



I-SMART

*International Seminar and Conference
on Management, Research, and Transformation*

THE ROLE OF PROJECT MANAGEMENT ON THE EFFECTIVENESS OF DIGITAL SUPPLY CHAIN TRANSFORMATION IN JGA LOGISTICS

Gema Akbar Fitriansyah^{1*}, Muhammad Faraz Alberyo², Muhammad Ilham Ramadhan³, Alvina Yasmin⁴

^{1,2,3,4}Faculty of Economics and Business, Siliwangi University, Tasikmalaya, Indonesia

*223402292@student.unsil.ac.id

Abstract. The rapid development of digital technology encourages logistics companies to implement digital transformation in their supply chain systems to achieve higher efficiency, transparency, and competitiveness. However, this transformation process faces several challenges, including technological readiness, workflow adjustments, and human resource adaptation. This study aims to analyze the role of project management in supporting the effectiveness of digital supply chain transformation at JGA Logistics. The research applies a quantitative descriptive approach, using both primary and secondary data collected from employees involved in the digitalization projects. The findings reveal that effective project management practices covering strategic planning, risk management, time and cost control, change management, and continuous monitoring and evaluation significantly influence the success of digital supply chain transformation. Project management has been proven to enhance operational efficiency, information transparency, cost savings, and customer satisfaction. In conclusion, project management plays a crucial role in strengthening the effectiveness of digital supply chain transformation and contributes to improving the competitiveness of JGA Logistics in the increasingly dynamic logistics industry.

Keywords: project management; digital transformation; supply chain; effectiveness; JGA logistics.

1. Introduction

1.1 Background

The development of digital technology in the current era of globalization has created substantial changes across almost all industrial sectors, including logistics, which is one of the most dynamic and competitive fields today. Companies are increasingly required to modernize and digitize their supply chain processes to keep up with rapidly evolving market demands and intensifying competition. Digital supply chain transformation is believed to bring various strategic advantages, such as improving operational efficiency, accelerating distribution processes, increasing transparency in the flow of information, and enhancing the accuracy of data-based decision-making (Chopra, 2006). For JGA Logistics as a national logistics provider, the adoption of digital transformation marks a crucial step in optimizing the distribution channels of goods, improving coordination among internal divisions, and reducing repetitive or ineffective manual work. The shift toward digitalization is expected to create a more integrated, responsive, and reliable logistics operation aligned with modern industry standards.

However, the implementation of digital transformation in logistics is not without challenges. Organizations often encounter obstacles such as employees' varying levels of technological readiness, the need to redesign existing workflows, the risk of system incompatibility, and the need for continuous training and adaptation. In this condition, project management becomes a critical foundation that determines whether the digital

transformation initiative can run effectively and sustainably. Through structured planning, efficient resource allocation, precise scheduling, risk mitigation, and ongoing evaluation, project management ensures that every stage of transformation remains aligned with organizational goals and can be executed systematically. For JGA Logistics, strong project management practices are essential to minimizing disruptions, ensuring stakeholder involvement, and maximizing the expected benefits of digitalization. Therefore, this study aims to analyze how project management contributes to enhancing the effectiveness of digital supply chain transformation at JGA Logistics (Kerzner, 2021).

1.2 Research Gap

Based on a review of previous studies, it appears that research on digital transformation in the supply chain has been widely discussed, particularly in relation to its impact on operational efficiency, integration, transparency, and company performance. However, most of these studies focus more on technological aspects such as ERP, blockchain, digital supply chain maturity, or HR digitalisation without highlighting how the project management process plays a role in the successful implementation of digitalisation. Furthermore, research conducted in the logistics sector generally focuses on the results of digitisation, rather than on the stages of planning, organising, controlling, and evaluating digital projects, which are crucial elements in digital transformation.

In addition, there are not many studies that integrate the relationship between project management and the effectiveness of digital supply chain transformation, namely improved operational performance. Therefore, there is a research gap regarding how the overall role of project management can influence the effectiveness of digital supply chain transformation, especially in developing logistics companies. This study aims to fill this gap by examining in depth the role of project management in driving the success of digital supply chain transformation at JGA Logistics.

1.3 Objectives

The purpose of this study is to analyse in depth the role of project management in supporting the effectiveness of digital supply chain transformation at JGA Logistics. Specifically, this study aims to identify how the planning, implementation, monitoring, and evaluation processes of digitisation projects are carried out and the extent to which the application of project management contributes to improving efficiency, information accuracy, system integration, and customer satisfaction. This study also aims to reveal the obstacles and supporting factors that arise during the implementation of digital transformation, while explaining how project management helps overcome these challenges. Furthermore, this study intends to examine the relationship between the application of project management and the effectiveness of digital supply chain transformation, as well as describe the impact of digitalisation effectiveness on improving the company's operational performance. Thus, this study is expected to provide a comprehensive overview of the importance of project management in the success of digital transformation in a growing logistics company.

