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ASSESSING INNOVATION READINESS IN PROJECT MANAGEMENT: A COMPREHENSIVE EVALUATION OF THE IRI METHODOLOGY

ОЦІНКА ІННОВАЦІЙНОЇ ГОТОВНОСТІ В УПРАВЛІННІ ПРОЕКТАМИ: КОМПЛЕКСНА ОЦІНКА МЕТОДИКИ IRI

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Abstract. This study introduces the innovation readiness index (iri), a structured framework for evaluating an organization's capacity for innovation in engineering projects by integrating financial feasibility, effectiveness, and risk. A mixed-methods strategy was employed at Mastergaz, a leading IT engineering company. Data from 30 project stakeholders were gathered via quantitative surveys and qualitative interviews and analyzed for correlation with key project outcomes. Results show a strong positive relationship between higher IRI scores and enhanced project performance, including better completion rates and heightened stakeholder satisfaction. The average IRI score of 6.8, coupled with a Pearson correlation of 0.75, indicates that projects with stronger innovation readiness are more likely to succeed. The study also demonstrates the IRI's adaptability across various industries. Implementing a structured, multi-dimensional readiness index can

guide resource allocation, improve stakeholder engagement, and facilitate data-driven decision-making in project management. This research advances current understanding of innovation readiness by introducing a comprehensive model that incorporates financial, operational, and risk considerations. Future work includes validating the IRI in different organizational settings and expanding its criteria to capture broader stakeholder dimensions.

Keywords: innovation readiness, project management, risk management, stakeholder engagement, performance metrics, financial feasibility, customer satisfaction.

Formulation of the problem. In today's rapidly evolving business landscape, organizations are under constant pressure to innovate while managing increasingly complex projects. The ability to assess a project's readiness for innovation has therefore emerged as a vital factor in achieving successful outcomes and sustaining competitive advantage [1]. Numerous studies on innovation management underscore the significance of readiness assessments in fostering project success; however, many existing models focus predominantly on isolated dimensions such as technology or market potential [2, 3]. Recent research points to the need for a holistic framework that integrates financial feasibility, operational effectiveness, and risk into a unified measure of innovation readiness. Models like technology readiness levels (trl) and commercial readiness index (cri) highlight specific components but often lack a broader perspective on organizational and user-centric factors [4]. This gap indicates the necessity of a comprehensive tool capable of capturing the multifaceted nature of innovation readiness [5].

Motivated by these considerations, the present study introduces the innovation readiness index (iri) as a novel evaluative framework. By integrating financial feasibility, effectiveness, and risk, the IRI aims to provide a more robust assessment of a project's capacity to innovate [1]. To examine this framework in practice, the study draws upon the case of Mastergaz, a leading IT engineering company specializing in engineering projects. Mastergaz's extensive experience in managing large-scale initiatives with multiple stakeholders makes it an ideal setting for exploring the applicability of the iri. The company utilizes the ERP-BPMS BOS CIS system for project management and data governance [6], consistent with findings that enterprise systems can significantly enhance operational efficiency and decision-making [7].

Grounded in the premise that innovation readiness may directly influence project performance, this research addresses two primary questions: how does the IRI correlate with key project success indicators, including completion rates and stakeholder satisfaction, and what insights emerge when the IRI is implemented in a real-world project management context? In addition, the study tests the hypothesis that higher IRI scores are associated with improved project outcomes, reinforcing the utility of the IRI as a predictive tool for innovation readiness [8]. In pursuing these questions, the research aims to elucidate the potential benefits of adopting a holistic readiness assessment. Subsequent sections detail the methods used to implement and evaluate the IRI at Mastergaz, followed by an examination of the results and a discussion of their implications for innovation management in diverse project environments [9].

Methods. This study employed a comprehensive methodology to develop and validate the innovation readiness index (IRI), a framework designed to evaluate a project's capacity for innovation by consolidating three key components – financial feasibility, effectiveness, and risk – into a single metric. The formula (1):

$$iri = \frac{(f \cdot e)}{(1+r)}, \tag{1}$$

was adopted, where

IRI – is the innovation readiness index,
f – signifies financial feasibility,
e – indicates effectiveness,
r – represents risk.

This conceptual design is grounded in research underscoring the importance of integrating financial, technological, and risk-related metrics into readiness assessments, as well as studies confirming the value of multidimensional models in evaluating complex innovation environments.

The present research was conducted in collaboration with Mastergaz, a leading IT company specializing in engineering projects, selected as a testbed due to its extensive experience with multifaceted stakeholder engagements. This context is consistent with approaches emphasizing stakeholder collaboration and adaptable management of innovative processes [10]. A purposive sampling strategy was employed, focusing on individuals with specialized knowledge in finance, project management, and innovation. The final sample included 30 participants – comprising project managers, financial analysts, and innovation specialists—who were deemed especially relevant for a pilot assessment of the IRI. This target group aligns with best practices in real-world readiness evaluations [11] and reflects prior recommendations that readiness assessments be tested with those most closely involved in shaping and executing projects [12].

