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Research Paper

Key Performance Determinants for Project Managers in the Construction of Indonesia's New Capital City (IKN)

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ABSTRACT: *The development of the New Capital City (IKN) reflects a major transformation in Indonesia's construction sector. First, the project aims to create an environmentally friendly and sustainable capital city, requiring the adoption of advanced construction technologies and green building practices. Second, the project represents a strategic effort to distribute economic growth more equitably to regions outside Java, thereby reducing regional disparities. Project manager performance is measured not only by achieving budget and schedule targets, but also by their ability to manage human resources, address changes in the external environment, and maintain the quality of project deliverables. On large-scale projects like the New Capital City (IKN), project managers face multidimensional challenges encompassing technical, logistical, and regulatory aspects, as well as the involvement of numerous diverse parties. The purpose of this study was to determine the factors influencing the performance of Project Managers in the New Capital City (IKN), how each of these factors influences their performance, and which factors have the most significant influence on improving project manager performance in the New Capital City. This research method used a qualitative approach quantified using statistical tests with the help of SPSS. Respondents in this study were project managers and project manager-level equivalents working at PT Wijaya Karya Bangunan Gedung (PT Wika Gedung) on the New Capital City (IKN) development project. This research was conducted over the period 2024-2025. The results showed that leadership, communication climate, trust, and work experience influenced quality performance in the IKN development project. Trust was the most significant factor influencing quality performance in the IKN development project.*

KEYWORDS: *Project Manager, Project Manager Performance, New Capital City*

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I. INTRODUCTION

The construction industry is a sector that contributes to the country's economic growth and infrastructure development. In the Indonesian context, this sector plays a vital role in providing infrastructure such as bridges, roads, buildings, and public facilities that support social, economic, and political activities. As a developing country with a rapid urbanization rate, Indonesia is experiencing increasing demand for modern and sustainable infrastructure. The massive development process, particularly in the last ten years, includes national strategic projects designed to increase Indonesia's economic competitiveness on the global stage.

One of the largest ongoing initiatives is the construction of the new Indonesian capital city (IKN), which is being relocated from Jakarta to East Kalimantan. This project involves the construction of physical infrastructure that is not only monumental but also designed to be a symbol of sustainability and modernity. The development of the IKN presents unique challenges for stakeholders, particularly in terms of project management. Given the project's extraordinary scale and complexity, strong project management is a key determinant of its success or failure.

The development of the IKN represents a major transformation in the construction sector in Indonesia. First, the project aims to create an environmentally friendly and sustainable capital city, which requires the adoption of advanced construction technologies and green building practices. Second, this project is a strategic effort to distribute economic growth more evenly to areas outside Java, thereby reducing regional inequality. However, achieving this goal requires meticulous project planning and execution, which must be coordinated across multiple levels of government and the private sector.

In this context, the performance of project managers is crucial. Project managers' performance is measured not only by achieving budget and schedule targets, but also by their ability to manage human resources, navigate changes in the external environment, and maintain the quality of project deliverables. On large-scale projects like the New Capital City (IKN), project managers face multidimensional challenges encompassing technical, logistical, and regulatory aspects, as well as the involvement of numerous diverse parties.

The development of the National Capital City (IKN) is Indonesia's largest infrastructure project in the last decade and is considered a national strategic project, projected to drive economic growth and the distribution of development beyond Java. However, this project will also face numerous challenges, both technical and managerial. For example, a significant phenomenon is the high turnover rate of project managers involved, as well as frequent operational uncertainties in the field, such as regulatory changes and material price fluctuations.

II. LITERATUR REVIEW

PERFORMANCE

Performance is the complete manifestation of an individual's potential, requiring full commitment, a sense of belonging, and the actualization of competencies. Performance represents individual work achievements that can be evaluated through qualitative, quantitative, and temporal parameters in the implementation of organizational tasks. (Robbins et al., 2013) defines performance as the result of work behaviors that lead to the achievement of organizational goals. An individual's productivity within an organization is determined by three key factors: technical competence, level of internal motivation, and development opportunities provided by the company.

From the perspective of [11], performance is defined as work output that can be evaluated against predetermined standards. Performance encompasses two main elements: the actual results of the work and the behaviors demonstrated during the work. Performance evaluation should not simply focus on the final outcome but also consider the mechanisms and stages of its achievement. A person's work achievement is the result of a complex interaction between various internal and external determinants that influence each other.

[8] Grouped these elements into several categories: (1) Individual capabilities, which include the skills and competencies possessed by workers; (2) Motivation, which drives individuals to perform tasks; and (3) Work environment factors, which consist of organizational factors such as culture, reward systems, and support from management. Meanwhile, [5] suggested that performance can also be viewed in terms of work efficiency and effectiveness. Effectiveness is seen in terms of the extent to which goals have been achieved, while efficiency examines how resources are optimally managed to achieve those goals. Campbell also emphasized that performance assessments must be objective and based on clear indicators to avoid bias in evaluations.

That performance indicator variables, as outlined in the overall plan, are: a. The overall level of construction project completion according to the established schedule. b. The level of implementation of specifications for each construction project task in accordance with regulations. c. The level of knowledge of construction project implementation. d. The level of ability to carry out construction project work. e. The level of skill in carrying out construction project work. f. Attitude in carrying out construction project work in accordance with expectations. g. Agreement in carrying out construction project work in accordance with expectations. h. Level of ability to interact in completing construction project work. i. Level of enthusiasm for construction project work.

LEADERSHIP

Leadership reflects the standards of behavior an individual applies in an effort to influence team members. Selecting an appropriate leadership style has been shown to be effective in stimulating achievement motivation in work groups.

Leadership presents a basic assumption which states that leadership is related to the process flow created intentionally by employees so that the emphasis is on their strong influence on others to foster, create structures, facilitate various joint actions and interconnectedness between individuals in a team or organizational work environment.

Leadership is a dynamic process in which an individual influences a group of people to achieve group goals through planned and efficient implementation. This process involves the use of authority, motivation, and the implementation of appropriate strategies and policies to direct, facilitate, and improve the performance of group members.

TRUST IN THE ORGANIZATION

Trust is recognized as an essential aspect determining the quality of relationships in various contexts. In psychology and interpersonal communication, trust is a key dimension influencing the dynamics of

interpersonal relationships. Research in business management and organizational communication has extensively examined trust as a crucial element in professional relationships.

According to [9], trust is identified as the willingness of the parties concerned to rely on the actions of another party based on the expectation that the other party will perform certain important actions, without needing to be directly monitored or controlled. This shows that trust incorporates expectations of the ethical and professional behavior of others in the established relationship.

