Enhancing Agile Big Data Project Success using Project Management Body of Knowledge (PMBOK) Performance Domain

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ABSTRACT

Big data projects, especially within the fields of data science, data analytics, and data engineering, are growing rapidly. This growth can be seen by machine learning technologies and the emerging trend of generative AI that utilize large datasets as input. This rise is evidenced by trend reports from leading IT companies, which indicate significant growth in the use of big data. The prevailing trend in big data projects is inconsistent with their actual execution. A considerable proportion of big data initiatives fail to reach the production phase due to inherent challenges, as these projects often display agile characteristics owing to their rapid pace and fluctuating requirements, in accordance with industry trends and needs. This highlights the need to assess the issues faced in agile big data projects. A thorough literature review was performed to identify issues, thus leading to the formulation of suggestions grounded in the PMBOK 7th edition as the standard and guideline for project management. The SLR phase effectively identifies four main categories of challenges: human resources, project management, data and information management, and organizational issues. The subsequent recommendation tackles these challenges. This study utilizes seven of the eight performance domains outlined in the PMBOK 7th edition to address the identified difficulties.

Keywords: Big Data, PMBOK, Agile, Project Management, Big Data

1. INTRODUCTION

Big data projects, particularly involving data science, data analytics, and data engineering, are growing rapidly. The growth can be observed by trend reports from major IT companies indicating that big data usage is high, following the widespread use of generative AI (Primmia et al., 2024) and big data (Chandra et al., 2022). Generative AI is a subset of machine learning (Al Naqbi et al., 2024) Machine learning utilizes data for learning, generating insights, and making predictions (Mathur, 2023). Therefore, it is not surprising that big data projects are expanding alongside generative AI. Based on Google's survey (Nguyen & Truong, 2025), 84% of survey respondents, who consist of data decision makers, believe that generative AI will help their organization access insights better. 75% of survey respondents are already using AI at work (Rana et al., 2023). The rapid growth of generative AI has sparked a race among companies to master this field, as it promises a competitive advantage (Nguyen & Truong, 2025) The line between data and AI has blurred as the process streamlined; it means data teams, which formerly worked alone, will have to collaborate more often (Adler-Milstein et al., 2022). ig data also plays a major role in driving the growth of such projects. Big data allows for implementing predictive analysis, machine learning, and business intelligence. Big data is predicted to reach about 84 billion USD in 2024 and grow to 103 billion USD in 2027 (Hartikainen, 2024).

The current trend in big data projects does not correspond with their actual execution. Many big data projects fail to reach the production phase. Numerous efforts are certain to reach failures, reporting that 87% of data science projects fail to reach production, while others remain stagnant in the development or research stages (Weiner, 2025). These issues may stem from multiple causes. Saltz indicates in Krasteva's study (Saltz & Krasteva, 2022) that the failure of big data projects may be reduced by the establishment of a strong team-oriented methodology. A separate study has indicated that project management is a challenge encountered during the implementation of data analytics programs (Putra et al., 2022). This issue may escalate in small, agile consulting firms characterized by numerous projects, significant uncertainties, and limited teams.

The issues raised in the previous section highlight the needs for assessing the challenges faced with agile big data projects. Agile project management has been implemented in various industries. A recent analysis revealed that agile project management saw substantial increase, reaching its peak in 2019, followed by a slight fall during the pandemic period (Ozkan et al., 2024). The majority of the study classifications are conference papers, indicating that research in this field is still evolving (Ozkan et al., 2024). The Project Management Institute reports that 71% of survey respondents utilize agile methodologies in their software development lifecycle (Institute, 2021). Agile project management

facilitates the execution of projects characterized by high uncertainty, particularly when small teams concurrently work on several tasks (Inayah, 2024).

PMBOK is the standard and set of guidelines for project management issued by the Project Management Institute (PMI). The 7th edition of PMBOK includes 12 principles and 8 performance domains. The main objective of PMBOK is to guide the implementation of project management across various types of projects, as one of its key principles is Tailoring. The performance domains in PMBOK 7 can be adjusted to the characteristics of the ongoing project. Therefore, this research can utilize PMBOK version 7 to address challenges in agile big data projects by providing recommendations for handling those challenges based on performance domains in PMBOK version 7 (Institute, 2021).

