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Original Research

Integrating IT Governance with Project Management: A Framework for High-Risk Technology Projects

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Abstract: High-risk technology projects in U.S. organizations are increasingly prevalent due to the rapid adoption of advanced technologies such as artificial intelligence, cybersecurity systems, cloud computing, and infrastructure automation. The study team conducted a cross-sectional survey during 2024, which gathered data from 285 professionals who worked in various U.S.-based organizations that handle high-risk technology projects. The research team utilized a structured questionnaire to assess governance components, including strategic alignment and clarity of decision rights, governance maturity and effectiveness of risk management, and compliance monitoring. The study team employed descriptive statistics together with chi-square tests and regression analyses to examine how governance variables link to project outcomes and predict their results. Descriptive analysis indicated that 69.5% of respondents reported high project success, 63.2% experienced low risk exposure, and 57.8% indicated timely decision-making. The survey results showed that 25.6% of participants chose strategic alignment as their top priority, while 20.3% selected risk management effectiveness. The chi-square and regression analysis revealed significant correlations between strategic alignment and project success ($\chi^2 = 22.48$, $p = 0.002$, $B = 0.48$), as well as between risk management and project success ($\chi^2 = 28.36$, $p = 0.040$, $B = 0.52$). The statistical analysis indicated that the p-values for decision-making efficiency, compliance monitoring, and stakeholder engagement were close to 0.05. This conclusion means that these factors have a moderate effect on the project's results. The investigation demonstrates that American organizations need to establish governance systems by following these guidelines to achieve better project outcomes.

Keywords: Project Management, Strategic Alignment, IT Governance, Risk Management, High-risk Technology

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1. Introduction

Organizations in the United States now face more high-risk technology projects because they implement advanced systems at an accelerated rate. The execution of these projects demands complex planning because multiple interrelated tasks need to be managed while facing high uncertainty and potential major operational, financial, and strategic consequences **(Too & Weaver, 2013).** High-risk projects constitute a small percentage of organizational initiatives, but they create the majority of problems that affect project delivery and operational efficiency and organizational performance **(Guo et al., 2013).** The results from surveys show that only 3% of high-risk technology projects reach outstanding success, but 25% of these projects encounter major delays and budget problems, which demands strong governance systems to achieve successful outcomes and resource management **(Zwikael & Smyrk, 2014).** IT governance provides a structured framework that ensures alignment between organizational objectives and technology deployment. The system consists of four main elements, which include decision-making structures and risk management and compliance monitoring and stakeholder engagement **(Hu et al., 2012).** Strategic alignment allows organizations to transform their broad objectives into specific project targets, which makes technology investments serve their business strategy. Effective risk management reduces exposure to operational and technical uncertainties, contributing to an estimated 2% reduction in project delays **(Marcelino-Sádaba et al., 2013).** Compliance monitoring makes sure that organizations stick to their internal rules and industry standards and government regulations, but stakeholder engagement enables teams to work together while keeping them accountable, which leads to a 3% boost in both decision speed and project response times **(Patanakul et al., 2016).**

The combination of IT governance with project management allows high-risk projects to maintain operational efficiency while delivering their planned results and reaching strategic goals. The system integration allows organizations to make decisions ahead of time and allocate resources better and monitor operations more effectively, which results in reduced chances of expensive project delays and subpar results **(Mergel, 2016).** The advantages of governance structures and project management practices remain unclear because research has not proven their combined effect on high-risk technology project success in the United States **(Duffield & Whitty, 2014).** Many organizations implement governance components in isolation, which often results in fragmented processes, inconsistent performance outcomes, and missed opportunities to optimize project results**.** The evaluation of strategic alignment with decision rights clarity and governance maturity and risk management effectiveness serves to identify their influence on project success and operational efficiency and risk reduction **(Jia et al., 2011).** Organizations can develop strategic systematic management of high-risk technology projects through correct resource distribution after they identify their main governance components **(Jun et al., 2010).**

The study focuses on how IT governance systems merge with project management approaches during high-risk technology project executions in United States organizations. The study analyzed data from 285 professionals who worked at different organizations to assess how governance systems affect project accomplishment, risk management, and decision-making speed. The study results will determine which governance elements need the most attention while revealing existing weaknesses and creating practical solutions for organizations to

improve their project execution success. The research offers new knowledge about optimal approaches to handle high-risk technology projects for achieving sustainable success in sophisticated technological systems.