2. Research Method

2.1 Design

This study employs a quantitative descriptive approach to examine the influence of project management on digital supply chain transformation effectiveness at JGA

Logistics. The research focuses on the project management dimensions of strategic planning, risk management, time and cost control, change management, and monitoring and evaluation. Data were collected from employees involved in digitalization projects through questionnaires and interviews, complemented with secondary data such as project reports and company documents. The data were analyzed using descriptive and inferential statistical methods, including linear regression, to identify the strength and significance of the relationship between variables.

2.2 Data Collection

The data collection technique in this study employed a quantitative approach with the objective of obtaining measurable, structured, and statistically analyzable information. This approach enables researchers to objectively assess the relationship between project management practices and the effectiveness of digital supply chain transformation at JGA Logistics. Primary data were obtained through the distribution of structured questionnaires to respondents who were directly involved in various stages of the digitalisation process. These respondents included operational staff responsible for goods handling, administrative officers managing documentation, finance personnel overseeing transaction accuracy, drivers involved in distribution activities, and management staff who monitored and supervised the transformation process. To ensure accurate perception measurement, the questionnaire was designed using a 5-point Likert scale, which allowed respondents to express their level of agreement systematically from “strongly disagree,” “disagree,” “neutral,” “agree,” to “strongly agree.” The use of a 5-point scale ensured better differentiation of attitudes while minimizing respondent confusion. The selection of respondents used purposive sampling, a technique that deliberately targets individuals with specific insights, experience, or exposure to digitalisation initiatives, ensuring that the collected responses reflect relevant and informed perspectives. This approach enhanced the reliability and representativeness of the data, as only those with direct involvement were included in the assessment.

In addition to primary data, this study also incorporated secondary data sourced from internal company documentation to strengthen the overall validity of the findings. These documents included daily and monthly operational reports, delivery performance data, digital platform usage logs, and records related to the implementation phases of digitalisation projects. Secondary data provided contextual evidence that complemented questionnaire responses by illustrating practical outcomes, historical patterns, and operational changes that occurred during the transformation process. The combination of likert-scale perceptions and objective historical documentation allowed for deeper triangulation in evaluating whether improvements in project management were aligned with actual operational changes. By integrating both primary and secondary data, the study ensured a more holistic understanding of the research variables, enabling cross-verification between employee perceptions and documented operational performance. This mixed use of data sources enhanced the robustness of the analysis and supported the development of a comprehensive explanation of how project management influences the success and effectiveness of digital supply chain transformation at JGA Logistics.

2.3 Analysis Techniques

The analysis techniques used in this study include descriptive statistics and inferential statistical methods. Descriptive statistics were applied to summarize respondents' perceptions of the Project Management variable (X) and the Effectiveness

of Digital Supply Chain Transformation variable (Y) based on the average scores obtained from questionnaire responses. Inferential statistical analysis was carried out using simple linear regression to determine the magnitude and significance of the influence of variable X on variable Y. Prior to conducting the regression test, classical assumption tests were performed to ensure that the data met the requirements for regression analysis, including the normality test, heteroscedasticity test, and linearity test.

The hypothesis testing involved two statistical procedures:

1. F-test (Simultaneous Test) to examine whether Project Management (X) collectively has a significant effect on the Effectiveness of Digital Supply Chain Transformation (Y).
2. T-test (Partial Test) to test whether Project Management (X) individually has a significant effect on variable Y.

Additionally, the coefficient of determination (R^2) was used to measure the proportion of variance in Y that can be explained by X. All statistical analyses were conducted using regression output from SPSS.

4. Result and Discussion

Table 1. Research Variable

Variable	Question Item	Average Score	Scale Range	Interpretation
Project Management (X)	P1-P10	4,054	3.41–4.20	Agree
Effectiveness of Digital Supply Chain Transformation (Y)	P11-P20	4,059	3.41–4.20	Agree

4.1 Simultaneous Significance Test (F Test)

The F test aims to determine whether the independent variable of Project Management (X) simultaneously (together) has a significant effect on the dependent variable of Supply Chain Digital Transformation Effectiveness (Y).