Based on the previous background, this research will identify the challenges found in agile big data projects through a systematic literature review, and subsequently, the root causes of these challenges will be addressed by providing recommendations based on the performance domains of the 7th edition of PMBOK.

2. RESEARCH SCOPE

This research focuses on the challenges encountered in agile-based big data projects through a systematic literature review (SLR). These challenges are addressed using the standards outlined in the PMBOK 7th performance domain by adhering to the standards outlined in the PMBOK 7th performance domain.

3. MATERIALS AND METHODS

The following are the methods and tools used in the research:

Table 1. Digital Library and Search String for SLR

Digital Library	Search String
IEEE Digital Library Science@Direct Scopus Taylor & Francis	("big data projects" OR "data analytics" OR "data engineering" OR "data projects" OR "data science") AND ("project management") AND ("software engineering") AND ("challenges")

The formulated search string will be used in all digital libraries, as shown in Table 1. The selected literature will have to pass a quality assessment to make sure the literature is of high quality.

This study reviews a total of 65 pieces of literature from four digital libraries. 44 pieces of literature are screened based on relevance to the review objective by reading the abstract. 12 pieces of literature are accepted and included in this review.
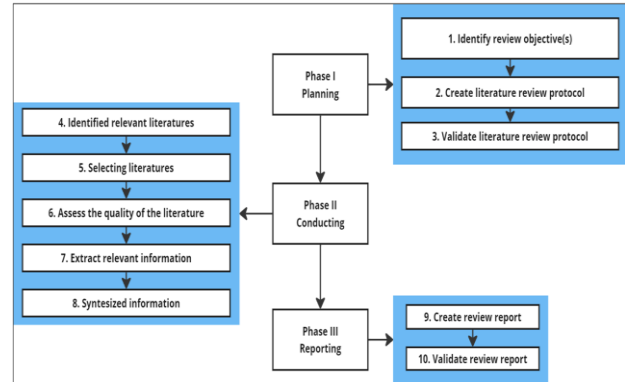

Figure 1. Sytematic Literature Review (SLR) Phases [15]

This study uses systematic literature review (SLR) guidelines by Kitchenham (Godliauskas & Šmite, 2025) for review methodology, which consists of planning, conducting, and reporting with some tailoring. SLR phases can be seen in Figure 1. The objective of the review is to explore project management challenges found in agile-based big data projects. The search string is formulated using PICOC (population, intervention, comparison, outcome, and context) (Rambe, 2024).
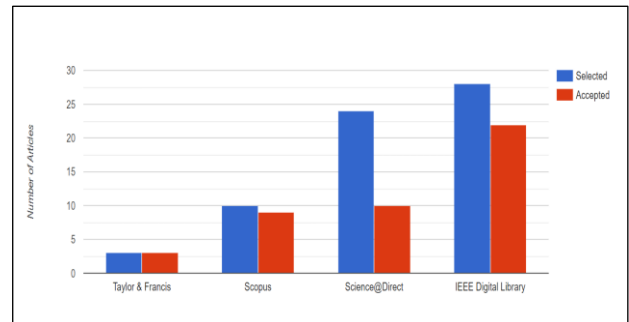

Figure 2. Number of Accepted and Rejected Publications Based on Digital Library

Figure 2 shows the accepted and rejected number of literatures for each digital library. 32 literatures are considered to have unspecific results and research methods, which may broaden this review and result in unmet research goals.
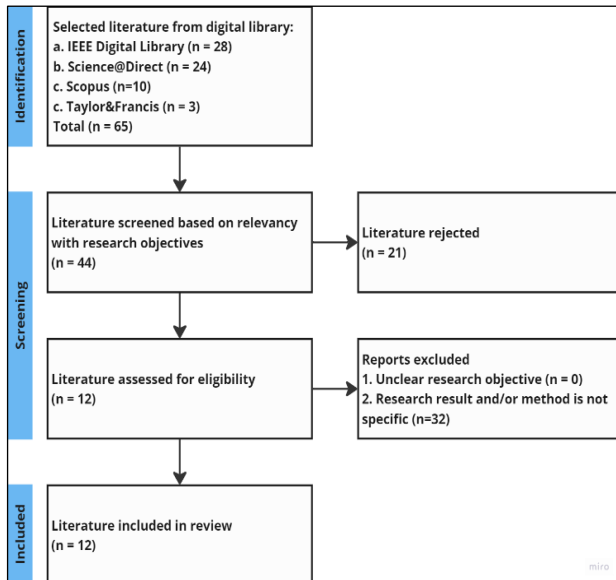
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Figure 3. Phases in Literature Screening

