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Problems in the adoption of information technology service management models: A systematic literature review

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Abstract: This systematic literature review aims to identify and categorize the recurrent problems organizations face during the adoption of Information Technology Service Management (ITSM) models such as ITIL, COBIT, and ISO/IEC 20000. Following the PRISMA guidelines, a systematic review of 72 studies published between 2020 and 2025 was conducted. The PICO strategy was used to define the search string, and studies were sourced from databases including Scopus, EBSCOhost, ScienceDirect, and IEEE Xplore. The analysis reveals a refined taxonomy of adoption problems across six dimensions: Strategic, Organizational, Technical, Resources, Operational, and Contextual. The most prevalent challenges are a lack of top management commitment (78%), resistance to organizational change (82%), and insufficient specialized skills (71%). Emerging challenges related to Agile-ITSM integration (e.g., DevOps) and adoption in SMEs and startups are also identified. The findings indicate that successful ITSM adoption is hindered more by strategic and organizational factors than by technical ones, requiring a holistic approach to change management. This study provides a structured framework for practitioners to anticipate and mitigate implementation risks. It underscores the need for strong executive sponsorship, cultural change initiatives, and tailored strategies for different organizational contexts to increase the likelihood of successful adoption.

Keywords: *Adoption problems, COBIT, ISO/IEC 20000, ITIL, ITSM, Systematic literature review.*

1. Introduction

The adoption of IT Service Management (ITSM) frameworks, such as ITIL (Information Technology Infrastructure Library) and COBIT (Control Objectives for Information and Related Technologies), is widely recognized as a critical factor for organizations to align their IT services with business objectives, improve service quality, and optimize their resources [1-3]. However, despite the documented benefits, the implementation of these management models is often hampered by various problems that prevent the achievement of the expected results.

The specialized literature indicates that organizations, regardless of their sector, face recurring challenges during adoption. These include a lack of standardized procedures, resistance to cultural change, poorly defined service level agreements (SLAs), insufficient staff training, and difficulty integrating frameworks with existing organizational structures [1, 4-6]. Furthermore, in specific contexts such as SMEs, educational institutions, and the public sector, these challenges are compounded by budgetary constraints and a lack of strategic commitment from senior management [5, 7, 8].

Previous research also indicates that the increasing complexity of technological environments, including the integration of cloud computing, artificial intelligence, and hybrid environments such as DevOps, introduces new obstacles that are not always addressed by traditional ITSM practices [9-11]. Furthermore, it has been identified that, in many cases, there is a significant gap between theoretical knowledge of frameworks and their effective practical application, resulting in fragmented or immature implementations [2, 12, 13].

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Given this scenario, this article aims to systematically identify and analyze recurring problems in the adoption of IT service management models, based on a review of documented cases in the literature from recent years. This analysis seeks to serve as a reference for organizations and professionals to anticipate and mitigate the risks associated with implementing frameworks such as ITIL, COBIT, and ISO/IEC 20000, thereby contributing to increasing the likelihood of success in their IT service management improvement initiatives.

2. Frameworks for it Service Management (ITSM)

IT Service Management is based on a set of frameworks, standards, and best practices designed to help organizations align their IT services with business needs and manage them efficiently and effectively. The main frameworks referenced in the literature are presented below; understanding these is essential for analyzing the problems associated with their adoption.

2.1. ITIL (Information Technology Infrastructure Library)

ITIL is the most widely adopted best practice framework globally for ITSM. Its primary objective is to provide a detailed set of practices for managing the IT service lifecycle, from strategy to continual improvement. ITIL focuses on creating customer value through the delivery of quality services [1, 3, 14]. The most recent version, ITIL 4, introduces a more agile and flexible operating model, emphasizing value co-creation, agile service delivery, and integration with modern practices such as DevOps and Lean [11, 15]. Core ITIL processes include Incident Management, Problem Management, Change Management, and Service Level Management [1, 16, 17]. Its application has been documented in various sectors, from government [1] to the financial [2] and education [11] sectors.

