INTERNATIONAL JOURNAL OF SOCIAL AND MANAGEMENT STUDIES (IJOSMAS)

Volume: 6 No. 5 https://www.ijosmas.org e-ISSN: 2775-0809

Assessing Project Management Maturity to Enhance the Sustainability and Effectiveness of Digital Transformation Initiatives

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Abstract *– Digital transformation has become a strategic agenda for organizations to enhance competitiveness, operational efficiency, and long-term sustainability. However, the success of digital transformation projects largely depends on the effectiveness of project management and the organization's project management maturity level. This study aims to analyze the maturity level of project management and its role in improving the effectiveness and sustainability of digital transformation projects in PT XYZ, a company in the Indonesian telecommunication sector. A mixed-method approach was applied: qualitative data were obtained through Focus Group Discussions (FGDs) with key stakeholders and analyzed using NVivo software, while quantitative analysis utilized secondary company data related to project performance. Project maturity was assessed using the Project Management Maturity Model (PMMM), supported by CMMI and COBIT 2019 frameworks. The results show that PT XYZ's maturity level is at 2.4 (repeatable–defined), indicating partially defined but insufficiently standardized processes. Key issues include undocumented baseline scope, reactive cost control, unrealistic schedules, and inconsistent quality assurance practices. The findings highlight that maturity level mediates the relationship between project effectiveness and digital transformation success. The study contributes theoretically by integrating maturity level and sustainable project effectiveness within the digital transformation context, and practically by offering strategic recommendations on process standardization, human resource development, digital tool optimization, cost control, governance, and quality assurance.*

Keywords*: Project Management, Project Management Maturity, Project Effectiveness, Digital Transformation*

I. INTRODUCTION

Digital transformation projects have become a determining factor in the success of organizations in maintaining competitiveness, efficiency, and business sustainability in the era of the Fourth Industrial Revolution. The effectiveness of sustainable projects is not only determined by the achievement of outputs in terms of scope, cost, schedule, and quality, but also by the organization's ability to ensure that project results support long-term strategic goals. Therefore, the effectiveness of sustainable projects is crucial to ensure that investments in digital transformation generate real and sustainable value for organizations.

However, PT XYZ faces various phenomena related to project management maturity. Several digital projects often experience scope creep, delays in implementation from targets, and cost overruns caused by suboptimal initial estimates and cross-functional coordination. In addition, the quality of project outputs sometimes does not meet stakeholder expectations due to limitations in monitoring and controlling mechanisms. This condition indicates that the project management maturity level at PT XYZ is still at an intermediate level, which impacts the effectiveness and sustainability of the digital transformation being implemented.

In this context, the variables of scope, cost, schedule, and quality are important dimensions in project management. These four dimensions serve as key performance indicators that directly affect the effectiveness of sustainable projects. When the scope is clearly defined, costs are managed realistically, schedules are executed according to targets, and the quality of project results is maintained, the effectiveness of digital projects can be optimally achieved. Therefore, this study emphasizes the importance of examining the influence of these dimensions in improving the effectiveness and sustainability of digital transformation projects at PT XYZ.

A number of previous studies have confirmed the role of scope, cost, schedule, and quality in the effectiveness of digital projects. For example, Mishra et al. (2019) showed that clear scope management reduces the risk of scope creep in IT projects. Research by Burger et al. (2021) found that cost and schedule control

significantly contributed to the achievement of digital project objectives in the energy sector. Meanwhile, a study by Hanggara and Suprapto (2023) highlighted the importance of quality in ensuring the success of digital projects in the creative industry. These findings confirm that the main dimensions of project management are important determinants of digital project effectiveness.

Furthermore, previous studies have also confirmed that project effectiveness influences the success of an organization's digital transformation. Martin et al. (2023) found that project effectiveness is closely related to an organization's ability to continuously adopt new technologies. A study by Choi et al. (2020) emphasizes that the effectiveness of digital projects increases an organization's capacity to absorb new knowledge and accelerate transformation. Similar findings were reported by Alshehhi et al. (2021), who showed that effective projects drive the achievement of digital transformation goals in the telecommunications sector.