Data collection combined quantitative surveys and semi-structured interviews. Each participant completed a questionnaire utilizing a Likert-type scale (1–10) to measure the perceived financial feasibility, effectiveness, and risk associated with ongoing projects. This approach built on established rating-scale methods for quantifying innovation readiness [13] and included an instrument carefully designed to capture the dimensions of IRI [14]. Scores were normalized for consistency across multiple projects and then aggregated for subsequent analysis. Semi-structured interviews added qualitative depth by permitting participants to discuss contextual factors, barriers, and facilitators of innovation in greater detail [15]. The dual method of incorporating both quantitative metrics and qualitative perspectives is widely endorsed for holistic organizational readiness studies [14]. All survey data were extracted from the ERP-BPMS BOS CIS system employed by Mastergaz to manage and document project activities. Although BOS CIS automates numerous operational processes, the specialists at Mastergaz continuously apply standard checklists and protocols to cross-check system outputs. This synergy between automated modules and expert oversight ensures reliable data and offers a practical illustration of how an integrative innovation framework can be reproduced and scaled in other contexts.

Quantitative analyses were performed using descriptive statistics, correlation analysis, and regression modeling to explore the relationships between IRI scores and specific project outcomes [16]. Descriptive statistics elucidated the central tendencies of the IRI and provided insights into sample variance [17]. Correlation analysis measured the direction and strength of the associations among the IRI components and standard project success indicators, while regression modeling evaluated whether higher IRI scores predicted more favorable results, thus empirically assessing the robustness of the index. Validation of the IRI involved comparing its scores with actual project performance metrics, including completion rates, budget adherence, and stakeholder satisfaction. This stage comprised a retrospective review of historical data to estimate the predictive accuracy of the iri, a method aligned with earlier research stressing the need to align readiness indicators with real-world performance [18]. In addition to these quantitative steps, workshops were held with the study participants to gather feedback on the IRI's clarity and applicability [14], following standard practices that highlight iterative refinement in readiness validation [19]. Feedback from these sessions supported the method's face validity and led to minor adjustments in IRI criteria, illustrating the importance of collaborative input [20]. Such participatory refinements are also consistent with literature advocating structured approaches to digital innovation readiness [13].

By integrating standardized survey metrics with context-rich qualitative evidence, the methodology provided a multi-layered exploration of how financial feasibility, effectiveness, and risk drive innovation success. The inclusion of expert verification steps within BOS CIS underscored how automated data collection can be augmented by specialist oversight, reinforcing both reproducibility and scalability of the proposed framework. This design generated a comprehensive empirical basis for further refining and generalizing the IRI to diverse organizational environments.

Results. Implementation of the innovation readiness index (iri) at Mastergaz offered substantial insights into innovation capabilities across multiple engineering projects, underscoring the IRI's utility as a predictive tool. The analysis revealed that projects with higher IRI scores generally demonstrated stronger performance

outcomes, including enhanced completion rates and more consistent budget adherence. This observation aligns with studies suggesting that technology-centric frameworks like the technology readiness level (trl) often neglect crucial organizational and financial considerations [21]. In contrast, the broader scope of the IRI addresses these gaps and delivers actionable guidance for project optimization, mirroring the recommendations of matrix-style readiness models that advocate integrated approaches to innovation assessment. Descriptive statistics indicated that the mean IRI score across all analyzed projects was 6.8, with a standard deviation of 1.5, suggesting a moderate level of innovation readiness within the portfolio. Correlation analysis showed a Pearson coefficient of 0.75 between IRI scores and project success metrics, indicating a robust positive relationship. Regression modeling further confirmed that projects scoring above 7 on the IRI achieved completion rates exceeding 90%, while those below 5 were more prone to budget overruns and reduced stakeholder satisfaction. These findings are consistent with frameworks such as the tram model, where technological and user dimensions jointly influence readiness outcomes [22], and they underscore the importance of recognizing multiple drivers of success [13].

Comparisons of IRI scores with actual performance data validated the tool's predictive capacity, highlighting the significance of context-specific assessments in achieving optimal results. Workshops held with Mastergaz participants enriched the method's practical relevance by incorporating additional considerations into the iri, including stakeholder engagement and regulatory compliance. This iterative process reflects adaptive methodologies for readiness assessment, which emphasize continual refinement based on stakeholder input [14]. The synergy between BOS CIS automation and the expert-led checklists at Mastergaz proved vital, as specialists cross-verified automated recommendations against on-site conditions to improve the reliability of the IRI evaluations.