Organizational trust is an essential component that determines the quality of relationships, both interpersonally and professionally. In an organizational context, trust influences teamwork and management dynamics, supports transparency and openness, and plays a crucial role in shaping a positive company culture. Trust facilitates collaboration and high performance in the workplace.

COMUNICATION

Communication climate can be distinguished from organizational climate in that communication climate only includes communicative phenomena, for example evaluation can be based on advisory aspects from management to employees as well as the accuracy of information distribution within the organizational structure

That communication climate is a component of organizational climate by stating that the overall organizational climate consists of members' perceptions of various dimensions of organizational continuity, including 'information flow' (i.e. perceptions of whether the flow is sufficient or insufficient) and several practices involving communication. So the communication climate is defined as follows: the operational definition of communication climate is a phenomenon that has a communicative nature, the accuracy of information spread within the organization.

WORK EXPERIENCE

Work experience in the initial hypothesis has a strong influence on performance, sufficient experience will lead to high achievement and low work experience will also lead to low performance. Project managerial competence is an ability developed through an empirical learning process, where the capacity for effective decision-making and problem-solving is formed through the accumulation of experience in dealing with various work challenges.

Trust in the workplace is an essential aspect that influences the quality of interactions and cohesion among team members, playing a vital role in creating a productive and supportive work environment. As a multidimensional element, trust involves effective communication, integrity, and empathy, all of which contribute to the formation of healthy and productive relationships within an organization.

Work experience can be defined as the collection of knowledge, skills, and competencies acquired through sustained participation in work-related tasks within an organization or industry. This includes not only the duration of time spent in a particular role or industry, but also the intensity and complexity of the tasks performed.

PROJECT MANAGER

As the primary controller of an initiative, a project manager has comprehensive responsibilities ranging from strategy formulation, operational implementation, to quality control to meet all predetermined project targets. [7] in his book Project Management Best Practices emphasizes that project managers need to master both technical and managerial aspects to ensure project success. A project manager's ability to lead a team, make strategic decisions, and manage resources effectively is key in large-scale projects. [7] Also emphasizes the importance of an adaptive approach in modern project management, where project managers must be ready to adapt to developments in the external and internal environment of the project.

According to [14], their research states that the leadership role played by project managers significantly influences project success. Effective leadership increases team engagement, reduces conflict, and ensures good communication among all stakeholders. Researchers emphasize that in large projects such as the construction of a new national capital, project managers must have the ability to collaborate with various parties, both internal and external, to achieve goal alignment.

According to [6], project managers in large projects must have strong risk management skills. Human Resources. [3] Introduced the concept of contextual project management, which emphasizes that the project management approach must be tailored to the specific project context. Furthermore, [10] explain that modern project managers must be proficient in utilizing digital technology and sophisticated project management tools. Utilizing modern technologies such as project management software, data analytics, and online collaboration tools allows project managers to increase efficiency, monitor project progress in real-time, and make data-driven decisions.

Additionally, [2] discuss the importance of strategic project management, which links the project

manager's role to the organization's strategic goals. Project managers must understand the organization's or client's long-term vision and how the projects they manage contribute to those goals.

CONSTRUCTION PROJECT

Construction projects are among the most complex and diverse industries, involving numerous stakeholders, significant resource requirements, and significant management challenges. Construction projects are typically characterized by a life cycle spanning the planning, design, procurement, construction, and handover and maintenance phases. Construction activities are the systematically planned process of constructing a physical structure within predetermined time constraints and resource allocations. [15]

Construction activities are a series of interconnected activities, with a clear objective, and carried out within a specific timeframe. High-rise construction projects, such as apartment buildings, face greater risks due to the massive workforce and the towering nature of the buildings [12].

Construction work, particularly the construction of high-rise buildings, is a complex activity involving many technical stages, from planning and implementation to supervision. Each stage has its own technical standards, specifications, and implementation norms that must be adhered to. This complexity requires the involvement of various stakeholders, including supervising consultants, to ensure the entire construction process runs according to the project's objectives and quality standards. The role of the supervising consultant is crucial in controlling the quality of work, implementation time, and potential risks that may occur during construction activities [13].

PROJECT SUCCESS

Project success is a concept that encompasses various aspects of project performance, such as goal achievement, stakeholder satisfaction, quality standards compliance, and project completion on budget and schedule. However, the definition of project success often depends on the perspectives of different stakeholders, making it a multidimensional aspect.

[7] Introduced the concept of project management maturity as a determining factor in project success. Researchers stated that organizations with mature project management systems tend to be more successful in completing projects. This project management maturity includes the ability to utilize resources effectively, apply appropriate methodologies, and continuously monitor and evaluate projects. In large projects such as infrastructure development, the level of organizational maturity significantly influences project success.

[1] Added that project success is also influenced by human resource management within the project. Researchers suggest that successful projects typically have motivated, cohesive, and well-trained teams. Inconsistencies in team management, such as poor communication or unclear division of responsibilities, can lead to project failure. Therefore, creating a solid and supportive team is a crucial element in a successful project.

SPSS (*Statistical Package for the Social Sciences*)

This software is renowned for its ease of use, intuitive interface, and ability to handle large amounts of data. SPSS allows users to perform a variety of statistical analyses, from simple descriptive statistics to complex ones such as regression analysis, analysis of variance (ANOVA), factor analysis, and correlation tests. Furthermore, SPSS can also be used for non-parametric statistical analysis.

SPSS has two main operating modes: Data View and Variable View. Data View displays the input data, while Variable View displays the attributes of the variables used in the analysis, such as name, type, width, decimal places, and labels. This flexibility makes it easier for users to manage and manipulate data before analysis.

SPSS's primary advantage is its ability to process data quickly and produce clear, structured statistical reports. Its data processing features include variable transformation, new value calculations, and the ability to handle missing data. SPSS also supports integration with various other data formats, such as Excel, SAS, and SQL databases, further enhancing its usefulness in data management.

In addition, SPSS provides a variety of data visualization methods to support statistical analysis, including bar graphs, histograms, boxplots, and scatterplots. This helps researchers effectively visualize analysis results to support data-driven interpretation and decision-making. The use of SPSS is crucial in quantitative research, as it provides a systematic and tested approach to analyzing empirical data. With its comprehensive statistical analysis capabilities, SPSS facilitates researchers in drawing valid and reliable conclusions while also enabling detailed reporting.

RESEARCH HYPOTHESIS

Leadership, communication climate, trust, and work experience influence project time performance. 2. Leadership, communication climate, trust, and work experience influence project quality performance.