Furthermore, recent research confirms that project management maturity acts as a mediating variable in linking project effectiveness with digital transformation success. Ejsmont et al. (2020) found that organizations with high maturity levels are better able to manage the complexity of digital projects. Asrar-ul-Haq et al. (2020) stated that project management maturity strengthens the consistency between project effectiveness and digital strategy implementation. In addition, Chanchaichujit et al. (2022) emphasized that maturity level is a reinforcing factor that bridges project management effectiveness with the success of sustainable digital transformation.

However, most previous studies have focused more on the partial correlation between these variables, resulting in a research gap in integrating the analysis of project management maturity levels with the effectiveness and sustainability of digital transformation, particularly in the context of the telecommunications industry in Indonesia. Based on this gap, this study offers novelty by examining the role of maturity level as a key factor that
strengthens project effectiveness in supporting the sustainability of digital transformation.

Based on this description, the research questions asked are as follows:

1. What factors influence the effectiveness of project management in supporting the sustainability of digital transformation projects at PT XYZ?
2. What is *the maturity level of* project management at PT XYZ in the implementation of digital transformation projects?
3. What obstacles does the organization face in achieving *an* optimal *maturity level* to improve the effectiveness of digital projects?
4. What strategies can PT XYZ implement to improve *the maturity level* of project management in order to strengthen the sustainability of digital transformation?

In general, this study aims to analyze the maturity level of project management in improving the effectiveness
of digital transformation projects at PT XYZ. The findings of this study are expected to contribute theoretically to the project management literature and practically in the form of recommendations for strategies to improve project management capabilities for companies that are undergoing digital transformation. Project management maturity is defined as the level of an organization's capability to manage projects in a systematic, measurable, and sustainable manner so as to increase the chances of project success (Kerzner, 2019). This level of maturity is generally measured through project management dimensions that include scope, cost, schedule, and quality as outlined in the Project Management Body of Knowledge (PMBOK 6th Edition, PMI, 2017). These four dimensions serve as key indicators of project management effectiveness, as the success of digital projects is largely determined by the accuracy of the scope, cost estimates, schedule compliance, and the quality of the final results (Mishra et al., 2019; Burger et al., 2021). In the context of PT XYZ, the integration between the maturity level of project management and these key dimensions is key to improving effectiveness while ensuring the sustainability of digital transformation. The development of this research hypothesis refers to project management theory, organizational maturity theory, and the concept of sustainability. Conceptually, project management maturity is seen as a determining factor that strengthens the relationship between project effectiveness and the success of digital transformation (Ejsmont et al., 2020). The higher the maturity level, the greater the organization's ability to optimize scope, cost, schedule, and quality to support the dimensions of sustainability: operational effectiveness, cost efficiency, implementation time achievement, and consistent service quality (Asrar-ul-Haq et al., 2020; Chanchaichujit et al., 2022). Thus, this study proposes the following hypothesis:

- H1: Scope has a positive effect on project effectiveness.
- H2: Cost has a positive effect on project effectiveness.
- H3: Schedule has a positive effect on project effectiveness.
- H4: Quality has a positive effect on project effectiveness.

- H5: Project effectiveness has a positive effect on the success of digital transformation.
- H6: Project management maturity mediates the effect of project effectiveness on the success of digital transformation.