Figure 3 shows the stages in literature screening. The accepted literature will be analyzed to identify project management challenges in agile-based big data projects. Then the recommendation will be formulated based on the performance domain of PMBOK 7th edition. The PMBOK 7th edition has eight performance domains: stakeholder, team, development methodology and life cycle, planning, project work, delivery, measurements, and uncertainty. Each challenge group will be evaluated based on these domains (Institute, 2021).

3.1 Project Management

Project management is a scientific and systematic approach that includes planning, organizing, executing, monitoring, and controlling resources to achieve project objectives, which are temporary, unique, and have constraints of time, cost, and quality, effectively and efficiently. As explained by Gutterman (Gutterman, 2023), project management enables the execution of strategic activities without disrupting the organization's routine workflow. Further analysis by Reni & Tukiran (Reni & Tukiran, 2024) shows that project success is greatly influenced by factors such as communication, planning, leadership, risk management, and the application of project management methods (e.g., Agile or Lean).

3.2 Agile Big Data Project

According to Martinez et al. (Martinez et al., 2022), the Agile data science lifecycle has emerged as one of the most popular frameworks for data projects. Their research shows that the Agile method works best for data projects when team members collaborate, communicate, and continuously inquire about user requirements. These traits are part of Agile. Vestues et al. (Vestues et al., 2022) say that data teams that work with big data can improve their data pipelines over time. This method is more flexible,

speeds up the delivery of data, and improves the quality of work, all of which are in line with Agile principles.

Agile has changed over time to meet the needs of the industry, thanks in part to the rise of frameworks like DataOps. DataOps combines Agile and DevOps ideas in the area of data management (Reis & Housley, 2022). This method applies Agile ideas to the whole data lifecycle, not just software engineering. The steps include preparing data, combining it, analyzing it, and reporting on it (Bergh et al., 2019). More than 20,000 people have signed the DataOps Manifesto, which is a list of principles (Bergh et al., 2019). The list demonstrates its reliability in the business sector.

3.3 Project Management Body of Knowledge (PMBOK)

Project Management Body of Knowledge (PMBOK) is a standard and guidelines for project management issued by PMI (Rodrigues et al., 2023). PMI, or the Project Management Institute, is an organization recognized for its formulation of project management knowledge (Rodrigues et al., 2023). In 2021, PMI released the 7th edition of PMBOK, which introduces a new approach, different than the previous versions. From the outset, PMBOK version 6 focused more on processes, while version 7 introduced fundamental principles and performance domains (Amaro & Domingues, 2023). Principles are the key considerations in project management, while performance domains are groups of activities that underlie project execution. This approach allows for adjustments to be more relevant to the needs of the ongoing project. Although there are significant differences, PMBOK states that PMBOK version 7 does not negate alignment with the process-based approach in previous versions of PMBOK (Rodrigues et al., 2023).

One of the principles emphasized in PMBOK 7th edition is Tailoring (Rodrigues et al., 2023). Tailoring enables the adaptation of PMBOK to different projects, particularly in software engineering, such as big data projects. Adaptation is carried out in project management methodologies, governance, and processes. This demonstrates that PMBOK is suitable for use in this research to address common challenges encountered in agile big data projects.

4. RESULT AND DISCUSSION

The following are the results and discussion of the research:

4.1 Challenges in Agile Big Data Projects

Among 12 accepted literatures, 6 literatures solely discuss project management, especially agile, in which one of them mentions the company scale for the research object; 4 literatures solely discuss data management or data development; another literature discusses a data management project using agile project management methodology; and another literature discusses factors influencing project delay in an IT consulting company. Challenges were found by synthesizing all the mentioned

literature. We found 9 pieces of literature that discussed and mentioned challenges about project management, data management, or both.