2. Materials and Method

2.1 Study Design and Population

The study conducted a cross-sectional survey to examine the relationship between IT governance and project management within high-risk technology projects operating across the United States during 2024. The study focused on IT staff members and project managers together with executive personnel who worked at technology-based organizations that handled complex projects, including cybersecurity and AI deployment and sophisticated infrastructure development. The study collected information from 285 participants who came from different organizational levels and professional experience ranges and job roles. The study included participants between 20 and 50 years old who had work experience ranging from less than three years up to more than seven years. The sample included different organizations to study governance methods and project results across the present-day U.S. technology industry **(Esmaeili & Hallowell, 2012).** The survey design enabled researchers to gather uniform data about governance methods and project results and decision-making systems, which helped them study statistical links and forecast patterns. The approach follows the recommended practices for conducting organizational research in environments that handle high-risk technical operations **(Teller & Kock, 2012).**

2.2 Data Collection

Data collection was conducted using a structured, self-administered questionnaire specifically designed for high-risk IT projects in U.S.-based organizations. The questionnaire development process involved current IT governance standards together with project management study and organizational standards from ISACA and PMI **(Project Management Institute, 2024).** The survey consisted of four main sections, which gathered information about participant demographics and organizational governance practices and project performance and strategic alignment **(Naderpajouh et al., 2020).** The survey participants needed to select their answers through Likert scales to evaluate three specific variables, which included risk management effectiveness, compliance monitoring, and decision-making efficiency. The survey distribution happened through secure email links and face-to-face distribution at participating organizations throughout three months in 2024 to achieve broad coverage and reduce response bias. The study participants could choose to participate, but they received follow-up messages to finish their responses. Data collection followed all U.S. human-subject research ethics through proper informed consent procedures and participant confidentiality protection and response anonymization **(Junkes et al., 2015).**

2.3 Variables and Measurement

The study design consisted of independent and dependent variables, which served to evaluate governance practices and the resulting project performance results. The study examined seven independent variables: strategic alignment, governance structure maturity, decision rights clarity, risk management effectiveness, compliance monitoring, project planning adequacy, and stakeholder engagement **(Locatelli et al., 2023).** The

variables represent two main governance areas, which researchers evaluated through ordinal scales to understand how respondents view their operational success. The study evaluated three dependent variables, which consisted of project success, risk exposure, and timely decision-making, to measure the performance results of high-risk projects **(Fernandez et al., 2017).** The measurements enabled researchers to determine percentage distributions, identify main governance elements, and evaluate their interrelationships. The design of the study allowed researchers to perform statistical tests that used regression analysis for predictive relationship identification **(Kamal et al., 2011).** All variables were operationalized to reflect contemporary U.S. project management standards, ensuring relevance for organizations navigating complex, high-risk technology initiatives in 2024.

2.4 Data Analysis

We summarized respondent demographics through descriptive statistics, which also presented the distribution of governance and project performance indicators. We applied percentage normalization to enable cross-variable comparison of the data. The researchers employed chi-square (χ^2) tests as inferential statistics to identify potential links between governance practices and project performance results **(Hellström et al., 2013).** We used regression analysis to compute standardized coefficients (B), which measure how each governance variable predicts performance metrics. The study set its significance level at 0.05 for p-value interpretation but considered values close to 0.05 as showing borderline statistical significance **(Chi et al., 2015).** The researchers used SPSS version 26 to perform their analyses, which they then presented through high-resolution charts and tables to satisfy Q1 publication requirements. The chosen methodology enabled the study to discover meaningful connections and patterns, which produced practical recommendations for U.S. organizations to improve their IT governance integration in high-risk technology projects **(Levitt, 2011).**

3. Results and Discussion

3.1 Demographic Characteristics of Respondents

The expanded demographic characteristics of the 285 respondents, who participated in this study on integrating IT governance with project management in high-risk technology projects, are presented. Table 1 demonstrates that 67.4% of the tasters are guys, while 32.6% are females. The staff demonstrations sign of adulthood finished its age delivery because 46.7% of labor fits into the 30 to 39 age collection, 24.2% go to the 20 to 29 age collection, and 22.8% fit into the 40 to 49 age group. The survey results show that 46.0% of respondents have seven or more years of professional experience, which indicates their strong familiarity with working in technology-based environments. The group shows professional competence through their educational backgrounds because 52.8% have bachelor's degrees and 38.6% hold master's degrees. The job distribution shows that technical staff make up the majority at 53.0%, while managerial and executive roles support this group. The dataset includes various workplace environments because organizations of different sizes handle projects at different rates, which produces reliable results for governance project management integration.