III. RESEARCH METHODS

This study uses a descriptive qualitative approach, focusing on the performance of project managers in the construction of the new capital city (IKN) at PT Wika Gedung . Data collection was carried out in three phases: literature review, expert validation, and questionnaire distribution.

The data used in this study are as follows:

- Primary Data: Expert-based questionnaire using software SPSS
- Secondary Data: Secondary data is previously documented information from sources such as scientific publications, company archives, and related literature. In this writing, secondary data was obtained from PT. WIKA Gedung's internal documentation, including the organizational profile, vision and mission, institutional structure, and employment data, as well as from various supporting literature sources.

Data Analysis Techniques :

- Validity Test
- Reliability Test
- Descriptive Analysis Method
- Quantitative Analysis Method (Multiple Linear Regression Test)
- Hypothesis Testing
- R square test
- Test F
- Test T

DATA COLLECTION

The research was conducted from October 2024 to February 2025, with the research location being PT. WIKA Gedung, which is involved in the IKN development project. This study focuses on PT. WIKA Gedung as the unit of analysis, with a population of 50 construction professionals consisting of Project Managers, Deputy Project Managers, Site Engineers, and Construction Managers. Given the limited number of respondents, the sampling technique used was the census method.

IDENTIFICATION AND DEFINITION OF VARIABLES

There are two types of variables in this research: independent variables and dependent variables. a. Independent variable (X): factors that influence project manager performance and commitment. b. Dependent variable (Y): Project Manager performance.

The independent variables (X) of the study are leadership, communication climate, organizational trust, and work experience. The dependent variable (Y) is performance. In this study, performance is measured by time performance (Y1) and quality performance (Y2).

RESEARCH VARIABLES

COMUNICATION

The research communication climate variable using a questionnaire was adopted from Dennis's study (1974) in (Guzley, 1998), this questionnaire was previously used in organizations in the southwest region to measure the communication climate through its staff, then it will be used in construction projects, of course the words and sentences are no longer suitable for the situation and circumstances in the construction project, so that it can still be used, a modification is made, namely the intent and purpose are the same, but the words and sentences are different and changed.

This questionnaire uses a 5-level Likert scale-based scoring system, namely: strongly agree (score 5), agree (score 4), neutral (score 3), disagree (score 2), and strongly disagree (score 1). The communication climate variables in this study are research indicators, as shown in the table below.

Variables	Indicator	Reference
	COMUNICATION	
X1.1	I always listen to what my subordinates say about things that interfere with project work.	McMurray (2003)
X1.2	I am easy to talk to subordinates.	McMurray (2003)
X1.3	I encourage subordinates to let him know about mistakes in project work.	McMurray (2003)
X1.4	I always listen to what my subordinates say is really important.	McMurray (2003)
X1.5	Sub-sections of work in different projects are jointly planned and coordinated to find solutions.	McMurray (2003)

X1.6	This company has clear, objective goals and objectives.	McMurray (2003)
X1.7	I feel that the information I received from my subordinates is truly trustworthy.	McMurray (2003)
X1.8	I was satisfied with the explanations I received from my subordinates about why the work was done the way it was.	McMurray (2003)

LEADERSHIP

The leadership indicators in this study were adopted from the Laka-Methebula (2004) study. However, the questions in the questionnaire were not used directly but were adapted to the conditions and characteristics of construction projects. These adjustments included changes in wording and sentence structure to be more relevant to the construction industry context, without altering the primary purpose and objective of the measurement.

The questionnaire uses a five-level Likert scale, namely: strongly agree (score 5), agree (score 4), neutral (score 3), disagree (score 2), and strongly disagree (score 1)

Variables	Indicator	Reference
	LEADERSHIP (X2)	
X2.1	I always give appreciation to the good performance of my subordinates, both personally and in forums.	Barge (1991) dan Laka - Mathebula (2004)
X2.2	I give credit to ideas that come from below by giving separate credit to subordinates.	Barge (1991) dan Laka - Mathebula (2004)
X2.3	I often pay attention to the performance of subordinates on projects that I do well.	Barge (1991) dan Laka - Mathebula (2004)
X2.4	I always care about my subordinates.	Barge (1991) dan Laka - Mathebula (2004)
X2.5	I always provide feedback to subordinates about project performance.	Barge (1991) dan Laka - Mathebula (2004)
X2.6	I always pay attention to the performance of subordinates who are performing poorly.	Barge (1991) dan Laka - Mathebula (2004)

TRUST IN ORGANIZATIONS

Trust in organizations is defined as one of the main components in the quality of relationships, which reflects the willingness of individuals or groups to depend on other parties with the belief that the parties are trustworthy, have competence, and uphold honesty and openness.

In the study, trust was measured using a questionnaire adapted from the organizational trust model developed by Cummings & Bromiley (1996), with modifications made by Luo (2005). This questionnaire uses a Likert scale with five levels of assessment: strongly agree (score 5), agree (score 4), neutral (score 3), disagree (score 2), and strongly disagree (score 1).

The trust indicators in this study were adopted from Luo's (2005) study, which previously developed a 10-question organizational trust questionnaire. For its application in the context of construction projects, the wording and formulation of the questionnaire questions have been adapted to the conditions and characteristics of the project environment, without changing the essence and purpose of the measurement.

Variables	Indicator	Reference
	TRUST IN ORGANIZATIONS (X3)	
X3.1	I treat subordinates fairly and equally	Cummings dan Bromeley (1996), Luo (2005)
X3.2	I can be trusted to keep my promises.	Cummings dan Bromeley (1996), Luo (2005)
X3.3	I always make important decisions, and always pay attention to employees.	Cummings dan Bromeley (1996), Luo (2005)
X3.4	I will consider the opinions coming from the people below as part of their Decision.	Cummings dan Bromeley (1996), Luo (2005)
X3.5	I am very confident in the company's capabilities.	Cummings dan Bromeley (1996), Luo (2005)
X3.6	I have the ability to realize the company's goals.	Cummings dan Bromeley (1996), Luo (2005)
X3.7	The right rules will guide the company's actions or behavior.	Cummings dan Bromeley (1996), Luo (2005)

X3.8	The company will not mislead the people under it.	Cummings dan Bromeley (1996), Luo (2005)

WORK EXPERIENCE

Work experience refers to tenure, length of time working on similar jobs, and the number of problems encountered and resolved within the project organization. Work experience was measured using a questionnaire developed from previous research by Ford et al. (2003). The questionnaire's scoring system used a scale of strongly agree (score 5), agree (score 4), neutral (score 3), disagree (score 2), and strongly disagree (score 1).
The work experience indicator for this study was adopted from a study conducted by Ford et al. (2003). This work experience questionnaire was previously used in the United States Police Department to measure the influence of work experience on levels of commitment. Given the different contexts between the police and construction project environments, modifications were required in the use of this questionnaire. Therefore, while the purpose and substance of the questions remained the same, the wording and wording of the questionnaire were adjusted to be more relevant to the conditions and characteristics of work on construction projects.