Table 2. Challenge Group Findings

Lit.	HR	PM	IM	OR
(Martinez et al., 2021)	x	x	x	
(Putra et al., 2022)	x	x	x	
(Afshari & Gandomani, 2021)	x			
(Dempsey et al., 2022)	x			
(Petrescu & Motogna, 2023)	x	x		x
(Guertler & Sick, 2021)	x	x		
(Munappy et al., 2022)			x	
(Al-Sai et al., 2020)	x		x	x
(Yogaantara & Fajar, 2022)	x	x		

Table 2 shows 4 challenge groups, which consist of team management, human resources (HR), project management (PM), data and information management (IM), and organization (OR).

4.2 Human Resource

The human resources group discusses mainly the quality of individuals in the developer team. Afshari (Afshari & Gandomani, 2021) mentioned that agile methodology focuses on individuals since it's heavy on collaboration, which then influences agile team composition. Afshari (Afshari & Gandomani, 2021) and other studiesm (Al-Sai et al, (2020);Dempsey et al., (2022);Yogaantara & Fajar, (2022)) mentioned that communication is one of the challenges when implementing agile project management. Petrescu (Petrescu & Motogna, 2023) and other study (Al-Sai et al., 2020); Guertler & Sick, 2021); Yogaantara & Fajar, 2022)) found that human competence and skill handling in the project are one of the challenges in agile project management, which can then impact team velocity (Guertler & Sick, 2021). Dempsey's study mentioned that other challenges in project management consist of control and culture, which are then supported by (Guertler & Sick, 2021). Martinez's study (Martinez et al., 2021) mentioned that team management, which is rooted in the members, is one of the challenges groups face in implementing data science projects. Some of the challenges that relate to human resources are poor coordination, collaboration issues, lack of transparent communication, and lack of people with analytical skills (Martinez et al., 2021)

Individual commitment is also one of the challenges found in agile project management (Yogaantara & Fajar, 2022).

4.3 Project Management

The project management group is primarily discussing issues related to planning and executing projects, as well as the characteristics of those projects. Putra's case study (Putra et al., 2022), found that one of the challenges in handling data analytics development projects is project management in general. Dempsey (Dempsey et al., 2022) mentioned that project complexity is one of the challenges found in agile project management, while another study (Yogaantara & Fajar, 2022) resulted in the opposite. Yoga (Yogaantara & Fajar, 2022) and Petrescu (Petrescu & Motogna, 2023) both agree that doing bad scheduling and estimating planning might lead to project delay. Martinez (Martinez et al., 2021) mentions that bad requirement management is often found as a challenge in data science projects; this is in line with challenges found when implementing agile methodology (Petrescu & Motogna, 2023). Martinez (2021) also mentioned other challenges in project management, such as low-level process maturity, uncertain business objectives, setting project expectations, delivering the wrong product, and the product not being used by the business.

4.4 Data and Information Management

The data and information management group is discussing mainly how the data and information are managed in the projects. Putra's case study (Putra et al., 2022) shows that data and information management is one of the challenges found when implementing data analytics projects. Munappy, (2022) groups the challenges according to the data project life cycle, which consists of data collection, data exploration, data preprocessing, data preparation, data testing, data deployment, and post-deployment. Some of the challenges identified by Martinez, (2021) align with those in (Munappy et al., 2022), including low data quality for ML projects and a lack of quality assurance checks, which are associated with the data preparation phase, as well as the absence of validation data, which is linked to the data testing phase. Martinez, 2021) also mentions the lack of reproducibility and retaining and accumulating knowledge as challenges found in data science projects.

4.5 Organization

Organization groups discuss mainly IT or data governance in the organization. Limitation, restriction, client, and management involvement are also included in this group. Petrescu & Motogna, (2023) mentioned that client involvement, such as the client's restriction, the client's understanding of the process and management methodology, and uncertainty in the client's requirement, are some of the challenges in the adoption of agile methodology. Martinez, (2021) mentioned that data security, privacy, and investment in IT infrastructure can

be a challenge in data science projects. Other study (Al-Sai et al., 2020) mentioned multiple examples of challenges found in big data projects; some of them are IT governance, organizational IT maturity and readiness, sponsorship and outsourcing, and top management level involvement.