Beyond these aggregated findings, Mastergaz applied the IRI to several distinct engineering initiatives. Two of these projects – the Meter Replacement Initiative and the Hvac Modernization Project – provide a closer look at how the IRI's three components (*f, e*, and *r*) operate in practice. In the Meter Replacement Initiative, financial feasibility (*f*) was high due to clear revenue potential and measurable cost savings, effectiveness (*e*) remained strong because installation teams followed carefully planned logistics, and risk (*r*) remained low thanks to reliable equipment supply. Normalizing these factors on a 1–10 scale yielded an IRI of 7.2, which corresponded with a 91% completion rate and a stakeholder satisfaction of 87%. By contrast, the Hvac Modernization Project featured moderate financial feasibility ($f = 7.0$) but a higher risk level ($r = 3.0$), given the need to coordinate multiple subcontractors and address uncertainties in equipment delivery. Its effectiveness ($e = 6.5$) was somewhat constrained by scheduling challenges. This combination resulted in an IRI of 5.8, aligning with a lower on-time completion rate of 78% and stakeholder satisfaction of 80%. Such comparisons confirmed that higher IRI scores tend to track with stronger performance metrics, mirroring patterns observed in earlier readiness-focused studies [22].

The following table 1 presents the primary projects examined in the study, showing their respective IRI scores along with outcome metrics.

Projects with higher IRI scores consistently exhibited more favorable outcomes. Residential Complex A, with an IRI score of 8.2, reached a 92% completion rate and a 95% budget adherence, demonstrating the tangible benefits of strong innovation readiness. By contrast, Residential Complex D, at 5.5 on the IRI scale, struggled to maintain timely completion and experienced notable cost overruns, which resonates with findings that a structured readiness assessment can positively influence resource allocation [21]. Further analysis showed that stakeholder satisfaction for projects above 7 on the IRI averaged 86%, in contrast to 67% for those below 5. These results demonstrate that robust innovation readiness supports both operational efficiency and stakeholder engagement, reflecting parallel evidence that readiness correlates with advanced management practices.

To underscore how IRI operates at a granular level, Table 2 below provides additional detail on two representative projects – the Meter Replacement Initiative and the Hvac Modernization Project. Each row presents the normalized values for financial feasibility (*f*), effectiveness (*e*), and risk (*r*), the resulting iri, and relevant performance indicators.

Table 1 – The primary projects examined in the study, showing their respective IRI scores along with outcome metrics

Таблиця 1 – Основні проєкти, розглянуті в дослідженні, із зазначенням відповідних балів IRI разом із показниками результатів

Project Name	Budget (dollars)	IRI Score	Completion Rate (%)	Budget Adherence (%)	Stakeholder Satisfaction (%)
Residential Complex A	95,000	8.2	92	95	88
Residential Complex B	85,000	7.5	90	90	85
Residential Complex C	100,000	6.0	75	80	70
Residential Complex D	70,000	5.5	60	70	65

Table 2 – Additional detail on two representative projects—the Meter Replacement Initiative and the Hvac Modernization Project

Таблиця 2 – Додаткові деталі до двох репрезентативних проєктів — Ініціативи із заміни лічильників та Проєкту модернізації системи Hvac

Project Name	f	e	r	$iri = (f \cdot e)/(1+r)$	Completion Rate (%)	Budget Adherence (%)	Stakeholder Satisfaction (%)
Meter Replacement Initiative	8.0	8.2	1.2	7.2	91	93	87
Hvac Modernization Project	7.0	6.5	3.0	5.8	78	85	80

In the Meter Replacement Initiative, the elevated score (7.2) reflected high financial viability and solid execution, coupled with well-managed risks for equipment sourcing. This project benefited from Mastergaz's existing BOS CIS logs, where daily records of sensor data and installation schedules fed into the effectiveness dimension, while budget estimates and procurement ledgers updated the financial feasibility dimension. Risk assessments were derived from a combination of supply-chain status reports and weekly engineering reviews. The consistently high correlation between IRI and the project's successful outcome affirms that well-coordinated logistics and stable financing are key enablers of innovation readiness.

In contrast, the Hvac Modernization Project exhibited a more complex risk environment because imported parts faced delays at customs, and multiple subcontractors had to synchronize their efforts. Although the budget remained feasible and partially offset by anticipated energy savings, the heightened risk (r = 3.0) weighed down the IRI to 5.8. The final completion rate, consequently, reached only 78%, illustrating how an increased risk profile can adversely affect operational metrics, even when other elements of readiness are moderately strong.