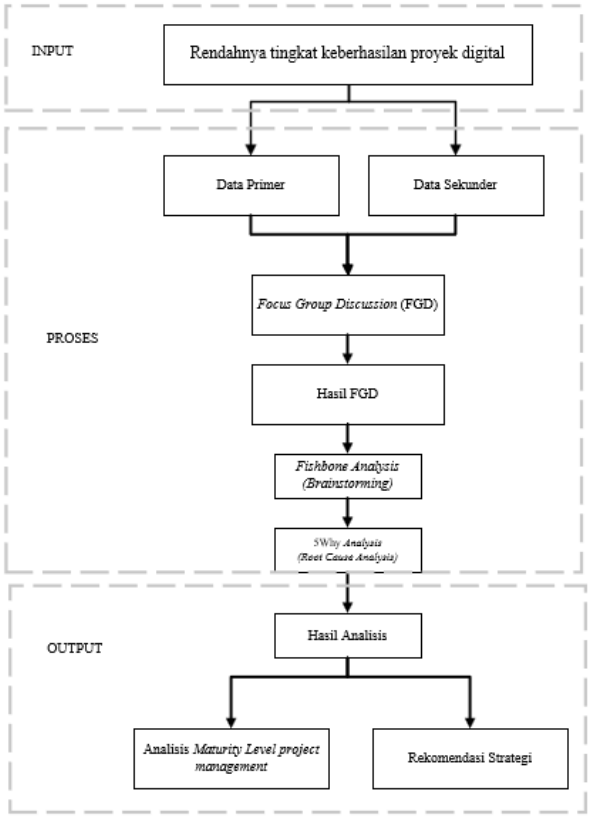

Figure 1. Kerangka Pemikiran

II. METHOD

This study uses a mixed method approach by combining qualitative and quantitative analysis to obtain a comprehensive picture of the maturity level of project management and project effectiveness in supporting digital
transformation at PT XYZ. The qualitative approach was conducted through Focus Group Discussions (FGD) involving key stakeholders, such as project managers, business process owners, and technical team representatives. The FGD aimed to explore in-depth perceptions of the challenges, opportunities, and key factors
that influence the effectiveness of digital projects. The results of the discussion were then transcribed and analyzed thematically using NVivo software to identify patterns, themes, and relationships between research variables (Creswell & Plano Clark, 2018; Bazeley & Jackson, 2019).

The quantitative analysis in this study uses secondary data obtained from companies, specifically project performance reports, monitoring documents, and internal evaluation data related to digital project achievements. This data is used to measure project effectiveness variables by reviewing achievements in terms of scope, cost, schedule, and quality. By utilizing secondary data, this study ensures the objectivity and reliability of information, while reducing the potential for bias that often arises in the collection of primary data based on respondent perceptions. The level of project management maturity is measured using the Project Management Maturity Model (PMMM) developed by Kerzner (2019).

This model assesses organizational maturity across five levels of development, ranging from common language to continuous improvement. The PMMM was chosen because it provides a clear mapping of PT XYZ's position on the maturity level scale and is relevant for assessing the organization's readiness to support the success of digital transformation. By integrating the results of the FGD analysis processed through NVivo

Volume: 6 No. 5 https://www.ijosmas.org e-ISSN: 2775-0809

and quantitative evaluation based on the company's secondary data, this study produced strong data triangulation and supported both theoretical and practical contributions.

III. RESULT AND DISCUSSION

A. Result

Descriptive analysis shows that PT XYZ has implemented 21 digitization programs in 2023 with a success rate of 85.7%, where 18 projects were completed on time while three experienced delays. In 2024, effectiveness increased to 88.2% with 17 projects planned and only two exceeding the time target. These findings indicate improvements in project management, although adherence to schedules remains a recurring issue. This pattern is consistent with a PMI study (2023), which confirms that organizations with low maturity levels are three times more likely to experience delays and cost overruns than organizations with high maturity levels. Thus, although PT XYZ showed an increase in effectiveness, there are still fundamental gaps in project management practices.

Focus group discussions (FGDs) identified six main themes that affect project effectiveness, namely scope, cost, schedule, quality, human resources, and organizational culture and leadership. The dominant problems were scope creep due to undocumented baselines, limited and not fully dedicated human resource allocation, and weak cross-unit coordination, which resulted in project delays. Leadership factors also proved crucial, with delayed sponsor support and weak governance exacerbating effectiveness. This is in line with the findings of Asrar-ul-Haq et al. (2020), which emphasize the importance of leadership in strengthening the consistency of project management practices. Similarly, Mishra et al. (2019) highlight that immature scope planning is the main cause of digital project deviations.

Measurements of maturity levels using the Project Management Maturity Model (PMMM), CMMI, and COBIT 2019 show that PT XYZ is at an average level of 2.4 (repeatable–defined). This condition is characterized by processes that are partially defined but not yet fully documented and standardized. Scope management is at Level 2 due to an incomplete baseline scope, cost management is still reactive, schedule management is at Level 2–3 with frequent delays, and quality management is at Level 2 because QA is only performed at the final stage. These results reinforce Kerzner's (2019) argument that organizations with intermediate maturity levels tend to experience a gap between planning and execution. In addition, these findings are consistent with the study by Ejsmont et al. (2020), which states that project management maturity plays an important role in improving the effectiveness and sustainability of digital transformation projects.