Variables	Indicator	Reference
	PENGALAMAN KERJA (X4)	
X4.1	In this project organization, I am allowed to participate in decisions related to workload and work standards.	Ford, et al (2003)
X4.2	In general, the work I have been doing over the past few months has been challenging.	Ford, et al (2003)
X4.3	In all respects, I am quite satisfied with my job.	Ford, et al (2003)
X4.4	Employees in this project organization are expected to have a strong personal commitment to the Company itself.	Ford, et al (2003)
X4.5	I feel that I can trust this company to do what it has promised. Save translation	Ford, et al (2003)
X4.6	There is a huge correlation between what I expected in this job and project organization and what I have found since I have been at this company.	Ford, et al (2003)
X4.7	Among the people I work with, there are only a few close friends.	Ford, et al (2003)
X4.8	In this project organization, I am encouraged to act as an individual rather than as a machine.	Ford, et al (2003)

PERFORMANCE

Performance is the result of the planned construction project work process itself, at a specific time and place, and within the organization of the construction project in question. Organizational performance is assessed using a questionnaire adapted from Koesmono's (2005) research using a five-point Likert scale: very appropriate (score 5), very appropriate (score 4), appropriate (score 3), inappropriate (score 2), and very inappropriate (score 1).

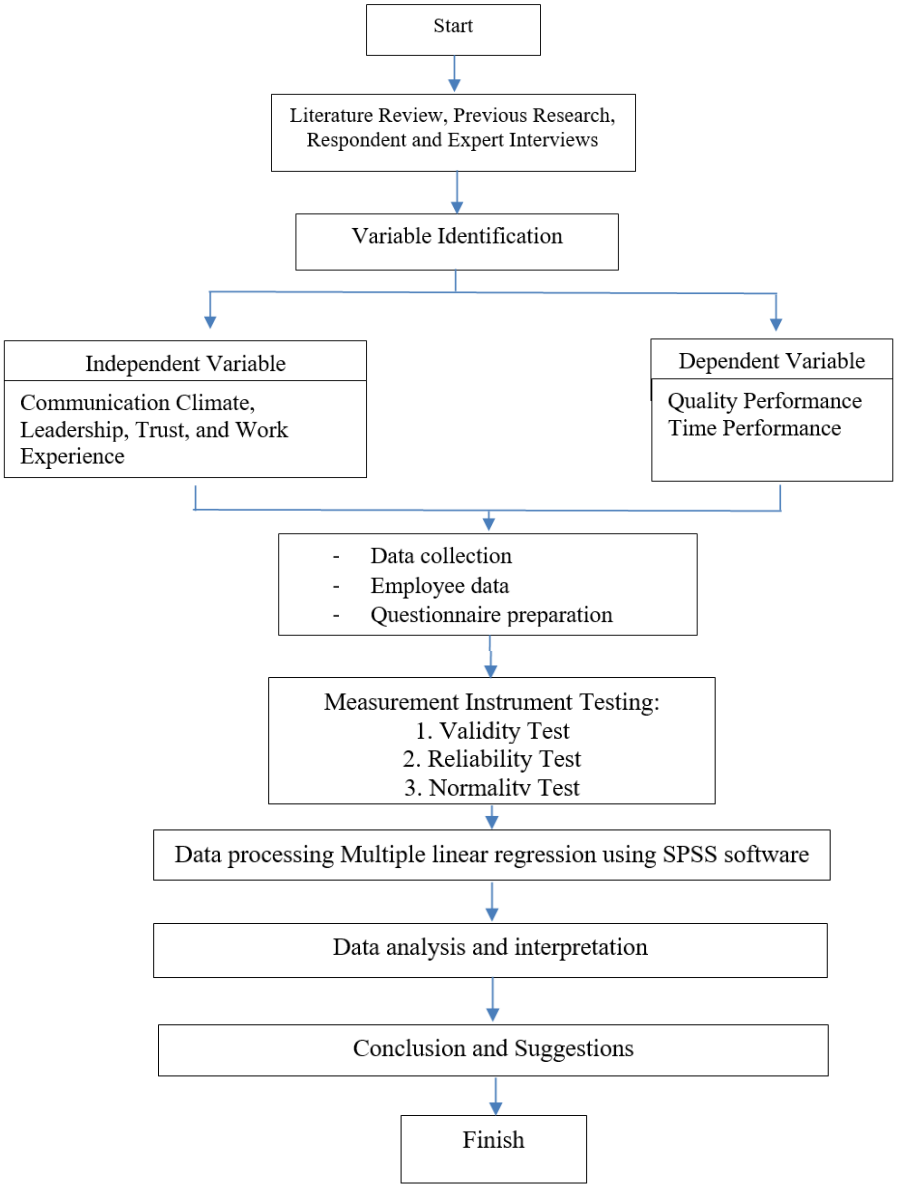
The performance indicators, using a questionnaire taken from Koesmono's (2005) research, were not used directly; instead, the questions were modified and adapted to the circumstances of the construction project. This indicator was originally used in a company in the export wood processing industry sub-sector, resulting in slightly different wording and overall sentence structure, but the intent and purpose remained the same.

Variables	Indicator	Reference
	TIME PERFORMANCE (Y1)	
Y1.1	Completion of the overall construction project according to the established schedule	Koesmono, (2005) and Expert input interview
Y1.2	The project schedule can be adjusted if sudden changes occur.	Koesmono, (2005) and Expert input interview
Y1.3	Breakdown Schedule for subcontracted work is in accordance with the master schedule	Koesmono, (2005) and Expert input interview

Variabel	Indikator	Referensi
	QUALITY PERFORMANCE (Y2)	

Y2.1	The specifications of each construction project work are carried out in accordance with Quality provisions.	Koesmono, (2005) and Expert input interview
Y2.2	Implementation of construction project work in accordance with quality targets	Koesmono, (2005) and Expert input interview
Y2.3	Work methods for implementing construction project work in accordance with quality targets	Koesmono, (2005) and Expert input interview

RESEARCH METHOD FLOWCHART



IV. ANALYSIS AND DISCUSSION

IKN PROJECT OVERVIEW

The development of the National Capital City (IKN) is Indonesia's largest infrastructure project in the last decade and is considered a national strategic project, expected to drive economic growth and distribute development beyond Java. However, the project also faces numerous challenges, both technical and managerial. One significant phenomenon is the high turnover rate of project managers involved, as well as frequent operational uncertainties in the field, such as regulatory changes and material price fluctuations.