A feedback loop mechanism initiated during Mastergaz's workshops enabled participants to discuss challenges and propose refinements to the IRI methodology, including clarifications of financial feasibility

criteria and more precise definitions of effectiveness metrics. This participatory approach reinforced the tool's validity and cultivated a shared sense of ownership, reflecting strategies advocated by adaptive readiness models [14]. Although the IRI has already been successfully adopted at Mastergaz, it carries potential for broader application in fields such as construction, healthcare, or manufacturing, provided that organizational culture, scope complexity, and stakeholder dynamics are taken into account. Integrating the IRI into existing project management platforms – particularly the BOS CIS environment – can also streamline data collection, thereby accelerating decision-making and resource allocation.

Longitudinal monitoring across multiple projects and service requests may further clarify how innovation readiness evolves over time and whether higher IRI scores have a lasting effect on budgetary outcomes, completion rates, and stakeholder satisfaction. This longer-term perspective resonates with research emphasizing deeper analyses to capture the full impact of readiness across diverse projects. It is also necessary to acknowledge certain limitations, notably the challenges in consistently measuring perceived risk in multifaceted stakeholder settings. Expanding the IRI by adding targeted risk variables and refining the financial and operational criteria may broaden its applicability [21]. Such refinements will help organizations leverage the IRI's benefits more fully, leading to a more comprehensive understanding of innovation readiness and reinforcing its essential role in delivering successful project outcomes.

Discussion. The findings from implementing the innovation readiness index (iri) at Mastergaz highlight the value of a holistic approach to assessing innovation readiness in engineering projects. A key outcome is confirmation that higher IRI scores strongly correlate with project success, as reflected in enhanced completion rates, improved budget adherence, and greater stakeholder satisfaction. This observation is consistent with frameworks such as the product innovation readiness level (p-irl), which integrate project, market, and technological dimensions [1]. By combining financial feasibility, effectiveness, and risk, the IRI effectively addresses limitations in conventional readiness tools like the technology readiness level (trl), which emphasize technological maturity while often overlooking organizational and market factors critical for success [4].

The hypothesis that elevated IRI scores are linked to better project outcomes appears to hold true. The average IRI score of 6.8, together with a Pearson correlation coefficient of 0.75, reinforces the importance of embedding multiple dimensions of readiness – financial, operational, and stakeholder – in predictive assessments. This multi-dimensional stance aligns with literature indicating that narrow, technology-focused models do not adequately capture the complexities of innovation in contexts such as engineering, construction, or manufacturing [23]. Tools like the readiness navigator underscore market and technological readiness but omit user-centric and risk elements [14], while certain organizational readiness frameworks in construction overlook the adaptability needed to operate effectively across diverse sectors [21]. The IRI thus distinguishes itself by incorporating financial considerations and risk management strategies, a critical advantage demonstrated by the positive performance of Mastergaz projects with high IRI scores.

Structured assessment methods that address both internal and external constraints appear to be crucial in translating readiness into tangible outcomes. This principle is particularly evident in the workshops at Mastergaz, where stakeholder feedback was systematically integrated to clarify the IRI's criteria. Such an iterative process is echoed in research on dynamic stakeholder engagement for co-creating innovative solutions [24]. Unlike open innovation frameworks that often prioritize external collaboration at the expense of internal organizational metrics [25], the IRI provides a balanced approach, aligning both internal readiness measures and external partnership opportunities. Similar adaptability surfaces in other contexts, such as the green innovation framework, yet that approach tends to favor environmental considerations and lacks robust financial or risk analysis [22]. By contrast, the IRI's comprehensive orientation resonates with methodologies like scaling readiness, although the latter has been critiqued for giving limited attention to financial feasibility and risk factors in more complex engineering environments [10]. The IRI stands out by systematically blending diverse readiness components, offering project teams a clear diagnostic tool to direct resources and drive innovation.

Engaging employees and stakeholders in the evaluation process was pivotal, as dynamic capabilities research notes that stakeholder involvement can catalyze innovation [26]. Traditional frameworks typically lack quantitative mechanisms for measuring this readiness and predicting outcomes, whereas the IRI provides

a structured model that integrates both qualitative and quantitative data. This feature satisfies the recognized need for a tool extending beyond technological maturity to encompass business, operational, and user-focused aspects. The strong correlation between high IRI scores and successful project implementation at Mastergaz thus validates the IRI's ability to offer an integrated perspective that is directly relevant to project managers.

Despite these encouraging results, certain constraints warrant recognition. The purposive sampling strategy captured insights from individuals deeply involved in innovative projects but may limit how broadly the findings can be generalized. Similar limitations have been reported in other readiness frameworks, such as the product innovation readiness level (p-irl), which faced challenges in adapting to varied industrial contexts [1]. Another factor is the potential bias in self-reported data concerning financial feasibility, effectiveness, and risk, an issue also observed in long-term care readiness evaluations [27]. Incorporating objective measures, such as real-time project analytics and third-party evaluations, could minimize such bias, in line with advanced readiness models for digital innovation [19]. Mastergaz's specific organizational setting may not perfectly mirror conditions in other sectors, suggesting that further research should validate the IRI across a wider variety of industries. Comparative analyses, for instance between construction and healthcare, might identify best practices and refinements essential for diverse operational contexts [21]. Future research could also include longitudinal studies of the IRI's impact on sustained innovation performance, assessing whether projects that maintain high IRI scores over time are better equipped to handle organizational shifts and stakeholder demands. Broadening the framework to integrate regulatory compliance and more nuanced market dynamics could further enrich its scope [22]. Such explorations would deepen understanding of how an integrated readiness measure like the IRI fosters resilient, innovative project environments and further confirm its potential as a universal tool in the field of project management.