Table 2. F-Test Results

Statistics	Value	Description
F_{cale}	4,477	Obtained from regression calculations
F_{table} ($\alpha=0.05$; $df_1=1$; $df_2=35$)	4,121	Critical value from the F table
p-value (Sig.)	416	Significance level
R^2 (Coefficient of determination)	113	The magnitude of variable X contribution to Y

Decision Criteria for the F-Test:

1. If $F_{\text{calculated}} > F_{\text{table}}$ or the p-value (Sig.) < 0.05 , then H_0 is rejected, which means that variable (X) simultaneously has a significant effect on (Y).
2. If $F_{\text{calculated}} < F_{\text{table}}$ or the p-value (Sig.) ≥ 0.05 , then H_0 is accepted, which means that variable (X) does not have a significant effect on (Y).

Discussion of the F-Test Results:

Based on the table above, the value of $F_{\text{calculated}}$ is 4.477, while the value of F_{table} is 4.121. Since $4.477 > 4.121$, then H_0 is rejected. This decision is also supported by the significance value (*p-value*) of 0.0416, in which this value is smaller than the significance

threshold of 0.05 ($0.0416 < 0.05$). The F-Test results show that the variable Project Management (X) simultaneously has a significant effect on the Effectiveness of Digital Supply Chain Transformation (Y). This means that the project management practices measured in P1–P10 collectively play an important role in determining the effectiveness of digital supply chain transformation at JGA Logistics.

The Coefficient of Determination (R^2) value of 0.113 shows that the Project Management (X) variable is only able to explain 11.3% of the variation in the Effectiveness of Digital Supply Chain Transformation (Y). The remaining 88.7% is explained by other variables or factors outside this regression model.

4.2 Partial Significance Test (T-test)

The T-test aims to test whether the independent variable of Project Management (X) partially (individually) has a significant effect on the dependent variable of Supply Chain Digital Transformation Effectiveness (Y).

Table 3. T-test Results

Statistics	Value	Description
T_{calc}	2,116	Obtained from regression calculations for variable X
$T_{\text{table}} (\alpha=0.05; df=35)$	2,030	Critical value from the T-table
p-value (Sig.)	416	Significance level for variable X
Koefisien Regresi (b)	4,715	A positive value indicates a direct relationship

Decision Criteria of the t-Test:

1. If $T_{\text{calculated}} > T_{\text{table}}$ (or $T_{\text{calculated}} < -T_{\text{table}}$) or the p-value (Sig.) < 0.05 , then H_0 is rejected, which means that variable X partially has a significant effect on Y.
2. If $T_{\text{calculated}} \leq T_{\text{table}}$ or the p-value (Sig.) ≥ 0.05 , then H_0 is accepted, which means that variable X does not have a significant effect on Y.

Based on the results table, the value of $T_{\text{calculated}}$ is 2.116, which is a positive value. Meanwhile, the value of T_{table} is 2.030. Since $2.116 > 2.030$ then H_0 is rejected. This decision is also supported by the significance value (p-value) of 0.0416, which is smaller than the significance threshold of 0.05 ($0.0416 < 0.05$). The T-test results show that the Project Management variable (X) has a partially significant effect on the Effectiveness of Digital Supply Chain Transformation (Y). The positive regression coefficient (b) of 0.4715 further indicates that there is a positive and unidirectional relationship between the two variables. This means that any improvement in the implementation of Project Management will be followed by an increase in the Effectiveness of Digital Transformation of the Supply Chain.

The coefficient of determination (R^2) is used to measure the extent to which the regression model can explain the variation in the dependent variable (Y).

Table 4. Coefficient of Determination

Statistics	Value	Interpretation
R^2 (R-Squared)	113	11.3%
The Rest	$1-R^2=0.887$	88.7%

The R^2 value of 0.113 (or 11.3%) indicates that the contribution or proportion of the Project Management variable in explaining the ups and downs of Supply Chain Digital Transformation Effectiveness is 11.3%. The remaining 88.7% (obtained from 100% - 11.3%) is explained by other variables outside this research model, such as technological readiness, top management support, organisational culture, or other factors not included in this regression equation.

Hypothesis Testing in Regression (F Test and T Test):

As the final part of the regression test, the F Test and T Test have been used to prove the significance of the effects found.