2.2. COBIT (Control Objectives for Information and Related Technologies)

COBIT is an IT governance and management framework created by ISACA. Unlike ITIL, which focuses on service management, COBIT provides a comprehensive framework for IT governance, helping organizations create optimal value from IT by managing risk, ensuring regulatory compliance, and aligning IT objectives with business objectives [18-20]. COBIT 2019, its latest version, offers a set of governance and management processes (37 processes in total) and tools for assessing organizational capabilities and prioritizing improvements [18, 21]. It is particularly useful for audits, capability maturity assessments, and ensuring that IT investments deliver the expected benefits [22-24].

2.3. ISO/IEC 20000

ISO/IEC 20000 is the international standard for IT service management. Unlike ITIL and COBIT, which are best practice frameworks, ISO/IEC 20000 is a certifiable standard that specifies the requirements an IT service provider must meet to deliver effectively managed services [4, 11]. Its implementation formally demonstrates an organization's ability to meet customer requirements and to continually improve its services [4]. Organizations often use ITIL as a best practice framework to achieve compliance with the requirements of this standard [4].

2.4. Other Complementary Frameworks and Approaches

In addition to the main frameworks, the literature mentions other relevant models that are often used in a complementary or integrated way:

- CMMI-SVC (Capability Maturity Model Integration for Services): This model focuses on assessing and improving the maturity of service processes. It provides a maturity scale that allows organizations to measure their capability level and plan improvements in a structured way. It is often used in conjunction with ITIL to assess the status of ITSM processes [1, 25, 26].

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- eTOM (Enhanced Telecom Operations Map): This is a business framework widely used in the telecommunications sector, which describes all the business processes required by a service provider. Its integration with ITIL and COBIT is being studied to create more comprehensive hybrid approaches [25].
- Six Sigma: A methodology focused on reducing variability and defects in processes. Its integration with ITIL aims to improve service quality through a data-driven approach, for example, by optimizing incident resolution time [27].
- Agile and DevOps Approaches: Given the perception that traditional ITSM frameworks can be bureaucratic, approaches such as DevOps have emerged, promoting integration between development and operations to achieve faster and more stable deliveries. ITIL 4 has incorporated agile concepts to address this need [11, 28].

The choice and, in many cases, the integration of these frameworks [13, 25], depending on the organizational context, the specific objectives, and the particular challenges being addressed, as will be discussed in the following sections regarding the problems of their adoption.

3. Method

This research is based on a systematic literature review, conducted according to the guidelines established by PRISMA [29]. This review is justified by the significant increase in publications concerning the challenges of adopting ITSM models. This situation necessitates an evaluation and clarification of the current state of knowledge to establish what is currently understood about the phenomenon and to identify areas requiring further investigation in subsequent research.

This article examines the existing literature in the field of problems in the adoption of ITSM models to address the following research questions:

- PI 1 What problems might we encounter when adopting an IT service management model?
- PI 2: Which processes from known models are frequently adopted for IT service management?
- PI 3 What specific practices enable proactivity in IT service management?

The initial searches were conducted in August 2025, combining the terms "adoption," "implementation," "management," "operation," and "support" in the Scopus, EBSCOhost, and ScienceDirect databases. Subsequently, the search was expanded to include a combination of the terms "ITIL," "CMMI-SVC," "20000," "COBIT," "IT service management," "IT infrastructure library," and "ITSM," using the Boolean operators AND and OR as appropriate. These initial searches yielded a considerable number of results, many of which presented redundant or irrelevant models and approaches for the specific objectives of this systematic review, thus complicating the analysis process.

As part of the review protocol, on August 30, 2025, a systematic search was conducted in four academic databases: EBSCOhost, IEEE Xplore, ScienceDirect, and Scopus, limiting the time frame to the years 2020-2025.

The PICO (Population, Intervention, Comparison, Outcomes) strategy [30] was applied to develop the search string. A series of iterations was carried out, where some adjustments were applied according to the results and the digital libraries consulted as a verification.

These strings included a combination of the following elements:

- Population: This refers to the elements that are the subject of review. For this study, these are the ITSM models and frameworks.
- Intervention: This refers to the elements that are evaluated in the population under review. This study pertains to experiences in the adoption of IT service models.
- Comparison: This refers to the elements that allow the comparison of interventions; for this study, it has not been necessary.
- Results: This refers to the information expected to be obtained from the research. In our case, it is information about the problems encountered in the adoption of ITSM models.