Conclusion

This study demonstrates that the innovation readiness index (iri) provides a robust framework for evaluating innovation capacity in engineering projects by consolidating financial feasibility, effectiveness, and risk into a single assessment. With an average IRI score of 6.8 and a strong correlation of 0.75 with project success metrics at Mastergaz, the findings highlight how holistic readiness measures significantly influence outcomes such as completion rates and stakeholder satisfaction. The mixed-methods approach, integrating quantitative surveys and qualitative interviews, effectively captured both numerical and contextual dimensions of readiness. The IRI's adaptability suggests its potential applicability across diverse sectors, extending earlier insights that emphasize the importance of multi-dimensional readiness models [1, 22].

Managerial implications indicate that systematically monitoring key readiness components can provide substantial benefits, especially when done through a participatory process. Engaging Mastergaz employees in refining the IRI illustrates the value of involving project teams in co-developing readiness metrics, which promotes ownership and alignment with organizational objectives. By thoroughly examining financial feasibility, effectiveness, and risk, managers can more accurately allocate resources, address challenges, and improve stakeholder relations. This structured approach enables data-driven decisions and fosters a culture where continuous improvement harmonizes innovative efforts with broader business goals.

Theoretical implications suggest that the IRI enriches existing readiness literature by incorporating financial factors and risk analysis into a cohesive framework. Earlier models often concentrate on technological or market aspects but overlook financial viability and organizational dynamics, which are vital in complex engineering settings [4]. The IRI fills this gap by intertwining multiple dimensions, paving the way for further inquiry into industry-specific or context-specific adaptations. Future research might build on these foundations by investigating additional variables, such as regulatory constraints or long-term sustainability, to sharpen the IRI's predictive capabilities and applicability in various organizational environments.

In conclusion, the successful implementation of the IRI at Mastergaz underscores its utility as both an evaluative tool for project-level innovation readiness and a conceptual framework for advancing readiness theory. While reliance on a single organizational setting and self-reported data remains a limitation, the strong correlation between IRI scores and project performance supports the index's core validity. Extending the IRI to larger samples and varied industries would enhance its generalizability and reinforce its capacity to guide

strategic innovation decisions. By adopting a comprehensive readiness perspective, organizations can navigate the complexities of modern project environments more effectively and sustain innovation success in the long term.

