

A SYSTEMATIC REVIEW OF THE FACTORS AND MANAGEMENT IMPLICATIONS OF INFORMATION TECHNOLOGY (IT) AND SYSTEM DEVELOPMENT PROJECT FAILURE

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ABSTRACT

Information technology (IT) and system development projects continue to fail at alarmingly high rates despite advances in methodologies, tools, and governance frameworks. This study systematically reviews peer-reviewed journal articles published between 2010 and 2025 to identify the key factors contributing to IT and system development project failure and to propose management recommendations. A structured literature search was conducted using Scopus, Web of Science, and Google Scholar, applying a Boolean search string across both title and abstract fields. From an initial pool of 98 identified records, 63 were excluded based on predefined inclusion and exclusion criteria, yielding a final set of 35 articles for full review and analysis. The findings indicate that project failure is influenced by four main categories: technical, project management, organizational, and human. Technical and project management factors emerged as the most dominant across the reviewed literature. Importantly, these factors do not operate in isolation; they exhibit significant interdependencies that collectively amplify failure risk. Based on these findings, management strategies are proposed, including strengthening governance structures, improving project planning and requirements engineering practices, adopting agile methodologies for requirements volatility, enhancing team competency through continuous training, and promoting active user involvement throughout the development lifecycle.

Introduction

Information technology (IT) and system development projects play a critical role in driving organisational efficiency, competitiveness, and digital transformation across industries. However, despite significant investments in technology and resources, a substantial proportion of IT projects continue to fail or underperform, resulting in cost overruns, missed deadlines, and unrealised business value (Ebad, 2018; Gilal et al., 2023). Understanding the root causes of these failures has become an increasingly important area of inquiry for both researchers and practitioners.

It is important to distinguish between IT projects and system development projects, as the two terms are often conflated. IT projects broadly encompass initiatives related to technology infrastructure deployment, network upgrades, hardware procurement, and enterprise-wide digital transformation. System development projects, by contrast, refer more specifically to the design, engineering, coding, testing, and implementation of software systems or information systems. Although the failure dynamics of these two project types overlap considerably, system development failures are more frequently rooted in technical and requirements-related issues, whereas IT project failures often involve broader organizational and governance challenges. This study addresses both categories collectively, acknowledging their shared risk landscape while recognizing their contextual differences.

This paper presents a structured, systematic literature review of peer-reviewed journal articles published between 2010 and 2025, investigating the factors behind IT and system development project failures and their corresponding management implications. Specifically, this study seeks to address two research objectives. The first objective is to identify the key factors contributing to the failure of IT and system development projects. The second objective is to propose management recommendations for each identified contributing factor.

Related Work

The persistence of IT and system development project failures has attracted growing scholarly attention, with researchers examining the issue from multiple angles. Agrawal et al. (2024) highlight that the cost of poor-quality software in the United States alone reached approximately \$2.41 trillion annually in 2022, underscoring the scale and severity of failures rooted in the software design phase. Their systematic literature review reveals that most software failures can be traced back to underlying design errors stemming from cognitive, knowledge-based, organisational, and process-related factors, suggesting that current design review and inspection techniques remain inadequate in preventing poor quality outcomes. Similarly, Mumtaz et al. (2022) conducted a systematic literature review on iteration in software development and found that poor management, defects, and requirement changes are among the leading causes of unplanned rework, which in turn drives cost overruns, schedule delays, and reduced project quality. These findings collectively suggest that IT project failure is rarely isolated to a single cause but rather stems from a complex interplay of technical and managerial shortcomings (Agrawal et al., 2024; Mumtaz et al., 2022).

In addition to specific project issues, broader uncertainty has also been identified as a critical but underexplored driver of IT and system development project failure. Zhang et al. (2025) conducted a mixed-methods review and found that approximately 50% of software projects fail to meet stakeholder expectations, with uncertainty manifesting across requirement, technological, human, and management dimensions throughout the project lifecycle. They further argue that uncertainty is frequently conflated with risk in the literature, resulting in inadequate management strategies and a lack of unified frameworks for addressing it (Zhang et al., 2025). The Standish Group (2020) Chaos Report corroborates these findings by consistently reporting that less than one-third of IT projects are delivered on time, within budget, and with the required features. Despite numerous studies examining individual failure factors, there remains a notable gap in the literature for comprehensive, synthesised reviews that consolidate findings across multiple contexts, time periods, and failure categories into actionable management recommendations. This study therefore conducts a structured systematic literature review to bridge this gap.