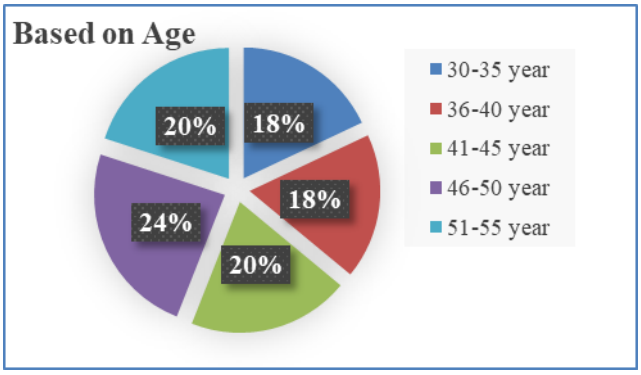
No	Project List	Duration
1	Project 1	22 month
2	Project 2	18 month
3	Project 3	6 month
4	Project 4	12 month
5	Project 5	24 month
6	Project 6	20 month
7	Project 7	15 month
8	Project 8	7 month
9	Project 9	14 month
10	Project 10	16 month
11	Project 11	14 month
12	Project 12	14 bulan
13	Project 13	18 bulan
14	Project 14	16 bulan
15	Project 15	12 bulan

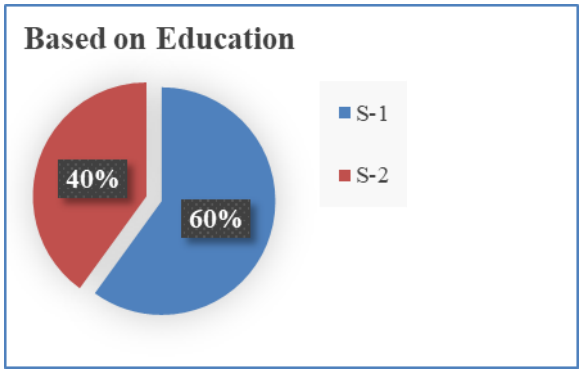
Differences in the characteristics of projects in the IKN compared to other projects, the table below:

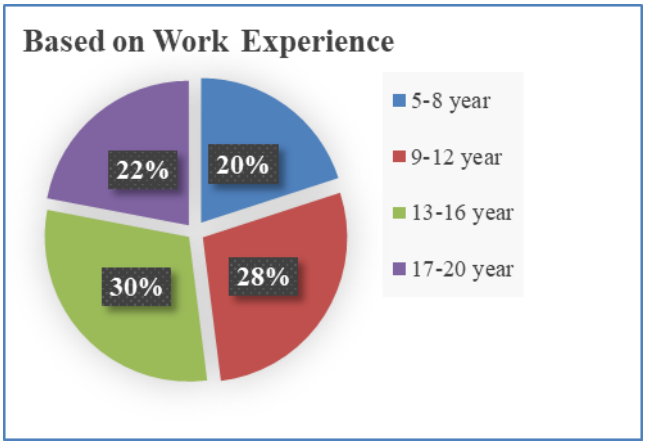
No	Description	Project at IKN	Other general projects
1	Project Scale	- Large-scale and national projects - It is a National Strategic Project	- Medium scale projects - Not always a National Strategic Project
2	Complexity	- Megapolitan Project, a project with high complexity	- Focus on one sector
3	Concept and design	- Carrying out forest city - Futuristic and symbolic design - Adopting smart cities and green buildings	- Usually more conventional and follow market needs - Not always focused on sustainability, following the needs of the task giver
4	Funding Sources	- State Budget + private/foreign private investment (PPP/KPBU scheme) - Involving multi-national companies (such as from UAE, China, Japan)	- Usually APBN/APBD, private developers, or bank loans - Doesn't always involve global investors
5	Challenges and Risks	- Peat and swamp land risks - Heavy Logistics Risk - Demand for acceleration	- More common risks (permit delays, land conflicts, weather) - More flexible implementation time

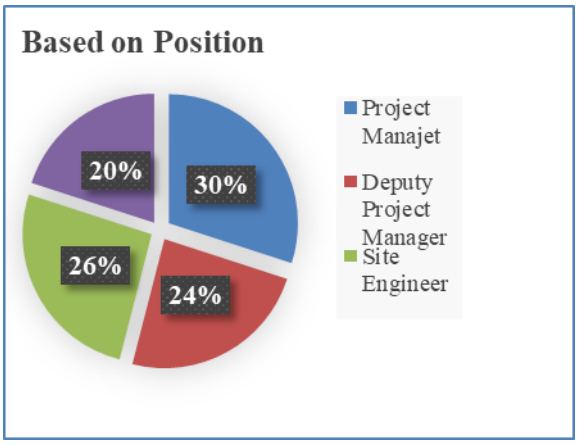
RESPONDENT OVERVIEW

The respondent overview is the respondent's response to the questions in the questionnaire. The number of respondents was 50 people The following is a description of the respondent's characteristics, including age, highest level of education, length of service, and position.









ANALYSIS RESULT VALIDITY TESTING

The instrument validation process aims to evaluate the level of representativeness of the questionnaire items. The analysis was conducted using factor analysis techniques on the dependent variables (Communication [X1], Leadership [X2], Trust [X3], and Work Experience [X4]) and the independent variables (Quality Performance [Y1] and Time Performance [Y2]).

All questionnaire items were declared valid after demonstrating a correlation coefficient (r) exceeding 0.3. This value indicates each item has a significant relationship with the measurement construct. Question items meet validity requirements if they achieve r > 0.3 or a significance value below 0.05. Complete data for validity testing of all research variables are in the following table.