References

1. Sercan, O., Stornelli, A., & Simms, C. (2024). A Product Innovation Readiness Level Framework. *IEEE Transactions on Engineering Management,* 71(4), 9920-9937. https://doi.org/10.1109/TEM.2023.3312595
2. Boanță, L., Marin, A., Zapciu, M., & Rânea, B.-G. (2023). Commercial readiness index for Littar® asphalt concrete. *Towards Increased Business Resilience.* https://doi.org/10.56177/11icmie2023.22
3. Penny, J., Dlugoborskyte, V., Draper, K., Fonseca, A., Baker, K., Chen, A. S., Manojlovic, N., & Vojinovic, Z. (2024). Innovating nature-based solutions: Learnings from the EU Horizon 2020 RECONECT project. *Blue-Green Systems.* https://doi.org/10.2166/bgs.2024.048
4. Lunner, C., Worrmann, E., & Sundström, P. (2018). Introducing Innovation Readiness Levels – A Framework to Evaluate Innovation Efforts. 94p.
5. Blut, M., & Wang, C. (2019). Technology readiness: A meta-analysis of conceptualizations of the construct and its impact on technology usage. *Journal of the Academy of Marketing Science,* 48(3), 649-669. https://doi.org/10.1007/S11747-019-00680-8
6. Biloskurskyi, R. (2022). Agile methodology of implementation of ERP information systems. *Scientific Opinion: Economics and Management.* https://doi.org/10.32836/2521-666x/2022-77-12
7. Oksamytna, L., & Praha, R. (2022). Features of modern ERP-systems for business process management of the enterprise. *Management of Development of Complex Systems.* https://doi.org/10.32347/2412-9933.2022.51.31-40
8. Srivastava, D., & Batra, A. (2020). ERP systems. *Independent Research Publication.* . Publisher: I K International Publishing House. 306p. ISBN-13 : 978-9380578149.
9. Wijaya, S., Egeten, A. E., & Wiratama, J. (2024). Development of open source big data technology using project management to address complexity in ERP implementation. *2024 5th International Conference on Big Data Analytics and Practices (IBDAP),* 6-11. https://doi.org/10.1109/IBDAP62940.2024.10689692
10. Sartas, M., Schut, M., Proietti, C., Thiele, G., & Leeuwis, C. (2020). Scaling readiness: Science and practice of an approach to enhance impact of research for development. *Agricultural Systems,* 183, 102874. https://doi.org/10.1016/j.agsy.2020.102874
11. Domlyn, A. M., & Wandersman, A. (2019). Community coalition readiness for implementing something new: Using a Delphi methodology. *Journal of Community Psychology,* 47(4), 882-897. https://doi.org/10.1002/jcop.22161
12. Galvez, D., Enjolras, M., Camargo, M., Boly, V., & Claire, J. (2018). Firm readiness level for innovation projects: A new decision-making tool for innovation managers. *Administrative Sciences,* 8(1), 6. https://doi.org/10.3390/ADMSCI8010006
13. Taganoviq, B., Kurutkan, M. N., Bağış, M., et al. (2023). Psychometric assessment of organizational readiness scale for digital innovations. *Human Systems Management*. https://doi.org/10.3233/hsm-220202
14. Eljasik-Swoboda, T., Rathgeber, C., & Hasenauer, R. (2019). Assessing technology readiness for artificial intelligence and machine learning-based innovations. *Proceedings of the 11th International Joint Conference on Knowledge Discovery, Knowledge Engineering and Knowledge Management*, 281–288. https://doi.org/10.5220/0007946802810288
15. Cheng, M., Cheung, C., Tsui, E., & Wan, K. L. (2018). Readiness analysis of open innovation – A self-assessment method. *International Journal of Knowledge and Systems Science,* 9(4), 16–44. https://doi.org/10.4018/IJKSS.2018100102

16. Nasrollahi, M., & Ramezani, J. (2020). A model to evaluate the organizational readiness for big data adoption. *International Journal of Computers, Communications & Control,* 15(3). https://doi.org/10.15837/ijccc.2020.3.3874

17. Ariansyah, K., Setiawan, A. B., & Hikmaturokhman, A. (2024). Big data readiness in the public sector: An assessment model and insights from Indonesian local governments. *Journal of Science and Technology Policy Management*. https://doi.org/10.1108/jstpm-01-2023-0010

18. Benson, T. (2019). Digital innovation evaluation: user perceptions of innovation readiness, digital confidence, innovation adoption, user experience and behaviour change. *BMJ Health & Care Informatics,* 26(1). https://doi.org/10.1136/bmjhci-2019-000018

19. Lokuge, S., Sedera, D., Grover, V., & Xu, D. (2019). Organizational readiness for digital innovation: Development and empirical calibration of a construct. *Information & Management,* 56(3), 445-461. https://doi.org/10.1016/j.im.2018.09.001

20. Leonard, E., De Kock, I. H., & Bam, W. (2019). The development of a healthcare innovation adoption readiness assessment tool (HIARAT). *South African Journal of Industrial Engineering,* 30(1). https://doi.org/10.7166/30-1-2013

21. Akunyumu, S., Fugar, F., Adinyira, E., & Danku, J. (2020). A review of models for assessing readiness of construction organisations to innovate. *Construction Innovation: Information, Process, Management.* https://doi.org/10.1108/ci-01-2020-0014

22. Kampa, R. K. (2023). Combining technology readiness and acceptance model for investigating the acceptance of m-learning in higher education in India. *Asian Association of Open Universities Journal*. https://doi.org/10.1108/aaouj-10-2022-0149

23. Zhang, Y., Sun, J., Yang, Z., & Wang, Y. (2020). Critical success factors of green innovation: Technology, organization and environment readiness. *Journal of Cleaner Production,* 264, 121701. https://doi.org/10.1016/j.jclepro.2020.121701

24. Watson, R., Wilson, H., Smart, P., & Macdonald, E. K. (2018). Harnessing difference: A capability-based framework for stakeholder engagement in environmental innovation. *Journal of Product Innovation Management,* 35(3), 254-279. https://doi.org/10.1111/JPIM.12394

25. Grama-Vigouroux, S., Saidi, S., Berthinier-Poncet, A., Vanhaverbeke, W., & Madanamoothoo, A. (2020). From closed to open: A comparative stakeholder approach for developing open innovation activities in SMEs. *Journal of Business Research*. https://doi.org/10.1016/j.jbusres.2019.08.016

26. Leonidou, E., Christofi, M., Vrontis, D., & Thrassou, A. (2020). An integrative framework of stakeholder engagement for innovation management and entrepreneurship development. *Journal of Business Research*, 119, 245-258. https://doi.org/10.1016/J.JBUSRES.2018.11.054