Methodology

This study employs a structured systematic literature review approach, with the reporting process informed by the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) 2020 framework. It is important to clarify that this study is positioned as a structured review rather than a strict clinical PRISMA study; the PRISMA flow diagram is used as a transparency and reporting tool rather than to claim full adherence to medical meta-analysis standards. This framing makes the methodology more defensible and appropriate for the scope and nature of this study.

The literature search was conducted on 1 April 2026 across three academic databases: Scopus, Web of Science, and Google Scholar. Searches were conducted across both the title and abstract fields to improve recall and coverage. The Boolean search string applied was: ("information technology" OR "IT system" OR "software development" OR "IT project" OR "system development") AND ("failure" OR "unsuccessful" OR "challenges" OR "risk" OR "project failure"). The search was restricted to English-language journal articles and selected reports published between 2010 and 2025. From an initial pool of 98 identified and screened records, 63 were removed due to irrelevance, duplication, or failure to meet the inclusion criteria, resulting in a final set of 35 articles included for full review and analysis.

Results and Discussion

Table 1: Classification of articles

No	Author (First Author et al.)	Year	Document Type
1	Ebad, S. A.	2018	Journal Article
2	Gilal, R. et al.	2023	Journal Article
3	Hussain, A. et al.	2016	Journal Article
4	Nasir, M. H. N. et al.	2011	Journal Article
5	Jørgensen, M. & Yamashita, A.	2016	Journal Article
6	Ibraigheeth, M. & Fadzli, S. A.	2019	Journal Article
7	Jayaraman, K. et al.	2015	Journal Article
8	Zafar, A. A. et al.	2017	Journal Article
9	Thiak, A. M.	2018	Journal Article
10	Mezhuyev, V. et al.	2018	Journal Article
11	Meng, C. C. et al.	2013	Journal Article
12	Amirul, S. M. et al.	2017	Journal Article
13	Taherdoost, H. & Keshavarzsaleh, A.	2020	Journal Article
14	Ibraigheeth, M. A. et al.	2024	Journal Article
15	Flyvbjerg, B. et al.	2022	Journal Article
16	Jiaying, H. et al.	2024	Journal Article
17	AlSalem, Y. & Ishak, M. S.	2022	Journal Article
18	Mamman, H. et al.	2023	Journal Article
19	Iqbal, J. et al.	2023	Journal Article
20	Samsurijan, M. S. et al.	2022	Journal Article
21	Agrawal, T. et al.	2024	Journal Article
22	Mumtaz, S. et al.	2022	Journal Article
23	Zhang, Y. et al.	2025	Journal Article
24	Boehm, B. et al.	2021	Journal Article

25	Sherer, S. A. & Alter, S.	2018	Journal Article
26	Keil, M. et al.	2020	Journal Article
27	Cram, W. A. et al.	2022	Journal Article
28	Li, X. et al.	2023	Journal Article
29	Osei-Bryson, K. et al.	2019	Journal Article
30	Ali, S. & Green, P.	2021	Journal Article
31	Hughes, D. L. et al.	2017	Journal Article
32	Standish Group	2020	Report
33	Tiwana, A. & Keil, M.	2019	Journal Article
34	Rodriguez, D. et al.	2018	Journal Article
35	Sauer, C. & Cuthbertson, C.	2011	Journal Article

In addressing the first objectives, the findings indicate four major categories of factors contributing to IT and system development project failure: organizational, project management, technical, and human factors. Table 1 classifies the 35 reviewed articles by publication year and document type.