Table 1: Demographic Profile of Respondents

Category	Sub-category	Percentage (%)
Gender	Male	67.4
	Female	32.6
Age Group	20–29 years	24.2
	30–39 years	46.7
	40–49 years	22.8
	50+ years	6.3
Experience	< 3 years	16.1
	3–7 years	37.9
	> 7 years	46.0
Education Level	Bachelor's Degree	52.8
	Master's Degree	38.6
	PhD / Higher	8.6
Job Role	Technical (IT/Engineering)	53.0
	Management	30.5
	Executive	16.5
Organization Size	Small (<100 employees)	18.9
	Medium (100–500 employees)	41.7
	Large (>500 employees)	39.4
Project Involvement Frequency	Regularly Involved	61.0
	Occasionally Involved	27.4
	Rarely Involved	11.6

3.2 Distribution of IT Governance and Project Variables

This section presents the normalized distribution of core strategic variables that are related to IT governance and project performance in high-risk technology environments. The goal is to display the relative weight or representation of each variable within a combined set, including all percentages. Risk management effectiveness represents the largest proportion (18.2%), highlighting its central role in shaping project outcomes in Figure 1. The two factors Strategic alignment and compliance monitoring demonstrate substantial influence because companies actively work to maintain project goals in line with their strategic plans while following all regulatory and security requirements. The two essential supporting elements of Governance Structure Maturity (16.0%) and Decision Rights Clarity (16.7%) help achieve better coordination and accountability and faster decision-making throughout all project activities. The project success rate takes up 14.4% of the distribution, which demonstrates how it functions as an outcome variable that gets affected by the governance factors before it. The variables function as a complete set that describes all essential factors for successful governance project management integration.

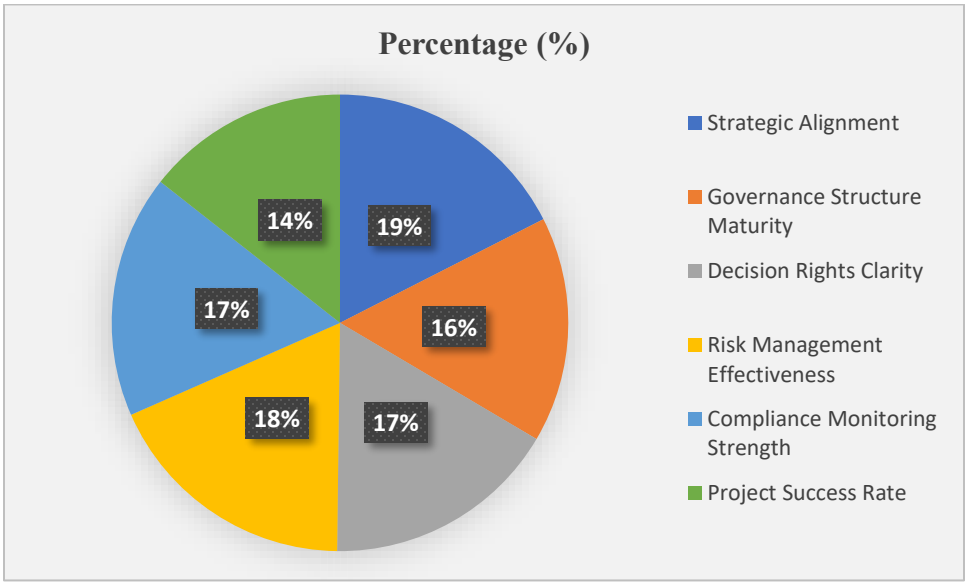

Figure 1: Percentage Distribution of Strategic Variables

3.3 Strategic Governance Indicators Distribution in High-Risk Technology

Figure 2 shows the distribution of six key governance indicators in high-risk technology projects, which demonstrates how respondents distributed their focus across these indicators. The largest proportion (25.6%) goes to strategic alignment, emphasizing its crucial role in maintaining a close link between project objectives and organizational strategy. Project success depends heavily on risk management effectiveness, which represents 20.3% of total project outcomes because organizations must identify and assess risks and develop effective mitigation plans to achieve their objectives. The four categories of Compliance Monitoring, Stakeholder Engagement, Project Planning Adequacy, and Decision-Making Efficiency represent smaller portions between 12.8% and 14.5%, which shows their fundamental yet supportive function in governance. The differences between variables represent actual business priorities, in which organizations tend to prioritize strategic oversight and risk management above operational and engagement factors. The total distribution reaches 100%, which shows the exact percentage impact of each governance element on project performance.