27. Van den Hoed, M., Backhaus, R., Beaulen, A., Hamers, J., & Daniels, R. (2023). Development of an evidence-based framework for innovation readiness of long-term care organizations. *Innovation in Aging,* 7(1019), 1019-1019. https://doi.org/10.1093/geroni/igad104.3275

ОЦІНКА ІННОВАЦІЙНОЇ ГОТОВНОСТІ В УПРАВЛІННІ ПРОЕКТАМИ: КОМПЛЕКСНА ОЦІНКА МЕТОДИКИ IRI

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Анотація. У цьому дослідженні представлено індекс готовності до інновацій (iri), структуровану структуру для оцінки спроможності організації до інновацій у інженерних проєктах шляхом об'єднання фінансової здійсненності, ефективності та ризику. Стратегія змішаних методів застосовувалася в провідній IT-інжиніринговій компанії «Мастергаз». Дані від 30 зацікавлених сторін проєкту були зібрані за допомогою кількісних опитувань та якісних інтерв'ю та проаналізовані на предмет кореляції з ключовими результатами проєкту. Результати демонструють сильний позитивний зв'язок між вищими значеннями IRI та покращеною продуктивністю проєкту, включаючи кращі показники завершеності та підвищене задоволення зацікавлених сторін. Середня оцінка IRI 6,8 у поєднанні з кореляцією Пірсона 0,75 вказує на те, що проєкти з більшою готовністю до інновацій мають більше шансів на успіх. Дослідження також демонструє адаптивність IRI до різних галузей промисловості. Впровадження структурованого багатовимірного індексу готовності може керувати розподілом ресурсів, покращити залучення зацікавлених сторін і полегшити прийняття рішень на основі даних в процесі управління проєктом. Це дослідження полегшує поточне розуміння готовності до інновацій, запроваджуючи комплексну модель, яка включає фінансові, операційні та ризикові міркування. У подальшому, робота включатиме перевірку IRI в різних організаційних умовах і розширення його критеріїв для охоплення ширших вимірів зацікавлених сторін.

Ключові слова: управління проєктом, управління на основі вартості, вартість проєкту, зацікавлені сторони, показники вартості проєкту, концептуальна модель, пасажирські перевезення, ризики.

Перелік посилань

1 Sercan, O., Stornelli, A., & Simms, C. (2024). A Product Innovation Readiness Level Framework. *IEEE Transactions on Engineering Management,* 71(4), 9920-9937. URL: https://doi.org/10.1109/TEM.2023.3312595

2 Boanță, L., Marin, A., Zapciu, M., & Rânea, B.-G. (2023). Commercial readiness index for Littar® asphalt concrete. *Towards Increased Business Resilience.* https://doi.org/10.56177/11icmie2023.22

3 Penny, J., Dlugoborskyte, V., Draper, K., Fonseca, A., Baker, K., Chen, A. S., Manojlovic, N., & Vojinovic, Z. (2024). Innovating nature-based solutions: Learnings from the EU Horizon 2020 RECONECT project. *Blue-Green Systems.* URL: https://doi.org/10.2166/bgs.2024.048

4 Lunner, C., Worrmann, E., & Sundström, P. (2018). Introducing Innovation Readiness Levels – A Framework to Evaluate Innovation Efforts. 94 p.

5 Blut, M., & Wang, C. (2019). Technology readiness: A meta-analysis of conceptualizations of the construct and its impact on technology usage. *Journal of the Academy of Marketing Science,* 48(3), 649-669. URL: https://doi.org/10.1007/S11747-019-00680-8

6 Biloskurskyi, R. (2022). Agile methodology of implementation of ERP information systems. *Scientific Opinion: Economics and Management.* https://doi.org/10.32836/2521-666x/2022-77-12

7 Оксамитна, Л., Пряха, Р. Особливості сучасних ERP-систем управління бізнес-процесами підприємства. *Управління розвитком складних систем*, 2022. (51), 31–40. DOI: https://doi.org/10.32347/2412-9933.2022.51.31-40

8 Srivastava, D., & Batra, A. (2020). ERP systems. *Independent Research Publication*. Publisher: I K International Publishing House. 306p. ISBN-13 : 978-9380578149.