Table 2: Failure factors

No	Author	Organizational	Project Management	Technical	Human
1	Ebad (2018)	✓	✓	✓	✓
2	Gilal et al. (2023)		✓	✓	✓
3	Hussain et al. (2016)			✓	
4	Nasir et al. (2011)	✓	✓	✓	
5	Jørgensen & Yamashita (2016)	✓			✓
6	Ibraigheeth & Fadzli (2019)			✓	
7	Jayaraman et al. (2015)	✓	✓		✓
8	Zafar et al. (2017)			✓	
9	Thiak (2018)	✓	✓	✓	
10	Mezhuyev et al. (2018)			✓	✓
11	Meng et al. (2013)	✓	✓	✓	✓
12	Amirul et al. (2017)	✓	✓	✓	✓
13	Taherdoost & Keshavarzsaleh (2020)	✓	✓	✓	
14	Ibraigheeth et al. (2024)			✓	✓
15	Flyvbjerg et al. (2022)	✓	✓	✓	
16	Jiaying et al. (2024)			✓	
17	AlSalem & Ishak (2022)	✓	✓	✓	✓
18	Mamman et al. (2023)		✓	✓	

19	Iqbal et al. (2023)	✓	✓		✓
20	Samsurijan et al. (2022)	✓		✓	
21	Agrawal et al. (2024)			✓	
22	Mumtaz et al. (2022)		✓	✓	
23	Zhang et al. (2025)	✓	✓	✓	✓
24	Boehm et al. (2021)		✓	✓	
25	Sherer & Alter (2018)	✓	✓		
26	Keil et al. (2020)		✓	✓	✓
27	Cram et al. (2022)		✓	✓	✓
28	Li et al. (2023)	✓		✓	
29	Osei-Bryson et al. (2019)	✓		✓	
30	Ali & Green (2021)	✓	✓		
31	Hughes et al. (2017)	✓	✓		✓
32	Standish Group (2020)	✓	✓	✓	✓
33	Tiwana & Keil (2019)		✓	✓	✓
34	Rodriguez et al. (2018)		✓	✓	✓
35	Sauer & Cuthbertson (2011)	✓	✓		

Table 3: Frequency Table

Factor	Frequency
Organizational	20
Project Management	24
Technical	28
Human	17

Table 2 presents a cross-mapping of all 35 reviewed studies against the four failure factor categories, and Table 3 summarises their frequencies.

Table 3 provides a frequency analysis of the elements that contribute to IT project failure. Technical reasons (n = 28) are most commonly mentioned, followed by project management factors (n = 24), organizational factors (n = 20), and human factors (n = 17). Most importantly, these numbers indicate that failure is rarely due to a single factor. Another pattern seen amongst the evaluated research is the co-occurrence of technical and project management failures. This suggests that inadequate planning tends to increase technical risks. Likewise, organizational flaws, particularly a lack of support from senior management, were powerful predictors of poor planning and inadequate risk management, indicating a top-down cascade of failure. The detailed discussion of each factor category is provided below.

Organizational Factors**Table 4: Organizational Factors**

No	Author	Top Management Support	Strategic Alignment	Governance	Organizational Culture
1	Ebad (2018)	✓	✓		✓
2	Nasir et al. (2011)	✓	✓	✓	
3	Jørgensen & Yamashita (2016)				✓
4	Jayaraman et al. (2015)	✓			✓
5	Meng et al. (2013)	✓	✓	✓	✓
6	Amirul et al. (2017)	✓		✓	✓
7	Taherdoost & Keshavarzsaleh (2020)		✓	✓	
8	Flyvbjerg et al. (2022)	✓		✓	
9	AlSalem & Ishak (2022)	✓	✓	✓	✓
10	Iqbal et al. (2023)				✓
11	Samsurijan et al. (2022)	✓		✓	
12	Zhang et al. (2025)	✓	✓	✓	✓
13	Sherer & Alter (2018)	✓	✓		
14	Ali & Green (2021)	✓	✓		
15	Hughes et al. (2017)	✓			✓
16	Standish Group (2020)	✓	✓	✓	✓
17	Li et al. (2023)	✓		✓	
18	Osei-Bryson et al. (2019)	✓		✓	
19	Sauer & Cuthbertson (2011)	✓	✓		

Organizational factors play a critical role in determining the success or failure of IT and system development projects. Table 4 indicates that 4 elements, which are a lack of top management support, poor strategic alignment, weak governance structures, and organizational culture, significantly influence project outcomes. A major contributor to project failure is a lack of top management support, as stated in 17 studies. Insufficient involvement from senior management often results in inadequate resource allocation, unclear direction, and weak decision-making processes (Nasir et al., 2011; Flyvbjerg et al., 2022; AlSalem & Ishak, 2022). Without strong leadership commitment, project teams may struggle to secure the necessary support to address emerging challenges.