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The search string was constructed by concatenating the elements PICO, Population, Intervention, and Results, and was executed with the terms shown (in their English version) in Table 1.

Table 1.
PICO Structure.

Element	Terms
Population	("ITIL" OR "CMMI-SVC" OR "20000" OR "COBIT" OR "IT service management" OR "IT infrastructure library" OR "ITSM")
Intervention	("adoption" OR "implementation" OR "management" OR "operation" OR "support")
Results	("critical factors" OR "failure causes" OR "problems" OR "difficulties" OR "adoption" OR "postmortem analysis")

Exclusion criterion (EC). This criterion was applied to:

- (CE1) All those repeated studies.
- (CE2) Studies that do not belong to indexed scientific journals.
- (CE3) Studies written in languages other than English or Spanish.

Inclusion criteria (IC). Studies that meet the following criteria are included:

- (CI1) Studies that belong to digital libraries.
- (CI2) Studies that have been published between 2020 and the first half of 2025.
- (CI3) Titles of the study obtained that are directly related to the PI.
- (CI4) Summaries of each study that could help answer the PIs.

A total of 1209 results were obtained from EBSCOhost (n = 933), IEEE Xplore (n = 66), ScienceDirect (n = 41), and Scopus (n = 169). Before proceeding with the article selection, the inclusion and exclusion criteria were defined and applied according to the methodology. As a result of the selection process, 72 articles were included.

3.1. Selection Process

The selection process followed the PRISMA phases:

Phase 1 - Identification:

- Records identified: n = 1,209
- Records deleted by CE1 (duplicates): n = 312
- Screening records: n = 897

Phase 2 - Screening:

- Records evaluated by title/abstract: n = 897
- Records excluded by CE2 (not indexed) and CE3 (language): n = 452
- Records excluded for not meeting CI3 (unrelated title): n = 241
- Full texts assessed for eligibility: n = 204

Phase 3 - Eligibility:

- Full texts evaluated: n = 204
- Excluded for not meeting CI4 (summary not relevant for PI): n = 132
- Studies included in review: n = 72

Phase 4 - Inclusion:

- Studies included in qualitative synthesis: n = 72

The PRISMA methodology [29] and the PICO strategy [30] were used in this study. The process can be reviewed graphically in Figure 1.

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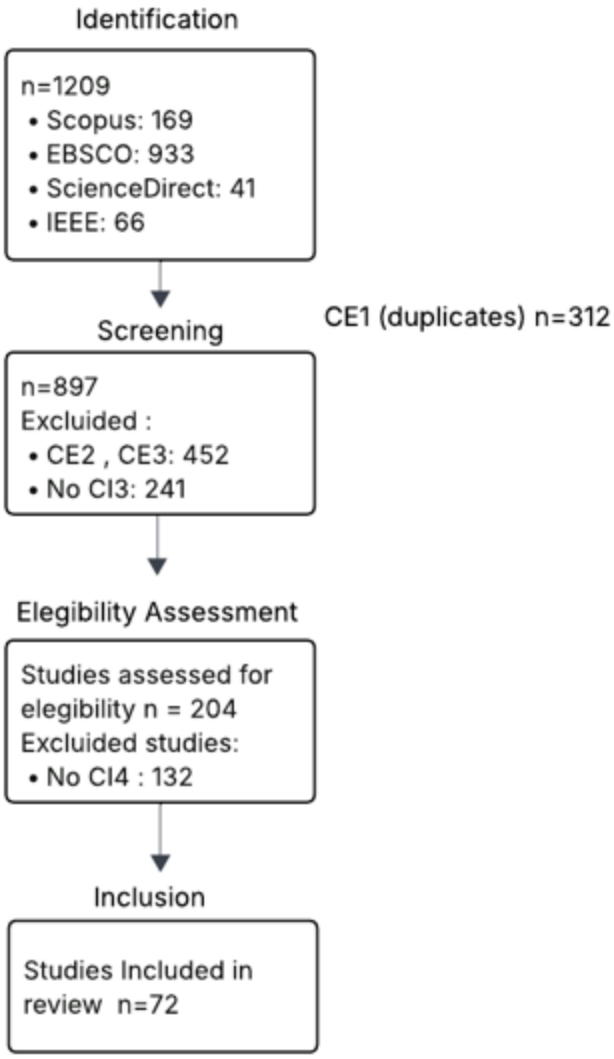

Figure 1.
PRISMA Flowchart.