Questionnaire Items	Validity Value	Sig. Level	Conclusion of Validity Test
Communication (X1)			
X1.1	0,828	0,2732	Valid
X1.2	0,758	0,2732	Valid
X1.3	0,794	0,2732	Valid
X1.4	0,847	0,2732	Valid
X1.5	0,693	0,2732	Valid
X1.6	0,846	0,2732	Valid
X1.7	0,738	0,2732	Valid
X1.8	0,699	0,2732	Valid
Leadership (X2)			
X2.1	0,787	0,2732	Valid
X2.2	0,799	0,2732	Valid
X2.3	0,900	0,2732	Valid
X2.4	0,859	0,2732	Valid
X2.5	0,904	0,2732	Valid
X2.6	0,792	0,2732	Valid
Trust (X3)			
X3.1	0,819	0,2732	Valid
X3.2	0,800	0,2732	Valid
X3.3	0,773	0,2732	Valid
X3.4	0,801	0,2732	Valid
X3.5	0,750	0,2732	Valid
X3.6	0,797	0,2732	Valid
X3.7	0,738	0,2732	Valid
X3.8	0,707	0,2732	Valid
Work experience (X4)			
X.4.1	0,382	0,2732	Valid
X.4.2	0,796	0,2732	Valid
X.4.3	0,849	0,2732	Valid
X.4.4	0,460	0,2732	Valid
X.4.5	0,765	0,2732	Valid
X.4.6	0,785	0,2732	Valid
X.4.7	0,678	0,2732	Valid
X.4.8	0,684	0,2732	Valid
Time Performance (Y1)			
Y.1.1	0,865	0,2732	Valid
Y.1.2	0,800	0,2732	Valid

Y.1.3	0,846	0,2732	Valid
Quality Performance (Y2)			
Y.2.1	0,941	0,2732	Valid
Y.2.2	0,963	0,2732	Valid
Y.2.3	0,963	0,2732	Valid

All items showed correlation coefficient values exceeding the critical value of the product-moment r table (calculated r ≥ table r). This means that all questions on the independent and dependent variables met validity requirements. The strong correlation between each item and the total score demonstrated the instrument's internal consistency. Therefore, all questions in the questionnaire were suitable for use in the next research stage.

VALIDITY TESTING

Reliability is measured using Cronbach's alpha coefficient. A research instrument is considered reliable if it reaches a value >0.70. The reliability testing of the research variables is presented in the following table:

No	Variabel	Cronbach's Alpha Value	Reliability Test Conclusion
1.	Communication (X1)	0,906	Reliabel
2.	Leadership (X2)	0,916	Reliabel
3.	Trust (X3)	0,895	Reliabel
4.	Work experience (X4)	0,842	Reliabel
5.	Time Performance (Y1)	0,785	Reliabel
6	Quality Performance (Y2)	0,947	Reliabel

Table analysis shows that all research constructs, including independent and dependent variables, have a Cronbach's alpha coefficient >0.7. This indicates that the measuring instrument used in the research meets reliability criteria.

LINEARITY TESTING

The linearity test is a statistical procedure used to test the validity of the assumption of a linear relationship between the independent and dependent variables in the study. The linearity criterion is met if the significance value (sig.) is ≥ 0.05. The linearity test was conducted using SPSS software version 23.0, with the computational results shown in the following table:

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	22.227	4	5.557	1.178	.333[b]
	Residual	212.193	45	4.715		
	Total	234.420	49			

a. Dependent Variable: Y1_Kinerja_Waktu

b. Predictors: (Constant), X4_Pengalaman_Kerja, X1_Iklim_komunikasi, X2_Kepemimpinan, X3_Kepercayaan

The statistical output presented above, the significance value for Deviation from Linearity shows the number 0.333. This probability value is statistically greater than the significance of 0.05 (0.333 > 0.05). Furthermore, the comparison of the calculated F value (1.178) with the F table (2.57) indicates that the calculated F < F table. It is concluded that there is no significant linear relationship between the independent variables (communication climate, leadership, trust, and work experience) with the dependent variable (Time Performance/Y1).

Then, the results of the linearity test of the variables of communication climate, leadership, trust and work experience with Quality Performance (Y2) can be seen in the following table:

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	105.798	4	26.450	28.902	.000[b]
	Residual	41.182	45	.915		
	Total	146.980	49			

a. Dependent Variable: Y2_Kinerja_Mutu

b. Predictors: (Constant), X4_Pengalaman_Kerja, X1_Iklim_Komunikasi, X2_Kepemimpinan, X3_Kepercayaan

The results of the statistical analysis listed above, the significance value of Deviation from Linearity is 0.000. This probability value is statistically smaller than the significance level of 0.05 (0.000 < 0.05). Furthermore, the

calculated F value (28.902) is significantly greater than the F table (2.57). It is concluded that there is a significant linear relationship between the independent variables (communication climate, leadership, trust, and work experience) with the dependent variable (Quality Performance/Y2).

MULTICOLLLINEARITY TESTING

Multicollinearity testing detects correlations between independent variables in a regression model. In this paper, multicollinearity is measured using two main indicators: the Variance Inflation Factor (VIF) and the tolerance value, specifically for the Quality Performance variable (Y2). Further details can be seen in the following table:

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	13.224	3.999		3.307	.002		
	X1_Iklim_komunikasi	.005	.059	.011	.077	.939	.994	1.006
	X2_Kepemimpinan	.049	.121	.063	.405	.687	.845	1.183
	X3_Kepercayaan	-.169	.083	-.318	-2.024	.049	.817	1.225
	X4_Pengalaman_Kerja	.082	.070	.174	1.169	.249	.905	1.105

a. Dependent Variable: Y1_Kinerja_Waktu

The Tolerance value of the Communication Climate variable is 0.994, which is greater than 0.10 (0.994 > 0.10). The VIF (Variance Inflatio Factor) value is 1.006, which is less than 10 (1.006 < 10), it is concluded that there is no multicollinearity in the independent variables of this study. The Tolerance value of the leadership variable is 0.845 or greater than 0.10 (0.845 > 0.10). The VIF (Variance Inflatio Factor) value is 1.183, which is less than 10 (1.183 < 10), meaning that there is no multicollinearity in the independent variables of this study. The Tolerance value of the trust variable is 0.817 or greater than 0.10 (0.817 > 0.10). The VIF (Variance Inflatio Factor) value is 1.225, which is smaller than 10 (1.225 < 10), meaning that there is no multicollinearity in the independent variables of this study. The tolerance of the work experience variable is 0.905 or greater than 0.10 (0.905 > 0.10). The VIF (Variance Inflatio Factor) value is 1.105, which is smaller than 10 (1.105 < 10), meaning that there is no multicollinearity in the independent variables of this study.