Table 3. Challenged Group Mapped with PMBOK Performance Domain

Performance Domain	HR	PM	IM	OR
Stakeholder				x
Team	x			
Development Approach and Life Cycle				
Planning		x		
Project Work		x		
Delivery		x		
Measurements			x	
Uncertainty		x		x
Stakeholder				x

Recommendations were then formulated by adhering to the PMBOK 7th performance domain. Each challenge group can be addressed by one or more performance domains. Table 3 correlated each task group with the corresponding performance domain to tackle the challenges.

4.6 Recommendation for Human Resource Challenge Group

Challenges that arise in the human resource group are mainly discussed in terms of poor communication, collaboration, and a lack of people skills. The team performance domain in PMBOK 7th can address this issue, specifically by following a servant leadership, shared ownership, and tailored leadership style (Institute, 2021).

Servant leadership is an approach that maximizes the effort to upscale each team member's skill and experience to gain the best version of their work. Servant leadership focuses on individual growth and self-organization by delegating the most suitable decision to them. This approach increases shared ownership feelings and increases their motivation to perform better, allowing for better and faster delivery of projects (Institute, 2021).

Leadership skills are important in the team performance domain. The PMBOK 7th edition outlines the characteristics of an effective project leader, which include establishing and maintaining a vision, employing critical thinking, motivating team members, and demonstrating strong interpersonal skills such as emotional intelligence. Each leadership style does not fit all sizes. Tailoring is encouraged if needed. Tailoring can be influenced by the type of project, the maturity of the team, the governance structure, and distributed teams (Institute, 2021).

4.7 Recommendation for Project Management Challenge Group

Challenges within the project management group mainly stem from insufficient planning, execution, and delivery of the product to the end customer. This challenge group can be tackled through the planning performance domain, the project work performance domain, uncertainty performance domain, and the delivery performance domain.

The planning performance domain primarily addresses the initial and continuous preparation required to structure and coordinate the project for the delivery of deliverables and outcomes (Project Management Institute, 2021). This domain can tackle issues related to poor scheduling and estimation (Petrescu & Motogna, 2023; Yogaantara & Fajar, 2022). The PMBOK indicates that schedule planning may use either a predictive or adaptive methodology. In the predictive technique, if the schedule model deviates from the initially intended date, the schedule will be compressed to reduce the duration. This can be achieved by increasing the workforce or extending working hours. Adaptive methodologies employ incremental planning. It relies on iteration and release strategies, rather than delivering the entire product (Project Management Institute, 2021).

The project work performance domain thereafter emphasizes activities pertinent to the actual work. This performance domain ensures the project is conducted effectively. The complexity of the project as highlighted in this challenge group can be mitigated by implementing a regular evaluation of the process. The team can alleviate bottlenecks through project customization, including work decomposition to enhance manageability and alignment with project requirements.

The concept of complexity is referenced within the uncertainty performance domain. To align with the guidelines from the project work performance domain, one method to mitigate complexity is through the decoupling of variables. Another method is to employ a simulation to replicate a component of a system. This performance area also refers to iterative development and the identification of effective and ineffective elements. Engaging with stakeholders to minimize assumptions is another facet of reducing complexity.

Delivery performance domain ensuring that the scope and quality of the product align with the project objectives. Deliverables in this performance domain, including requirements and scope definition, ensure the project achieves high accuracy and precision, rather than low accuracy with high precision, thereby addressing challenges such as delivering an incorrect product, ambiguous project objectives, and user non-utilization of the product (Institute, 2021).

4.8 Recommendation for Data and Information Management Challenge Group

This challenge group mostly focuses on quality assurance. These issues can be resolved by the measurement performance domain in PMBOK 7th edition. The measures performance domain assesses whether the deliverables metric specified in the delivery phase meets the requirements established in the planning phase. Common metrics for assessing product performance include start and finish dates, effort and duration, schedule variance, schedule performance index, feature completion rates, actual cost versus projected cost, cost variance, and cost performance index. These metrics can be customized according to the specific requirements of each project. Measuring business values is a crucial element in addressing this group's difficulty. Common metrics employed include cost-benefit ratio, comparison of projected benefits delivery to actual benefits delivery, return on investment (ROI), and net present value (NPV). This performance group emphasizes the necessity of utilizing visualization boards, like dashboards, to convey the collected metrics (Institute, 2021).