Root cause analysis using RCA and the 5 Whys method revealed that weak project governance was the underlying cause of delays, cost overruns, and quality decline. Other obstacles included limited human resources, an organizational structure that was not yet agile, and suboptimal use of monitoring tools. To address these issues, FGD respondents proposed six key strategies: process standardization, strengthening human resource competencies, optimizing digital tools, stricter cost control, strengthening governance and leadership, and consistent implementation of QA from the start of the project. These strategies are in line with best practice framework recommendations such as PMMM, CMMI, and COBIT 2019, and support the findings of Chanchaichujit et al. (2022) and Burger et al. (2024), which emphasize that strengthening governance, team competencies, and continuous improvement are key determinants of successful digital transformation.

B. Discussion

The findings of this study show that the effectiveness of digital projects at PT XYZ still faces challenges in terms of scope, cost, schedule, and quality, despite an increase in project completion success rates from 2023 to 2024. This condition indicates that the organization has moved in a more positive direction, but has not yet fully achieved an optimal level of maturity. These results are in line with the Project Management Maturity Model (PMMM) theory, which states that organizations at the intermediate level tend to have repeatable processes, but these are not yet comprehensively documented (Kerzner, 2019). This situation is consistent with studies by PMI (2023) and Ejsmont et al. (2020), which emphasize that low maturity levels make organizations more prone to delays, cost overruns, and inconsistent quality.

Focused group discussions also confirmed that human resources, organizational culture, and top management leadership play a critical role in the success of digital projects. This supports the findings of Asrar-ul-Haq et al. (2020) and Chanchaichujit et al. (2022), who stated that effective leadership and a disciplined

organizational culture are important determinants of project management effectiveness. Therefore, PT XYZ needs to prioritize strengthening human resources, developing a discipline-based work culture, and increasing project sponsor involvement. In addition, the results of the study show that weak project governance is the root cause of delays, so strengthening the governance structure with clear escalation mechanisms is an urgent need.

The managerial implications of these findings emphasize the need for a comprehensive improvement strategy
in six areas: process standardization, improving human resource competencies through training and certification, optimizing the use of digital tools, strengthening cost control mechanisms, active involvement of top management in governance, and consistent implementation of quality assurance from the outset of the project. The implementation of this strategy will not only increase PT XYZ's maturity level to a higher level (Level 3–4), but also strengthen the effectiveness and sustainability of the company's digital transformation. Thus, this study confirms that maturity level serves as an important link that ensures the effectiveness of project management can be translated into the success of sustainable digital transformation.

IV. CONCLUSION

This study examined the maturity level of project management and its role in enhancing the effectiveness and sustainability of digital transformation projects in PT XYZ. The findings revealed that the organization's project management maturity is still at a medium level (2.4, repeatable–defined), characterized by partially defined but insufficiently standardized processes. Key challenges include undocumented baseline scope, reactive cost control, unrealistic scheduling, and inconsistent quality assurance. Despite these limitations, PT XYZ demonstrated improved project completion rates between 2023 and 2024, indicating progress toward higher maturity and effectiveness.

From a theoretical standpoint, this study contributes to the growing literature on project management maturity by empirically validating its mediating role in linking project effectiveness with digital transformation success. The integration of PMMM, CMMI, and COBIT 2019 frameworks provides a multidimensional perspective, enriching current understanding of how scope, cost, schedule, and quality collectively determine project sustainability in the context of digital transformation.

From a managerial perspective, the results highlight the urgent need for PT XYZ to strengthen project governance, standardize processes, and improve human resource capacity through training and certification. Organizations should also optimize the use of digital monitoring tools, adopt proactive cost management practices, and embed quality assurance mechanisms throughout the project lifecycle. By implementing these strategies, PT XYZ can advance its maturity level toward Level 3–4, thereby improving not only project effectiveness but also the long-term sustainability of its digital transformation agenda.

In conclusion, this study emphasizes that project management maturity is not merely a structural capability but a strategic enabler that ensures digital transformation initiatives deliver sustainable organizational value. Strengthening maturity across scope, cost, schedule, and quality dimensions is essential for organizations seeking to bridge the gap between project execution and digital transformation success.

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