Meanwhile, the multicollinearity test examines the VIF (Variance Inflation Factor) value and tolerance value for the Quality performance variable (Y2). For further information, see the following table:

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.275	1.762		-.156	.877		
	X1_Iklim_Komunikasi	-.009	.026	-.027	-.344	.733	.994	1.006
	X2_Kepemimpinan	.053	.054	.084	.982	.332	.845	1.183
	X3_Kepercayaan	.331	.037	.787	9.018	.000	.817	1.225
	X4_Pengalaman_Kerja	.027	.031	.072	.869	.389	.905	1.105

a. Dependent Variable: Y2_Kinerja_Mutu

The Tolerance value of the Communication Climate variable is 0.994 or greater than 0.10 (0.994 > 0.10). The VIF (Variance Inflation Factor) value is 1.006, which is smaller than 10 (1.006 < 10), meaning that there is no multicollinearity in the independent variables of this study. The Tolerance value of the leadership variable is 0.845 or greater than 0.10 (0.845 > 0.10). The VIF (Variance Inflation Factor) value is 1.183, which is smaller than 10 (1.183 < 10), meaning that there is no multicollinearity in the independent variables of this study. The Tolerance value of the trust variable is 0.817 or greater than 0.10 (0.817 > 0.10). The VIF (Variance Inflatio Factor) value is 1.225, which is smaller than 10 (1.225 < 10), meaning that there is no multicollinearity in the independent variables of this study. The tolerance of the work experience variable is 0.905 or greater than 0.10 (0.905 > 0.10). The VIF (Variance Inflatio Factor) value is 1.105, which is smaller than 10 (1.105 < 10), meaning that there is no multicollinearity in the independent variables of this study.

R SQUARE TEST

Multiple Correlation Analysis to evaluate the strength of the simultaneous relationship between 2 or more independent variables (X) with the dependent variable (Y). The processing of the multiple correlation test between factors that influence manager performance on time performance (Y1) is seen in the table below:

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.308[a]	.095	.014	2.171

a. Predictors: (Constant), X4_Pengalaman_Kerja, X1_Iklim_komunikasi, X2_Kepemimpinan, X3_Kepercayaan

The R Square value on the relationship between variable X and variable Y1 is 0.095. This can indicate the contribution of the influence of variable X in the form of Communication Climate, Leadership, Trust and Work Experience to the increase in time performance in the project is only 9.5% or in data interpretation there is a weak influence between variable X and variable Y. This can be interpreted that there are factors other than the factors in this study amounting to 90.5% influencing time performance in the IKN project.
The processing of multiple correlation tests of factors that influence manager performance on quality performance (Y2) is shown in the table below:

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.848[a]	.720	.695	.957

a. Predictors: (Constant), X4_Pengalaman_Kerja, X1_Iklim_Komunikasi, X2_Kepemimpinan, X3_Kepercayaan

The R Square value on the relationship between variable X and variable Y2 is 0.720. This can indicate the contribution of the influence of variable X in the form of Communication Climate, Leadership, Trust and Work Experience to the improvement of time performance in the project by 72.0% or in data interpretation has a strong influence between variable X and variable Y. It can be interpreted that there are factors in this study that have a strong relationship with improving quality performance in the IKN project.

PARTIAL HYPOTHESIS TEST (T-TEST)

The t-test functions as a partial hypothesis testing method aimed at analyzing the individual influence of independent variables (communication climate, leadership, trust, and work experience) on the dependent variable (Time and Quality Performance), assuming that other independent variables are constant. The hypothesis put forward in the partial test (t-test) of this study is the influence of the variables Communication climate, leadership, trust and work experience on time and quality performance. The statistical results of the t-test are obtained and then compared with the t-table value at a significance level of α = 0.05 as a basis for statistical decision making. The criteria used are as follows:

• H0 is accepted if the value of $thitung \leq ttabel$ or the sig value > α
• H0 is rejected if the value of $thitung \geq ttabel$ or the sig value < α

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	13.224	3.999		3.307	.002
	X1_Iklim_komunikasi	.005	.059	.011	.077	.939
	X2_Kepemimpinan	.049	.121	.063	.405	.687
	X3_Kepercayaan	-.169	.083	-.318	-2.024	.049
	X4_Pengalaman_Kerja	.082	.070	.174	1.169	.249

a. Dependent Variable: Y1_Kinerja_Waktu

Based on the analysis results presented above, the regression equation model can be formulated as follows:
Y1 = 13.224 + 0.005 X1 + 0.049 X2 - 0.169 X3 + 0.082 X4

The results of the regression analysis revealed that the communication climate variable (X1) had a statistically insignificant regression coefficient (β ≈ 0, p = 0.939 > α 0.05; t = 0.077 < t-table 2.014). This finding shows that the communication climate does not have a significant influence on time performance. The implication is that fluctuations in the communication climate do not contribute significantly to explaining variations in time performance, so in the context of this study, the communication climate cannot be considered as the main determinant of time performance achievement.

The results of the regression analysis revealed that the leadership variable (X2) showed an insignificant regression coefficient (β = very small, p = 0.450 > α 0.05; t = 0.687 < t-table 2.014). This finding indicates the absence of a statistically significant influence between leadership and time performance. The implication is that variations in leadership style or quality do not contribute significantly to fluctuations in time performance in the context of this study.

The results of the regression analysis revealed that the trust variable (X3) has a positive and significant influence on time performance, a large regression coefficient (β = [value], p = 0.049 < α 0.05) and a calculated t-value (2.204) that exceeds the t-table (2.014). The findings indicate that increasing the level of trust significantly contributes to improving time performance. Thus, in this study, trust is proven to be a crucial determinant factor in achieving time performance.

The results of the regression analysis revealed that the work experience variable (X4) did not have a statistically significant effect on time performance, with a minimal regression coefficient (β ≈ 0, p = 0.249 > α 0.05) and a t-statistic value (1.169) that was below the critical value (2.014). This finding implies that variations in work experience do not contribute significantly to changes in time performance, so in the context of this study, work experience cannot be considered an important predictive factor.

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	-.275	1.762		-.156	.877
	X1_Iklim_Komunikasi	-.009	.026	-.027	-.344	.733
	X2_Kepemimpinan	.053	.054	.084	.982	.332
	X3_Kepercayaan	.331	.037	.787	9.018	.000
	X4_Pengalaman_Kerja	.027	.031	.072	.869	.389

a. Dependent Variable: Y2_Kinerja_Mutu

Based on the analysis results presented above, the regression equation model is formulated as follows: Y2 = -0.275 - 0.009 X1 + 0.053 X2 + 0.331 X3 + 0.027X4

The results of the regression analysis revealed that the communication climate variable (X1) had a very small and positive regression coefficient, with a significance level (sig) of 0.733 (greater than 0.05). In addition, the calculated t-value (0.344) was lower than the t-table (2.014). This proves that statistically, communication climate does not have a significant effect on quality performance. This means that fluctuations in communication climate cannot predict or explain changes in quality performance. Thus, communication climate is not a key factor in determining the achievement of quality performance.

