psychometric and managerial approaches (Hair et al., 2019; Rastovski et al., 2025). This interpretation also corresponds with studies on transformational and servant leadership, where leadership ef-

fectiveness is primarily associated with behavioral, organizational, and team-level processes rather than direct managerial influence (Ali et al., 2021; Han & Zhang, 2024). Likewise, contemporary leadership concepts (including servant, shared, and flexible leadership) emphasize distributed responsibility, team empowerment, and contextual adaptability as organizational characteristics associated with improved project environments (Logosha et al., 2019; Palaščáková et al., 2023).

Innovation orientation also demonstrated a statistically significant positive association with project management effectiveness. Rather than suggesting a direct causal mechanism, these findings indicate that organizations characterized by stronger innovation orientation tend to report higher levels of project effectiveness. This interpretation is consistent with previous studies linking innovation-oriented leadership to organizational performance through innovative behavior, psychological empowerment, and team agility (Norena-Chavez & Romani Torres, 2024). Similar conclusions have been reported in studies showing that innovation-oriented management is associated with organizational adaptability, openness to change, strategic flexibility, and continuous learning, all of which contribute to favorable conditions for project implementation (Martin et al., 2025; Mostova et al., 2026).

The observed positive association between emotional intelligence and project management effectiveness is likewise consistent with previous research emphasizing the importance of emotional competencies for managerial decision-making and team interaction (Zhang & Hao, 2022; Rodrigues & Matos, 2024). These findings support the inclusion of emotional intelligence as one of the structural dimensions of leadership potential, particularly in organizational environments characterized by elevated uncertainty and high managerial complexity.

Another contribution of this study is the identification of regional differentiation in leadership potential and project management effectiveness, highlighting the importance of complementing traditional project-level analysis with a broader meso-level perspective. This observation is consistent with contemporary approaches to project portfolio and project system management, which

recognize that project outcomes are influenced not only by managerial characteristics but also by the regional and institutional environments in which projects are implemented (Müller & Lecoivre, 2014; Borges et al., 2025). Nevertheless, this aspect of the findings should be interpreted cautiously because the study combines micro-level survey data collected in the Poltava region with meso-level regional indicators representing different territorial contexts. Although such integration provides additional contextual insights, it does not allow direct conclusions regarding causal regional effects and represents one of the principal limitations of the present research.

A particularly critical empirical finding is the absence of support for Hypothesis H4. Rather than representing a weakness of the proposed conceptual framework, this result suggests that the relationship between leadership potential and project management effectiveness becomes substantially weaker under profound external disturbances. This interpretation corresponds with previous studies demonstrating that the effectiveness of managerial practices becomes increasingly context-dependent during periods of structural shocks, when security, institutional, and infrastructural conditions exert stronger influence on organizational outcomes than managerial characteristics alone (Mulska et al., 2022; Strilets et al., 2024). Similar behavioral changes have been observed in Ukraine after the outbreak of the full-scale war, where 66.3% of respondents reported substantial changes in organizational activity in response to wartime conditions (Kupenko et al., 2023). Consequently, the rejected H4 may be interpreted as evidence that extreme external conditions moderate the observed relationships between leadership potential and project effectiveness rather than invalidate the theoretical importance of leadership itself.

The regional differences identified in this study should therefore be interpreted within the broader context of territorial heterogeneity in Ukraine following the full-scale Russian aggression in 2022. Project implementation conditions differ substantially across regions because of variations in security risks, infrastructure destruction, logistical accessibility, labor mobility, business relocation, and institutional capacity. Under such circumstances,

external environmental constraints may affect not only actual project implementation but also respondents' perceptions and assessments of project effectiveness. Consequently, the measured indicator of project effectiveness may partially reflect differences in regional operating conditions in addition to organizational and managerial characteristics. This observation provides an additional explanation for the weaker relationships identified after 2022 and suggests that project performance during wartime is shaped by a complex interaction between managerial capabilities and region-specific external conditions.

Overall, the findings indicate that leadership potential, innovation orientation, and emotional intelligence remain statistically associated with project management effectiveness. At the same time, these relationships are contingent upon broader organizational, institutional, and territorial contexts. Future research employing longitudinal designs, multi-regional micro-level samples, and causal modeling techniques would provide stronger evidence regarding the temporal stability and causal nature of these observed relationships.

This paper has several limitations. The study is limited to seven regions, which may affect the generalizability of the results to other regions of Ukraine. In addition, psychometric data were obtained only in the Poltava region, while the regional analysis was based on aggregated statistical indicators, so direct generalization of the results to all regions of Ukraine requires caution. The purposive sample limits the representativeness of the findings for the entire population of managers. The questionnaire survey carries the risk of response subjectivity and socially desirable behavior. Psychometric indicators are based on managers' self-assessments, which may not fully reflect their actual behavior. The study has a cross-sectional design, which precludes drawing causal conclusions over time. Therefore, the identified relationships should be interpreted as statistical associations rather than causal effects. At the same time, combining quantitative and qualitative methods of analysis increases the reliability of interpreting the results. The inclusion of regional aggregated indicators partially compensates for the limitations of micro-level survey data.