4.9 Recommendation for Organization Challenge Group

This challenge group primarily addresses project governance and stakeholder engagement. The stakeholder performance domain ensures that the project team maintains a positive relationship with stakeholders and communicates effectively with them. Project stakeholders might include top management, governing bodies, and end users. Stakeholder engagement is an aspect in this performance domain. Stakeholder engagement may adhere to a process of stakeholder identification, understanding and analyzing, prioritization, engagement, and monitoring (Institute, 2021).

Stakeholder identification occurs at both the initial and ongoing phases of the initiatives. Certain stakeholders, including the sponsor, project team, and users, may change during the course of the project. Upon completion of identification, the following stage involves comprehending and analyzing the values and characteristics of stakeholders to facilitate interactions between stakeholders and the team, which may impact the stakeholders' motivation, actions, and behavior (Institute, 2021). Prioritization is conducted when a project has an excessive number of stakeholders. Engagement is the ultimate and most critical aspect of stakeholder relationships, involving joint efforts to initiate initiatives, define requirements, manage expectations, resolve issues, address conflicts, and demonstrate leadership abilities. Issues of IT and data governance can be addressed with relevant stakeholders utilizing the principles mentioned earlier (Institute, 2021). Comprehending the stakeholder performance domain can impact the success of other performance domains in addressing challenges related to IT and data governance. During the planning phase, the team and stakeholders formulate both initial and ongoing strategies regarding project governance. In areas of uncertainty and measurements performance domain, stakeholder involvement is essential when additional governance is to be incorporated into projects and information is disseminated among stakeholders.

4.10 Author Contribution

Shania Eriadhani Astagina: Conceptualization, Data Curation, Formal Analysis, Investigation, Validation, Writing – original draft.

Teguh Raharjo: Conceptualization, Writing – review & editing, Supervision.

4.11 Data Availability

The data that support the findings in this research is openly available in Zenodo at https://doi.org/10.5281/zenodo.17336523.

5. CONCLUSION

Agile-based big data projects encounter challenges that must be addressed according to the systematic literature review carried out. The review successfully identifies four primary difficulty groups that need to be addressed: human resources, project management, data and information management, and organization. The PMBOK 7th performance domain is utilized to generate the necessary recommendations for addressing such concerns. Seven of the eight performance domains were applied to formulate the recommendations, providing a comprehensive approach to addressing the identified challenges.

6. SUGGESTION

Future research may concentrate on specific aspects of big data projects, including data analytics, data science, and data engineering. This study exclusively concentrated on the performance domain in the PMBOK 7th edition. PMBOK principles may be included into future research to fully use PMBOK 7th in relation to topics similar to this study.

7. REFERECES

Adler-Milstein, J., Aggarwal, N., Ahmed, M., Castner, J., Evans, B. J., Gonzalez, A. A., James, C. A., Lin, S., Mandl, K. D., & Matheny, M. E. (2022). Meeting the Moment: Addressing Barriers and Facilitating Clinical Adoption of Artificial Intelligence in Medical Diagnosis. *NAM Perspectives*, *2022*, 10–31478.

Afshari, M., & Gandomani, T. J. (2021). A typical Practical Team Structure and Setup in Agile Software Development. *2021 7th International Conference on Electrical, Electronics and Information Engineering (ICEEIE)*, 483–487.

Al-Sai, Z. A., Abdullah, R., & Husin, M. H. (2020). Critical Success Factors for Big Data: A Systematic Literature Review. *IEEE Access*, *8*, 118940–118956.

Al Naqbi, H., Bahroun, Z., & Ahmed, V. (2024). Enhancing Work Productivity Through Generative Artificial Intelligence: A Comprehensive Literature Review. *Sustainability*, *16*(3), 1166.

Amaro, F., & Domingues, L. (2023). PMBOK 6th Meets 7th: How to Link Both Guides in Order to Support Project Tailoring? *Procedia Computer Science*, *219*, 1877–1884.

Chandra, S., Verma, S., Lim, W. M., Kumar, S., & Donthu, N. (2022). Personalization in Personalized Marketing: Trends and Ways Forward. *Psychology & Marketing*, *39*(8), 1529–1562.

Dempsey, M., Brennan, A., Holzberger, A., & McAvoy, J. (2022). A Review of the Most Significant Challenges Impacting Conventional Project Management Success. *IEEE Engineering Management Review*, *50*(3), 193–199.