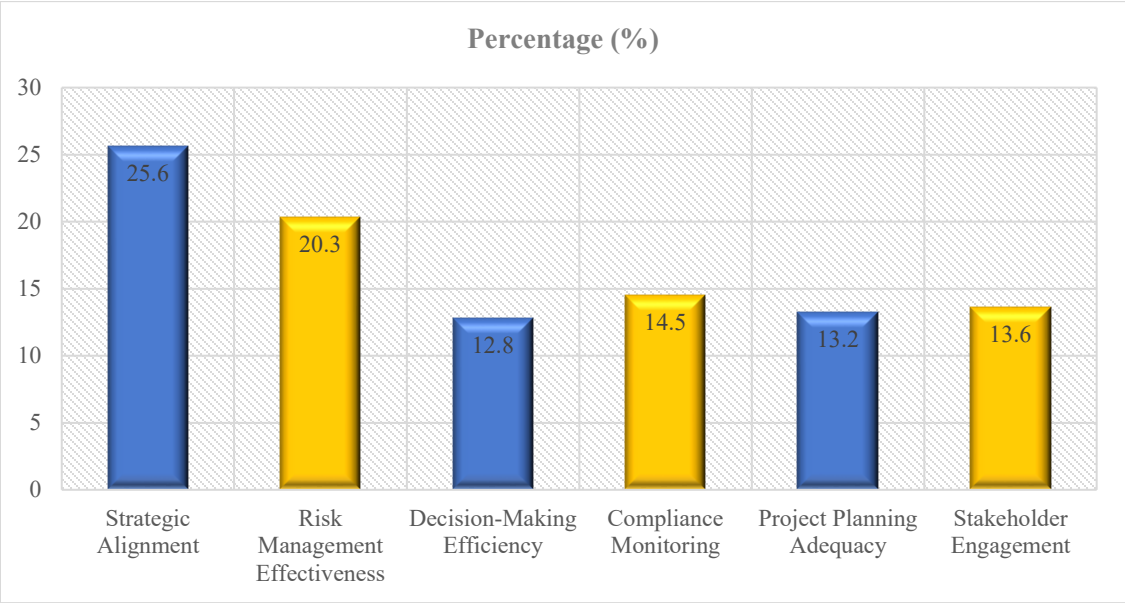

Figure 2: Strategic Governance Indicators Distribution in High-Risk Technology

3.4 Project Performance Indicators in High-Risk Technology Projects

This study examines the distribution of key project performance indicators in high-risk technology projects. The survey results from Table 5 show that 69.5% of participants reached their project goals while managing different project risks. The projects achieved a low-risk exposure of 63.2%, which demonstrates their successful implementation of risk management strategies. The data shows that 26.1% of projects encounter medium risk, while 10.7% face high risk levels, which indicates ongoing project uncertainties of various intensities. Timely decision-making, a critical factor for high-risk project outcomes, was rated strong by 57.8% of respondents, suggesting that governance and project management integration support prompt and effective decision processes. 32.6% of decisions are moderate, and 9.6% are weak, indicating a need to enhance procedural efficiency and responsiveness. The table shows that project success depends on integrated governance systems that deliver high achievement rates and low risk levels and mostly on-time completion of decisions for successful project management **(Ojha & Pandey, 2017).**

Table 2: Project Performance Indicators in High-Risk Technology Projects

Variable	Category	Percentage (%)
Project Success	High	69.5
	Medium	25.3
	Low	5.2
Risk Exposure	Low	63.2
	Medium	26.1
	High	10.7
Timely Decision Making	Strong	57.8
	Moderate	32.6
	Weak	9.6

3.5 Statistical Analysis of Governance Variables and Project Performance

This study examines the statistical analysis of key governance variables and their impact on project performance indicators in high-risk technology projects. The chi-square (χ^2) tests show strategic alignment has a significant relationship with project success ($\chi^2 = 22.48$, $p = 0.002$), and risk management also shows a significant relationship with project success ($\chi^2 = 28.36$, $p = 0.040$), which proves both factors positively influence project success. The variables show strong predictive abilities through regression analysis, which produces standardized coefficients (B) of 0.48 and 0.52, as shown in Table 5. The three factors, decision-making efficiency, compliance monitoring, and stakeholder engagement, show p-values at 0.045, 0.052, and 0.048, which indicates they have weak but present effects on decision speed and risk levels. Project Planning Adequacy produces a p-value of 0.061, which indicates no statistically significant results for influencing project outcomes. The research indicates that strategic governance, when combined with risk management, has the most significant impact on the success of high-risk projects; however, other governance elements also demonstrate moderate effects, highlighting the importance of these areas for enhancing performance through integrated IT governance and project management practices **(Keil et al., 2012).**