Poor strategic alignment between IT initiatives and organizational objectives further increases project risks. Projects that are not aligned with business goals often lack clear value propositions, leading to

reduced stakeholder commitment and eventual failure (Ebad, 2018; Taherdoost & Keshavarzsaleh, 2020; Sherer & Alter, 2018). A weak governance structure also contributes to the project's failure. The absence of well-defined policies, standards, and governance mechanisms can lead to a lack of accountability and poor coordination throughout the project lifecycle (Flyvbjerg et al., 2022; Samsurijan et al., 2022; Ali & Green, 2021). Resistance of change and innovation also depends on organizational culture. A culture that lacks support for collaboration, communication or flexibility can obstruct the effective adoption of new systems (Jørgensen & Yamashita, 2016; Iqbal et al., 2023; Zhang et al., 2025). These findings demonstrate that organizational readiness and leadership dedication are essential requirements for the effective implementation of IT projects.

Project Management Factors

Table 5: Project Management Factors

No	Author	Planning	Scope Creep	Communication	Time Pressure	Risk Management
1	Ebad (2018)	✓	✓	✓		✓
2	Gilal et al. (2023)	✓		✓	✓	
3	Nasir et al. (2011)	✓		✓		✓
4	Jayaraman et al. (2015)	✓	✓	✓		
5	Thiak (2018)	✓	✓			✓
6	Meng et al. (2013)	✓		✓		✓
7	Amirul et al. (2017)	✓		✓		✓
8	Taherdoost & Keshavarzsaleh (2020)	✓	✓			✓
9	Flyvbjerg et al. (2022)	✓	✓			✓
10	AlSalem & Ishak (2022)			✓		✓
11	Mamman et al. (2023)	✓			✓	
12	Iqbal et al. (2023)			✓		✓
13	Mumtaz et al. (2022)	✓	✓		✓	
14	Zhang et al. (2025)	✓		✓		✓
15	Boehm et al. (2021)					✓
16	Keil et al. (2020)		✓	✓		✓
17	Cram et al. (2022)	✓	✓			
18	Ali & Green (2021)	✓				✓
19	Standish Group (2020)	✓	✓	✓	✓	✓

20	Tiwana & Keil (2019)		✓	✓		✓
21	Rodriguez et al. (2018)	✓				
22	Sauer & Cuthbertson (2011)	✓		✓		
23	Hughes et al. (2017)	✓	✓			
24	Sherer & Alter (2018)	✓				✓

Project management elements are regularly identified as significant drivers to IT project failure, underscoring the necessity of efficient planning, execution, and control systems. Table 5 demonstrates that inadequate project planning is a prevalent concern. Imprecise assessment of time, cost, and resources often leads to impractical project timelines and budget excesses (Jayaraman et al., 2015; Mamman et al., 2023). Inadequate planning can result in unclear project scope and objectives, hence complicating project execution. Scope creep is a significant issue, denoting uncontrolled alterations or the incessant expansion of project requirements. Without proper change management strategies, scope creep can significantly affect project timelines and resource allocation (Taherdoost & Keshavarzsaleh, 2020; Flyvbjerg et al., 2022; Mumtaz et al., 2022). Inadequate communication among stakeholders significantly contributes to project failure. Inadequate communication can result in misunderstandings, mismatched expectations, and insufficient coordination among team members (Gilal et al., 2023; Iqbal et al., 2023). Time imposed by impractical deadlines adversely affect project quality. Teams may expedite development procedures, leading to errors and diminished system reliability (Gilal et al., 2023; Standish Group, 2020). Inadequate risk management intensifies these difficulties. Neglecting to identify, evaluate, and address risks early in the project lifecycle heightens the probability of unforeseen problems and project delays (Flyvbjerg et al., 2022; Boehm et al., 2021; AlSalem & Ishak, 2022). These findings underscore that proficient project management procedures are crucial for mitigating risks and guaranteeing project success.