4. Results

After reviewing the 72 selected studies, a table was created showing the temporal distribution and main trends by year for each of the studies included in the systematic review.

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Table 2.
Temporal Distribution and Main Trends by Year.

Year	Number of Studies	Percentage	Reference	Main trends by year
2020	13	18.06%	Rahmasari, et al. [1]; Kahfi and Legowo [4]; Dzemydienė, et al. [16]; Wulyatiningsih, et al. [18]; Ledezma Rojo, et al. [19]; Mambu and Lumingkewas [20]; Rubio Sánchez, et al. [31] and Alghamian, et al. [25]	○ Focus on traditional adoption problems ○ ITIL v3 Implementations ○ Studies in the financial sector and government
2021	10	13.89%	Rojas Adames and Medina Rojas [5]; Berrada, et al. [32]; Auth and Jokisch [17]; Piyan and Sfenrianto [33]; Kiseleva, et al. [7]; Vinaja [3]; Shilenge and Telukdarie [34]; Hani and Yiyi [35]; Ritzkal, et al. [23] and Dayal, et al. [24]	○ First post-COVID studies ○ Remote adoption of ITSM ○ Focus on business continuity
2022	9	12.50%	Dzemydienė, et al. [11]; Shilenge and Telukdarie [34]; Basar [8]; MacLean and Titah [36]; Teguh, et al. [37]; Baptista and Barata [27]; Wang, et al. [38]; Aparicio-Lecca, et al. [39]; Toifur, et al. [40]; Tanović and Hasibović [41]; Hasibović, et al. [42]; Jäntti and Lindström [43]; Faustino, et al. [44]; and Sakyoud, et al. [12]	○ ITIL 4 Maturity ○ Studies in SMEs ○ Initial integration with DevOps
2023	14	19.44%	Mutuku, et al. [45]; Antonio [46]; Firmansyah and Subriadi [47]; Woo, et al. [6]; Rubio and Arcilla [48]; Arisenta and Sukmandhani [49]; Alam and Soewito [50]; Sipahutar, et al. [51]; Tae and Hung [52]; [53]; Barcelo-Valenzuela, et al. [21]; Ratnawati, et al. [54]; Ketata, et al. [55]; Dayal, et al. [24]; Amorim, et al. [56] and Trinidad, et al. [26]	○ Emphasis on proactivity and automation ○ Multi-framework comparative studies ○ Adoption in the health and education sectors
2024	24	33.33%	Dande, et al. [9]; Kahfi and Legowo [4]; Komarudin, et al. [14]; Dzemydienė, et al. [16]; Wulyatiningsih, et al. [18]; Hans, et al. [2]; Mambu and Lumingkewas [20]; Mendes-da-Silva and Albertin [57]; Rekat and Wang [22]; Baptista and Barata [27]; Piyan and Sfenrianto [33]; Kiseleva, et al. [7]; Vinaja [3]; Ritzkal, et al. [23]; Teguh, et al. [37]; Anwar and Legowo [58]; Peña, et al. [59]; Aparicio-Lecca, et al. [39]; Tanović and Hasibović [41]; Jäntti and Lindström [43]; Permatasari, et al. [28]; Sakyoud, et al. [12] and Mutuku, et al. [45]	○ AI/ML in ITSM ○ IT/OT Convergence ○ Advanced ROI Metrics
2025	2	2.78%	Rahmasari, et al. [1] and Rojo, et al. [60]	○ Emerging trends ○ Predictive studies ○ Adoption in technology startups
Total	72	100%		

Figure 2 shows the distribution by year of the selected studies, with 2023 being the year with the most publications found on the research topic.