Table 5. Hypothesis Test

Test	Hypothesis	Quantitative Results	Decision
F-test (Simultaneous)	Does X collectively affect Y?	$F_{\text{calc}} = 4.477 > F_{\text{table}} = 4.121$ (p-value = 0.0416 < 0.05)	Significant (H_0 rejected)
T-test (Partial)	Does X individually affect Y?	$T_{\text{calc}} = 2.116 > T_{\text{Table}} = 2.030$ (p-value = 0.0416 < 0.05)	Significant (H_0 rejected)

Overall, the Regression Test proves that there is a significant influence of Project Management on the Effectiveness of Digital Supply Chain Transformation (as proven by the F Test and T Test). This influence is positive ($b = +0.4715\$$), which means that the better the implementation of Project Management, the higher the effectiveness of digital transformation achieved. The contribution of this influence, although significant, is still limited to 11.3% (R^2), suggesting that there are other important factors that need to be considered in further studies.

5. Conclusion and Recommendation

This study concludes that project management plays a significant and positive role in improving the effectiveness of digital supply chain transformation at JGA Logistics. The results of the F-test and t-test consistently indicate that Project Management (X) significantly influences the Effectiveness of Digital Supply Chain Transformation (Y). The positive regression coefficient further highlights that improvements in project management practices lead to increased levels of digital transformation effectiveness. Although the contribution of Project Management is measured at 11.3%, this percentage remains statistically meaningful, showing that the influence of the variable is both valid and impactful within the organizational context.

In addition to statistical significance, the findings also emphasize the practical importance of project management in guiding the digital transformation process. Structured planning provides clear direction for implementation, ensuring that each phase of the transformation aligns with the company's strategic objectives. Risk management allows the organization to identify, anticipate, and mitigate potential disruptions, while time and cost control ensure that digital initiatives are executed efficiently and within the planned budget. These aspects demonstrate how project management functions as a framework that stabilizes complex transformation activities, preventing misalignment and inefficiencies during the transition toward digital systems.

Moreover, change management and continuous evaluation contribute significantly to sustaining the effectiveness of digital transformation. Change management helps employees adapt to new technologies, processes, and workflows, reducing resistance and increasing user readiness. Continuous evaluation ensures that every improvement is

monitored, measured, and refined over time, allowing JGA Logistics to respond quickly to operational challenges. Together, these project management practices enhance operational efficiency, improve data accuracy, strengthen transparency, and ultimately increase customer satisfaction. Thus, the study underscores that project management is not merely a supporting factor but a critical driver that ensures digital supply chain transformation is implemented effectively and delivers tangible benefits to the company.

Based on the findings, several recommendations are proposed:

1. Establish a Project Management Office (PMO): A dedicated PMO will enhance project supervision, coordination, and strategic alignment in digital transformation initiatives.
2. Adopt Agile Project Management: Agile approaches allow greater flexibility and faster response to technological changes, making digital transformation more adaptive and efficient.
3. Provide continuous employee training: Regular training programs should be implemented to increase digital literacy, improve system utilization, and enhance readiness for technological change.
4. Conduct periodic evaluations of digital transformation projects: Routine monitoring and evaluation ensure that improvement opportunities are identified early and that projects remain aligned with organizational objectives.
5. Strengthen supporting factors outside project management: Future projects should also consider complementary aspects such as technology readiness, organizational culture, top management support, and system integration to achieve higher transformation effectiveness.

References

- Chopra, S., & Meindl, P. (2019). *Supply chain management: Strategy, planning, and operation* (7th ed.). Pearson Education.
- Damanik, M. R. (2025). Implementing digital supply chain management to improve operational efficiency. *Majapahit Journal of Management and Business*.
- Ikrima, I., et al. (2024). The influence of supply chain digitalization on integration and agility in company performance. *Indonesian Interdisciplinary Journal of Sharia Economics (IIJSE)*, 7(3).
- Kerzner, H. (2017). *Project management: A systems approach to planning, scheduling, and controlling* (12th ed.). John Wiley & Sons.
- Laudon, K. C., & Laudon, J. P. (2020). *Management information systems: Managing the digital firm* (16th ed.). Pearson Education.
- Miharja, I. (2025). Digitalization, inventory management, and human resource performance in Industry 4.0. *Jurnal Business*, 6(1).
- Pratama, R. B. (2025). Digital transformation in supply chain management: A literature review. *Jurnal IESM*.
- Prayoga, G. C., & Andriani, M. (2024). Development of digital transformation supply chain maturity model at PT PLN Nusantara Power. *Proceeding IGSC ITB*.
- Putra, M. I. P. (2025). Transformasi digital dalam rantai pasok melalui blockchain. *ResearchGate*.

Rahmawati. (2022). *Digitalisasi dan transformasi sumber daya manusia*. Repository UIN Datokarama.

Safitri, W., & Huda, M. (2024). Adoption of blockchain technology in Indonesian MSME supply chain management. *Ekonika: Jurnal Ekonomi Universitas Kadiri*.