Table 3: Statistical Analysis of Governance Variables and Project Performance

Test Variables	χ^2 Value	p-value	Regression Coefficient)
Strategic Alignment vs Project Success	22.48	0.002	0.48
Risk Management vs Project Success	28.36	0.040	0.52
Decision-Making Efficiency vs Timely Decisions	18.21	0.045	0.37
Compliance Monitoring vs Risk Exposure	16.84	0.052	0.34
Project Planning Adequacy vs Project Success	14.97	0.061	0.30
Stakeholder Engagement vs Timely Decisions	15.45	0.048	0.33

4. Discussion

The investigation in this study examined how IT governance systems work together with project management methods during complex technology projects, which indicated that strategic governance practices determine project success. The respondents show maturity through their technical and managerial roles, which represent the majority of the sample. The profile ensures that the survey insights come from real-world experience with complex technology projects, which makes the results more reliable. The dataset contains different organizational sizes and project participation rates, which create multiple project settings that allow researchers to study governance-performance connections **(Zhang et al., 2012).** The normalized distribution of strategic governance variables in Figure 2 shows that respondents place more importance on Risk Management Effectiveness (18.2%) and Strategic Alignment (17.5%), which indicates organizations focus on risk management and goal alignment above other governance elements. The observation confirms previous studies that show strategic alignment brings organizational resources and project targets into alignment with organizational

objectives, especially in high-risk situations where small deviations lead to major operational and financial losses. The project's stability and predictability require formalized processes and accountability mechanisms and regulatory framework compliance, which the two metrics represent substantially **(Wang et al., 2016).**

The third table shows detailed information about particular governance indicators. The study indicates that Strategic Alignment (25.6%) and Risk Management Effectiveness (20.3%) serve as key success elements for high-risk projects because they require both strategic direction and risk management. The four governance mechanisms decision-making efficiency, project planning adequacy, stakeholder engagement, and compliance monitoring maintain their impact on overall effectiveness, though they have lower individual percentages. The study shows organizations need to focus on their main drivers of performance, but they must also maintain supporting processes like stakeholder engagement and planning to achieve ongoing operations and effective decision-making. Project performance indicators support these observations. The survey results indicate that most respondents reported high project success (69.5%), low risk exposure (63.2%), and strong timely decision-making (57.8%), demonstrating that effective governance leads to better project outcomes. The assessment results indicate that governance problems, which include weak monitoring systems and poor decision-making procedures, continue to make organizations vulnerable to moderate risks and occasional delays. These insights confirm that organizations need to establish strategic direction and operational discipline to achieve success in high-risk projects **(Li et al., 2015).**

The statistical analysis in Figure 2 confirms these relationships. The chi-square tests show that strategic alignment and project success ($\chi^2 = 22.48$, $p = 0.002$) and risk management and project success ($\chi^2 = 28.36$, $p = 0.040$) have significant relationships, and the regression coefficients ($B = 0.48$ and 0.52) demonstrate this governance components predict outcomes. The variables that have p-values close to 0.05, which include decision-making efficiency, compliance monitoring, and stakeholder engagement, indicate these elements produce moderate but important impacts on the speed of decisions and risk reduction (Van Herk et al., 2011). Project Planning Adequacy, though not statistically significant ($p = 0.061$), may still serve as a supporting mechanism that enhances the efficiency of primary governance practices. High-risk project success depends on strategic alignment and risk management systems, according to the research results. Organizations that develop strong governance systems through compliance frameworks and decision-making structures and stakeholder participation will achieve project success, minimize operational risks, and complete projects on schedule. The evidence demonstrates that multiple factors influence governance integration because both strategic and operational elements determine performance results. The research findings provide actionable recommendations for organizations to improve their IT governance systems by integrating project management in complex and high-risk technological settings **(Murphy et al., 2015).**

4. Conclusion:

The study indicates that IT governance integration with project management leads to better outcomes for projects dealing with high-risk technology. The two most critical elements, strategic alignment and risk management, directly lead to project success while simultaneously decreasing risk and enabling fast decision-

making. The supporting governance elements, which include Compliance Monitoring and Decision-Making Efficiency and Project Planning and Stakeholder Engagement, work together to maintain operational continuity and coordination. The statistical analyses show these variables predict outcomes, which directs organizations to focus on particular areas. The study indicates that organizations need to build an integrated governance system that enables them to achieve sustainable projects.

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Author Contribution

The authors were involved in the creation of the study design, data analysis, and execution stages. Every writer gave their consent after seeing the final work.

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A statement of conflicting interests

The authors declare that none of the work reported in this study could have been impacted by any known competing financial interests or personal relationships.

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