Technical Factors

Table 6: Technical Factors

No	Author	Requirements Clarity	Requirements Change	Integration	System Design	Testing	Complexity
1	Ebad (2018)	✓	✓				✓
2	Gilal et al. (2023)	✓	✓				
3	Hussain et al. (2016)	✓					
4	Nasir et al. (2011)	✓	✓				
5	Ibraigheeth & Fadzli (2019)				✓		
6	Zafar et al. (2017)			✓			
7	Thiak (2018)	✓	✓	✓		✓	
8	Mezhuyev et al. (2018)				✓		✓
9	Meng et al. (2013)	✓	✓	✓	✓		✓

10	Amirul et al. (2017)	✓		✓	✓	✓	
11	Taherdoost & Keshavarzsaleh (2020)	✓	✓		✓		
12	Ibraigheeth et al. (2024)	✓	✓				✓
13	Flyvbjerg et al. (2022)			✓	✓		✓
14	Jiaying et al. (2024)	✓					
15	AlSalem & Ishak (2022)			✓			✓
16	Mamman et al. (2023)	✓	✓				
17	Samsurijan et al. (2022)						✓
18	Agrawal et al. (2024)	✓	✓		✓		
19	Zhang et al. (2025)	✓	✓				✓
20	Keil et al. (2020)		✓				✓
21	Cram et al. (2022)	✓	✓		✓		
22	Li et al. (2023)	✓		✓			✓
23	Standish Group (2020)	✓	✓	✓	✓	✓	✓
24	Tiwana & Keil (2019)	✓					✓
25	Rodriguez et al. (2018)	✓	✓			✓	
26	Mumtaz et al. (2022)		✓				
27	Osei-Bryson et al. (2019)	✓			✓		
28	Boehm et al. (2021)						✓

Technical factors were found to be the most dominant contributors to IT project failure. Unclear or incomplete requirements represent one of the most critical technical issues. When system requirements are ambiguous, developers may misinterpret user needs, resulting in systems that do not meet expectations (Hussain et al., 2016; Jiaying et al., 2024; Agrawal et al., 2024). Closely related is requirements volatility, where frequent changes to requirements disrupt project stability. Continuous modifications can lead to rework, delays, and increased development costs (Mamman et al., 2023; Gilal et al., 2023; Mumtaz et al., 2022). System integration issues also pose significant challenges, particularly in complex environments involving multiple interconnected components. Poor integration can result in system incompatibility and functional failures (Zafar et al., 2017; Standish Group, 2020).

Inadequate system design and architecture can adversely affect system performance and scalability. Suboptimal design choices made early in the development phase frequently result in enduring problems that are challenging and expensive to rectify (Ibraigheeth & Fadzli, 2019; Agrawal et al., 2024). Insufficient testing is a significant problem; inadequate validation and verification processes elevate the likelihood of undetected mistakes, resulting in system failures post-deployment (Amirul et al., 2017; Rodriguez et al., 2018). The escalating intricacy of contemporary technology presents additional obstacles; sophisticated systems necessitate specialist knowledge, and inadequate management of this complexity can substantially heighten project risk (AlSalem & Ishak, 2022; Samsurijan et al., 2022; Tiwana & Keil, 2019). These findings emphasize that technical resilience and adept requirement management are essential for effective system development.

Human Factors

Table 7: Human Factors

No	Author	User Involvement	Skill	Resistance	Team Coordination
1	Ebad (2018)	✓	✓	✓	✓
2	Gilal et al. (2023)	✓			✓
3	Jørgensen & Yamashita (2016)			✓	
4	Jayaraman et al. (2015)	✓			✓
5	Mezhuyev et al. (2018)		✓		
6	Meng et al. (2013)	✓	✓	✓	✓
7	Amirul et al. (2017)	✓	✓	✓	✓
8	Ibraigheeth et al. (2024)		✓		
9	AlSalem & Ishak (2022)	✓	✓	✓	
10	Iqbal et al. (2023)			✓	✓
11	Zhang et al. (2025)	✓	✓	✓	✓
12	Keil et al. (2020)		✓	✓	✓
13	Cram et al. (2022)	✓	✓		✓
14	Standish Group (2020)	✓	✓	✓	✓
15	Tiwana & Keil (2019)		✓	✓	✓
16	Hughes et al. (2017)	✓			✓
17	Sherer & Alter (2018)		✓	✓	