Godliauskas, P., & Šmite, D. (2025). The Well-Being of Software Engineers: A Systematic Literature Review and A Theory. *Empirical Software Engineering*, *30*(1), 35.

Guertler, M. R., & Sick, N. (2021). Exploring the Enabling Effects of Project Management for Smes in Adopting Open Innovation–a Framework For Partner Search And Selection in Open Innovation Projects. *International Journal of Project Management*, *39*(2), 102–114.

Gutterman, A. S. (2023). Organizational Structure. *Available at SSRN 4545832*.

Hartikainen, S. (2024). Characterization of Humidity Reference For Energy Gas Measurements.

Inayah, A. D. (2024). Analisis Tinjauan Implementasi Metode Agile dalam Manajemen Proyek Sistem Informasi. *Jurnal Riset Teknik Komputer*, *1*(2), 58–63.

Institute, P. M. (2021). A Guide to the Project Management Body of Knowledge (PMBOK® Guide)–Seventh Edition And The Standard For Project Management.

Martinez, I., Viles, E., & Olaizola, I. G. (2021). A Survey Study of Success Factors in Data Science Projects. *2021 IEEE International Conference on Big Data (Big Data)*, 2313–2318.

Munappy, A. R., Bosch, J., Olsson, H. H., Arpteg, A., & Brinne, B. (2022). Data Management for Production Quality Deep Learning Models: Challenges and Solutions. *Journal of Systems and Software*, *191*, 111359.

Nguyen, T. N., & Truong, H. T. (2025). Trends and Emerging Themes in the Effects of Generative Artificial Intelligence in Education: A systematic review. *Eurasia Journal of Mathematics, Science and Technology Education*, *21*(4), em2613.

Ozkan, N., Eilers, K., & Gök, M. Ş. (2024). A Literature Review Based Insight Into Agile Mindset Through a Lens of Six C's Grounded Theory Model. *Special Sessions in the Information Technology for Business and Society Track of the Conference on Computer Science and Intelligence Systems, Conference on Information Systems Management*, 261–282.

Petrescu, M. A., & Motogna, S. (2023). A Perspective from Large vs Small Companies Adoption of Agile Methodologies. *ENASE*, 265–272.

Primmia, D. R., Mahabooba, M., Karpagam, J., Sharma, K., Singh, A., & Manoj, S. (2024). The Development of 6-G Technology in Integration with AI type of Synergy. *2024 4th International Conference on Advance Computing and Innovative Technologies in Engineering (ICACITE)*, 248–253.

Putra, M. B., Alaydrus, F., Sulistyowati, I., Raharjo, T., & Wijayanto, R. (2022). Issues and Challenges of the Data Analytics Development Project In The Center Of Information System And Financial Technology. *2022 1st International Conference on Information System & Information Technology (ICISIT)*, 295–300.

Rambe, A. P. (2024). Optimalisasi Manajemen Proyek Sistem Informasi dalam Perspektif Literatur Review. *Jurnal Riset Teknik Komputer*, *1*(2), 74–79.

Rana, M. N. U., Akhi, S. S., Tusher, M. I., Bashir, M., Mahin, M. R. H., Ahmed, E., Chowdhury, T. E., & Chowdhury, R. (2023). The Role of AI and Generative AI in US Business Innovations, Applications, Challenges, and Future Trends. *Pathfinder of Research*, *1*(3), 17–33.

Reni, A., & Tukiran, M. (2024). Systematic Literature Review: Factors Affecting Project Management Success. *International Journal of Educational Review Law and Social Sciences (IJERLAS)*, *4*(2), 418–428.

Rodrigues, M. C., Domingues, L., & Oliveira, J. P. (2023). Tailoring: A Case Study On The Application Of The Seventh Principle of PMBOK 7 in a Public Institution. *Procedia Computer Science*, *219*, 1735–1743.

Saltz, J. S., & Krasteva, I. (2022). Current Approaches For Executing Big Data Science Projects—A Systematic Literature Review. *PeerJ Computer Science*, *8*, e862.

Weiner, J. (2025). Why AI/Data Science Projects Fail: How To Avoid Project Pitfalls. Springer Nature.

Yogaantara, H., & Fajar, A. N. (2022). Analysis of Factors Causing Information Systems Projects Delays in IT Consulting Company. *J Theor Appl*.