9 Wijaya, S., Egeten, A. E., & Wiratama, J. (2024). Development of open source big data technology using project management to address complexity in ERP implementation. *2024 5th International Conference on Big Data Analytics and Practices (IBDAP),* 6-11. URL: https://doi.org/10.1109/IBDAP62940.2024.10689692

10 Sartas, M., Schut, M., Proietti, C., Thiele, G., & Leeuwis, C. (2020). Scaling readiness: Science and practice of an approach to enhance impact of research for development. *Agricultural Systems,* 183, 102874. URL: https://doi.org/10.1016/j.agsy.2020.102874

11 Domlyn, A. M., & Wandersman, A. (2019). Community coalition readiness for implementing something new: Using a Delphi methodology. *Journal of Community Psychology,* 47(4), 882-897. URL: https://doi.org/10.1002/jcop.22161

12 Galvez, D., Enjolras, M., Camargo, M., Boly, V., & Claire, J. (2018). Firm readiness level for innovation projects: A new decision-making tool for innovation managers. *Administrative Sciences,* 8(1), 6. URL: https://doi.org/10.3390/ADMSCI8010006

13 Taganoviq, B., Kurutkan, M. N., Bağış, M., et al. (2023). Psychometric assessment of organizational readiness scale for digital innovations. *Human Systems Management*. URL: https://doi.org/10.3233/hsm-220202

14 Eljasik-Swoboda, T., Rathgeber, C., & Hasenauer, R. (2019). Assessing technology readiness for artificial intelligence and machine learning-based innovations. *Proceedings of the 11th International Joint Conference on Knowledge Discovery, Knowledge Engineering and Knowledge Management*, 281–288. URL: https://doi.org/10.5220/0007946802810288

15 Cheng, M., Cheung, C., Tsui, E., & Wan, K. L. (2018). Readiness analysis of open innovation – A self-assessment method. *International Journal of Knowledge and Systems Science,* 9(4), 16–44. URL: https://doi.org/10.4018/IJKSS.2018100102

16 Nasrollahi, M., & Ramezani, J. (2020). A model to evaluate the organizational readiness for big data adoption. *International Journal of Computers, Communications & Control,* 15(3). URL: https://doi.org/10.15837/ijccc.2020.3.3874

17 Ariansyah, K., Setiawan, A. B., & Hikmaturokhman, A. (2024). Big data readiness in the public sector: An assessment model and insights from Indonesian local governments. *Journal of Science and Technology Policy Management*. URL: https://doi.org/10.1108/jstpm-01-2023-0010

18 Benson, T. (2019). Digital innovation evaluation: user perceptions of innovation readiness, digital confidence, innovation adoption, user experience and behaviour change. *BMJ Health & Care Informatics,* 26(1). https://doi.org/10.1136/bmjhci-2019-000018

19 Lokuge, S., Sedera, D., Grover, V., & Xu, D. (2019). Organizational readiness for digital innovation: Development and empirical calibration of a construct. *Information & Management,* 56(3), 445-461. URL: https://doi.org/10.1016/j.im.2018.09.001

20 Leonard, E., De Kock, I. H., & Bam, W. (2019). The development of a healthcare innovation adoption readiness assessment tool (HIARAT). *South African Journal of Industrial Engineering,* 30(1). URL: https://doi.org/10.7166/30-1-2013

21 Akunyumu, S., Fugar, F., Adinyira, E., & Danku, J. (2020). A review of models for assessing readiness of construction organisations to innovate. *Construction Innovation: Information, Process, Management.* URL: https://doi.org/10.1108/ci-01-2020-0014

22 Kampa, R. K. (2023). Combining technology readiness and acceptance model for investigating the acceptance of m-learning in higher education in India. *Asian Association of Open Universities Journal*. URL: https://doi.org/10.1108/aaouj-10-2022-0149

23 Zhang, Y., Sun, J., Yang, Z., & Wang, Y. (2020). Critical success factors of green innovation: Technology, organization and environment readiness. *Journal of Cleaner Production,* 264, 121701. URL: https://doi.org/10.1016/j.jclepro.2020.121701

24 Watson, R., Wilson, H., Smart, P., & Macdonald, E. K. (2018). Harnessing difference: A capability-based framework for stakeholder engagement in environmental innovation. *Journal of Product Innovation Management,* 35(3), 254-279. URL: https://doi.org/10.1111/JPIM.12394

25 Grama-Vigouroux, S., Saidi, S., Berthinier-Poncet, A., Vanhaverbeke, W., & Madanamoothoo, A. (2020). From closed to open: A comparative stakeholder approach for developing open innovation activities in SMEs. *Journal of Business Research*. URL: https://doi.org/10.1016/j.jbusres.2019.08.016

26 Leonidou, E., Christofi, M., Vrontis, D., & Thrassou, A. (2020). An integrative framework of stakeholder engagement for innovation management and entrepreneurship development. *Journal of Business Research*, 119, 245-258. URL: https://doi.org/10.1016/J.JBUSRES.2018.11.054

27 Van den Hoed, M., Backhaus, R., Beaulen, A., Hamers, J., & Daniels, R. (2023). Development of an evidence-based framework for innovation readiness of long-term care organizations. *Innovation in Aging,* 7(1019), 1019-1019. URL: https://doi.org/10.1093/geroni/igad104.3275

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