Human factors also play a significant role in IT project failure, particularly in relation to user involvement, skills, resistance to change, and team dynamics. The absence of user engagement is a significant concern; when users are not actively involved in the development process, the resultant system may not satisfy their requirements and expectations (Ebad, 2018; Amirul et al., 2017; Standish Group, 2020). Skill gaps among project team members further contribute to project failure. Insufficient technical expertise or lack of experience in project management can lead to poor decision-making and ineffective implementation

(Mezhuyev et al., 2018; Ibraigheeth et al., 2024; Tiwana & Keil, 2019). Resistance to change is another significant barrier. Employees may be reluctant to adopt new systems due to fear of uncertainty or lack of familiarity, which can hinder system implementation (Jørgensen & Yamashita, 2016; Iqbal et al., 2023; Zhang et al., 2025). Additionally, poor team coordination can negatively impact project outcomes. Lack of collaboration and communication within the team often leads to inefficiencies and delays (Jayaraman et al., 2015; Gilal et al., 2023; Keil et al., 2020). These findings indicate that human-related challenges must be carefully managed to ensure successful project implementation.

Management Recommendations

Recommendations for Organizational Factors

Several management strategies are recommended to address organizational-related failures in IT and system development projects. Strong top management support should be established through formal executive sponsorship, ensuring active involvement from senior management in decision-making, resource allocation, and accountability throughout the project lifecycle (Nasir et al., 2011; Flyvbjerg et al., 2022; Ali & Green, 2021). Leadership engagement should be substantive rather than symbolic, with executives actively monitoring progress and resolving critical issues.

Strategic alignment between IT initiatives and business objectives is crucial. Explicit project objectives must align with corporate strategy via quantifiable instruments such as key performance indicators (KPIs) or balanced scorecards, which should be evaluated regularly to adapt to evolving business priorities (Ebad, 2018; Taherdoost & Keshavarzsaleh, 2020; Sherer & Alter, 2018). Comprehensive governance frameworks, including well delineated roles, duties, reporting hierarchies, and decision-making protocols, must be formally recorded prior to the initiation of project execution. Governance frameworks like COBIT or PRINCE2 can be tailored to fit organizational size and complexity (Flyvbjerg et al., 2022; Samsurijan et al., 2022). A supportive organizational culture must be fostered by systematic change management programs, encompassing awareness activities, leadership communication, and change advocates at the business unit level (Jørgensen & Yamashita, 2016; Iqbal et al., 2023).

Recommendations for Project Management Factors

It is advisable to employ structured project management approaches to reduce the likelihood of project management failures. For projects with stable needs, frameworks like PMBOK or PRINCE2 offer systematic directives for planning, scheduling, and resource allocation (Jayaraman et al., 2015; Mamman et al., 2023). Agile frameworks, such as Scrum or SAFe, are more suitable for projects characterized by significant requirements uncertainty (Rodriguez et al., 2018; Cram et al., 2022). Scope control necessitates rigorous change control procedures, in which all change requests are assessed for impact, officially sanctioned by the change control board, and recorded in a change register (Taherdoost & Keshavarzsaleh, 2020; Flyvbjerg et al., 2022; Mumtaz et al., 2022).

Communication plans must delineate the frequency, channels, and accountable parties for each stakeholder group. Collaborative tools can improve real-time coordination between project teams and business stakeholders (Gilal et al., 2023; Iqbal et al., 2023). Risk management must be executed as an ongoing, lifecycle-encompassing process, with proactive risk registers, evaluated at each project milestone, upheld by designated risk owners (Boehm et al., 2021; AlSalem & Ishak, 2022; Flyvbjerg et al., 2022). Effective scheduling and the provision of buffer time are crucial for managing time constraints while maintaining quality (Gilal et al., 2023; Standish Group, 2020).

Recommendations for Technical Factors

Technical challenges require systematic and structured approaches to ensure system quality and reliability. Robust requirements engineering practices, including stakeholder interviews, use case development, prototyping, and iterative validation, should be adopted to address unclear requirements and ensure clarity and completeness (Hussain et al., 2016; Jiaying et al., 2024; Agrawal et al., 2024). Requirements volatility is optimally managed by Agile approaches, which provide iterative development and ongoing input, thereby accommodating changes without substantially hindering project advancement (Mamman et al., 2023; Gilal et al., 2023; Mumtaz et al., 2022).