The results of the regression test revealed that the leadership variable (X2) had an insignificant regression coefficient, indicated by a significance value (sig) of 0.332 (greater than α = 0.05) and a t-count value (0.982) which was lower than the t-table (2.014). This finding concluded that statistically, leadership had no significant influence on quality performance. Thus, fluctuations in leadership did not contribute significantly to variations in quality performance. The implication is that leadership is not a dominant factor determining the achievement of quality performance.

The results of the regression analysis revealed that the trust variable (X3) has a very strong influence, with a large regression coefficient and a significance value (sig) of 0.000 (far below α = 0.05). The calculated t-value (9.018) which significantly exceeds the t-table (2.014) confirms that trust has a positive and significant influence on quality performance. An increase in the level of trust will have a direct impact on quality performance. The findings confirm that in this study, trust is a critical factor that greatly determines the achievement of quality performance.

The results of linear regression data processing revealed that the work experience variable (X4) showed a statistically insignificant coefficient. This is evidenced by the significance value of 0.389 exceeding the critical limit of 0.05, the calculated t-value (0.869) is below the t-table value (2.014). The findings of this analysis revealed that there was no significant relationship between work experience and the level of quality performance in this study. The implication of this result is that fluctuations in work experience do not contribute significantly to the observed variability in quality performance. It can be concluded that in this research setting, work experience is not included in the dominant factors that influence the achievement of organizational quality performance.

SIMULTANEOUS HYPOTHESIS TEST (F-TEST)

The F test was conducted using SPSS release 25, with the following criteria: 1. If F count < F table with a significance level of 0.05 2. If F count > F table with a significance level of 0.05.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	22.227	4	5.557	1.178	.333[b]
	Residual	212.193	45	4.715		
	Total	234.420	49			

a. Dependent Variable: Y1_Kinerja_Waktu

b. Predictors: (Constant), X4_Pengalaman_Kerja, X1_Iklim_komunikasi, X2_Kepemimpinan, X3_Kepercayaan

The statistical analysis output, the calculated F-value of 1.178 is smaller than the F-table value (2.58) at degrees of freedom F (4.46). The significance value of 0.333 (> α 0.05) indicates that together, the independent variables (communication climate, leadership, trust, and work experience) do not show a significant influence

on time performance. It can be concluded that these four factors statistically do not have a significant impact on the time performance variable in this study.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	105.798	4	26.450	28.902	.000[b]
	Residual	41.182	45	.915		
	Total	146.980	49			

a. Dependent Variable: Y2_Kinerja_Mutu

b. Predictors: (Constant), X4_Pengalaman_Kerja, X1_Iklim_Komunikasi, X2_Kepemimpinan, X3_Kepercayaan

The statistical output shows that the calculated F-value of 28.902 significantly exceeds the F-table value of 2.58 at degrees of freedom F(4;46). The probability value of 0.000 (<α 0.05) confirms that simultaneously, the four independent variables (communication climate, leadership, trust, and work experience) have a significant influence on quality performance.

CONCLUSION

Based on the research flow to determine variable X, in accordance with literature studies, previous research, respondent interviews and expert interviews. The conclusion is that the variable X factors or factors that influence the performance of project managers in IKN are Communication Climate, Leadership, Trust and Work Experience.

In accordance with the analysis of the simultaneous hypothesis test (F Test), the coefficient of determination ($R^2 = 0.308$) and the F test (F count = 1.178 < F table = 2.58; sig count = 0.333 > 0.05), indicate that only 30.8% of the variation in Project time performance in IKN can be explained by a combination of leadership variables, communication climate, trust in work, and work experience or it can be said that there are other factors that influence time performance outside of the factors in this study. So it can be concluded that the hypothesis of the four factors in this study is not proven to influence project time performance in IKN.

According to the analysis of simultaneous hypothesis test (F Test), with the coefficient of determination value ($R^2 = 0.848$) and F test (F count = 28.902 > F table = 2.58; sig count value = 0.000 < 0.05), indicating that 84.8% of the variation in Project Quality performance in IKN can be explained by a combination of leadership variables, communication climate, trust in work, and work experience. Therefore, it can be concluded that the hypothesis of the four factors in this study is proven to influence project quality performance in IKN.

The influence of trust (X3) on time performance. In terms of time management, trust minimizes bureaucratic obstacles and redundancy in the work process, thus enabling the completion of tasks and projects more efficiently and on time. Thus, trust is not only the basis for creating a conducive work environment, but is a key factor in driving improved performance, quality, and time efficiency within an organization.

The influence of trust (X3) on quality performance. Trust, defined as members' belief in each other's integrity, reliability, and commitment, has been shown to increase work effectiveness by enhancing motivation and collaboration. When trust between team members is well-established, communication becomes more open, reducing internal conflict and accelerating decision-making. This leads to improved overall performance, as teams can work synergistically toward established goals. Trust contributes to improved work quality, instilling high work standards and encouraging innovation, as teams feel safe taking risks to achieve excellence in products and services.

LIMITATION & FURTHER RESEARCH

In an effort to strengthen the reliability of the findings, it is important to acknowledge that the use of self-report questionnaire instruments has the potential to introduce respondent perception bias, especially when respondents assess variables such as leadership and communication climate. Therefore, further research should combine subjective data with objective performance metrics—for example, milestone achievement records, cost control effectiveness, or 360° assessments—as triangulation to validate the results and reduce the risk of response distortion due to the desire to "show off" the best performance.

The findings of this study are most relevant for PT WIKA Gedung Project Managers involved in the IKN development scheme in the 2024–2025 period. Because the context of SOEs and the characteristics of mega-projects are very specific, the application of the results in the private construction sector or projects with different scales, regulations, and organizational cultures must be done with adjustments. Human resource policies or training modules designed based on this model need to be retested and adapted to local conditions, team structures, and market dynamics in other organizations.

To improve similar research in the future, several steps are recommended: first, expanding the moderating and control variables—such as material cost fluctuations, regulatory pressures, or the level of BIM technology adoption—and applying a mixed-methods approach to uncover the psychological mechanisms behind the regression figures; second, designing a longitudinal study that follows project managers from the planning stage to handover to observe changes in the influence of variables over the project cycle; third, testing a non-linear or spline regression model to capture the threshold effect of work experience; and fourth, cross-validating the model on an independent sample (e.g., at another contractor or a different division) to make the generalizability of the findings more robust and applicable across organizations.

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