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## CONCLUSION

The purpose of this study was to empirically evaluate the impact of the leadership potential of innovation-oriented managers on project management effectiveness in the regions of Ukraine. The relationship between managers' leadership potential and project management effectiveness was examined using micro-level survey data collected in the Poltava region, complemented by a meso-level analysis based on aggregated regional indicators. Leadership potential was operationalized as an integrated psychometric construct combining emotional intelligence, leadership behavior, and innovation orientation, providing a comprehensive framework for assessing managerial competencies in innovation-oriented project environments.

The empirical findings indicate statistically significant positive associations between leadership potential and project management effectiveness within the analyzed micro-level sample. The integral indicator of leadership potential demonstrated stronger statistical associations with project effectiveness than its individual dimensions, suggesting that a multidimensional assessment may provide a more comprehensive understanding of managerial capabilities. Among the examined components, innovation orientation exhibited the strongest association with project effectiveness, highlighting its relevance for project implementation under conditions of organizational uncertainty.

The integration of micro-level survey data with meso-level regional indicators revealed differences in leadership potential and project management effectiveness across the analyzed regions. While these patterns suggest that regional context may be associated with variations in project outcomes, they should be interpreted cautiously because the regional analysis is based on aggregated indicators rather than representative micro-level observations from all regions of Ukraine.

The comparative analysis of the Project Management Index (PM Index) before and after 2022 suggests that structural changes associated with the wartime environment coincided with a weakening of the observed relationship between leadership potential and project management effectiveness. These findings are consistent with the assumption that security conditions, infrastructure disruptions, and institutional constraints may become increasingly important contextual factors affecting both project implementation and the assessment of project effectiveness under conditions of prolonged crisis.

Overall, the study provides empirical evidence that leadership potential is positively associated with project management effectiveness within the analyzed sample and organizational context. However, these relationships are contingent upon broader environmental conditions and therefore should not be generalized to all regions of Ukraine without additional empirical verification. Future research based on multi-regional micro-level data and longitudinal research designs would enable a more robust assessment of the relationship between leadership potential and project management effectiveness under different regional and institutional conditions.

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## APPENDIX A. Questionnaire

### General information

The questionnaire is anonymous and is used exclusively for scientific purposes. Please rate each statement on a five-point Likert scale, where 1 indicates strongly disagree and 5 indicates strongly agree.

#### **Block A. Manager's emotional intelligence (EI) (number of questions: 6)**

1. I am well aware of my own emotions in the process of project management.
2. I can control my emotions in stressful managerial situations.
3. I understand the emotional reactions of the project team members.
4. I consider the emotional state of employees when making managerial decisions.
5. I can maintain emotional balance under conditions of uncertainty.
6. I use emotional information to improve team interaction.

#### **Block B. Manager's leadership behavior (LB) (number of questions: 7)**

7. I clearly articulate project goals for team members.
8. I motivate the team to achieve common results.
9. I involve employees in making managerial decisions.
10. I effectively coordinate the team's work within the project.
11. I constructively resolve conflicts in the project team.
12. I support open communication among project participants.
13. I take responsibility for the project implementation results.

#### **Block C. Manager's innovation orientation (IO) (number of questions: 6)**

14. I encourage the use of new approaches in project implementation.
15. I am open to experiments and changes in project management.
16. I support the implementation of innovative managerial solutions.
17. I quickly adapt managerial practices to changes in the external environment.
18. I facilitate learning and the development of innovative competencies in the team.
19. I consider innovation a key factor in project success.

#### **Block D. Project management effectiveness (RES) (number of questions: 4)**

20. The projects I manage usually achieve their set goals.
21. Projects are implemented within the planned resources and timeframes.
22. Project results meet the expectations of stakeholders.
23. Overall, I rate the effectiveness of the implemented projects as high.

#### **Block E. Managerial values and practices (open-ended questions) (used for content analysis)**

24. What managerial values do you consider key for effective project management?
25. What leadership practices, in your opinion, have the greatest impact on project success?
26. How do innovative approaches change project management in your organization?

**Block F. Socio-demographic characteristics**

27. Gender: ☐ male ☐ female ☐ other
28. Age: ☐ under 25 ☐ 26–35 ☐ 36–45 ☐ 46–55 ☐ 56+
29. Position: ☐ line manager ☐ middle manager ☐ other
30. Managerial experience: ☐ up to 3 years ☐ 3–5 years ☐ 6–10 years ☐ over 10 years
31. Company type: ☐ micro- ☐ small ☐ medium ☐ large
32. Company's field of activity: \_\_\_\_\_