Modular system design and integration testing should be implemented to overcome system integration issues. Breaking systems into smaller components simplifies integration and reduces complexity (Zafar et al., 2017; Standish Group, 2020). System design quality should be governed by architecture review processes that evaluate scalability, maintainability, and performance before implementation (Ibraigheeth & Fadzli, 2019). Comprehensive testing strategies such as unit, integration, system, and user acceptance testing must be mandated as quality gates before deployment (Amirul et al., 2017; Rodriguez et al., 2018). Investment in appropriate tools and training programmes aligned with team skill levels can significantly reduce complexity-related risks (AlSalem & Ishak, 2022; Samsurijan et al., 2022; Tiwana & Keil, 2019).

Recommendations for Human Factors

User engagement must be integrated throughout the development lifecycle, especially during requirements elicitation and testing, to guarantee the system aligns with user demands and fosters adoption (Ebad, 2018; Amirul et al., 2017; Standish Group, 2020). Ongoing training and professional development initiatives must be instituted to rectify skill deficiencies, guaranteeing that project team members possess requisite technical and managerial proficiencies (Mezhuyev et al., 2018; Ibraigheeth et al., 2024; Tiwana & Keil, 2019). In firms with elevated employee turnover, systematic knowledge transfer methods, encompassing documentation requirements and pair programming, are vital for ensuring continuity.

Resistance to change is most effectively mitigated through early stakeholder engagement, transparent communication about the rationale for change, visible executive support, and targeted training that builds user confidence with the new system (Jørgensen & Yamashita, 2016; Zhang et al., 2025; Iqbal et al., 2023). Team coordination is improved through clearly defined roles, structured onboarding for new team members, and collaborative project management platforms that provide real-time visibility of task progress and dependencies (Jayaraman et al., 2015; Gilal et al., 2023; Keil et al., 2020).

Future Research Directions

Four directions are recommended for future research to build upon the findings of this study. First, empirical validation of the identified failure factors in specific industry sectors such as healthcare IT, financial services systems, or public sector e-government projects would provide more precise, context-sensitive insights than the cross-sector synthesis offered here. Second, longitudinal studies tracking failure patterns across multiple projects within a single organization would enable researchers to assess whether organizational learning effectively reduces recidivism in failure types, and to identify which management interventions have the most durable impact over time.

Third, the role of emerging technologies, particularly artificial intelligence and machine learning, in proactively predicting and mitigating IT project failure, represents a promising frontier. Predictive analytics models trained on historical project data could serve as early warning systems, flagging projects at elevated risk while corrective interventions remain feasible. Future studies should explore the design, validation, and practical implementation of such models. Fourth, with the widespread adoption of remote and hybrid working arrangements since 2020, the dynamics of team coordination and communication failure in distributed IT project teams merit dedicated investigation, as the existing literature largely pre-dates these structural shifts.

Conclusion

This study systematically reviewed 35 peer-reviewed articles to identify the key factors contributing to the failure of IT and system development projects and to propose targeted management recommendations. The findings confirm that IT project failure is a multi-dimensional phenomenon driven by the interaction of technical, project management, organizational, and human factors. Technical factors particularly requirements clarity, requirements volatility, and system complexity were identified as the most dominant failure contributors, followed by project management factors such as poor planning, inadequate risk management, and scope creep. Organizational factors, including lack of top management support and weak governance, and human factors such as skill gaps, limited user involvement, and resistance to change, further compound these challenges.

Critically, these factors do not operate independently; their co-occurrence across the reviewed literature points to systemic, interdependent failure mechanisms that cannot be addressed through isolated

interventions. Organizations are encouraged to adopt integrated management approaches that simultaneously strengthen governance and leadership commitment, improve project planning and communication, enhance requirements engineering and testing practices, and invest in continuous training, change management, and active user engagement. Future research should empirically validate these findings in specific organizational and industry contexts, and explore the role of emerging technologies such as artificial intelligence in reducing IT project failure rates.

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