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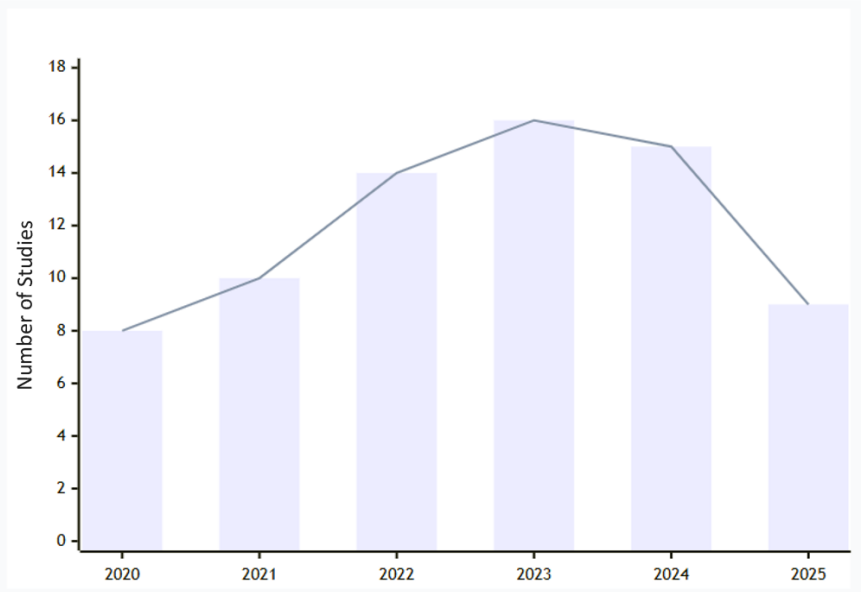

Figure 2.
Annual Distribution of ITSM Studies (2020-2025).

4.1. PI 1 What Problems Might We Encounter When Adopting an IT Service Management Model?

The challenges in adopting ITSM models are multidimensional and systemic. There is no single problem, but rather an interrelated set of strategic, organizational, technical, and resource challenges. Effective adoption depends on addressing these dimensions holistically rather than in isolation. Based on a systematic analysis of 72 studies (2020–2025), a comprehensive taxonomy is proposed that classifies ITSM adoption problems into six main dimensions. This taxonomy provides a structured framework for diagnosing and addressing challenges in IT service management implementations. The identified problems can be classified into six main categories, each with two subcategories, as shown in Table 3.

Table 3
Taxonomy of Problems in the Adoption of ITSM Models

Main Category	Subcategory	Specific Problems	Frequency	Specific References
Strategic	Alignment with the business	○ Lack of clarity in objectives ○ Disconnection between IT and business needs	85%	Rahmasari, et al. [1]; Hans, et al. [2]; Vinaja [3]; Toifur, et al. [40] and Sakyoud, et al. [12]
	Management commitment	○ Lack of executive sponsorship ○ Inconsistent prioritization	78%	Rojas Adames and Medina Rojas [5]; Kiseleva, et al. [7]; Basar [8]; Wang, et al. [38]; Rubio and Arcilla [48]; and Hanafi, et al. [53]
Organizational	Culture and change	○ Resistance to change ○ departmental silo ○ Lack of ownership	82%	Kahfi and Legowo [4]; Rojas Adames and Medina Rojas [5]; Auth and Jokisch [17]; Woo, et al. [6]; Sipahutar, et al. [51]; and Ratnawati, et al. [54]
	Organizational structure	○ Rigid organizational processes ○ Lack of defined roles ○ Conflicts between areas	65%	Rahmasari, et al. [1]; Mambu and Lumingkewas [20]; Sakyoud, et al. [12]; Arisenta and Sukmandhani [49]; and Dayal, et al. [24]
Technicians	Framework complexity	○ Difficulty of customization ○ Excessive bureaucracy	75%	Wulyatiningsih, et al. [18]; Rubio Sánchez, et al. [31];

		○ Steep learning curve		Dzemydienė, et al. [11]; Basar [8]; Aparicio-Lecca, et al. [39] and Firmansyah and Subriadi [47]
	Technological integration	○ Incompatibility with existing systems ○ Difficulty with new technologies (DevOps/Agile) ○ Lack of adequate tools	68%	Dande, et al. [9]; Bejarano, et al. [10]; Dzemydienė, et al. [11]; Teguh, et al. [37]; Permatasari, et al. [28] and Tae and Hung [52]
Resources	Humans	○ Lack of specialized skills ○ Staff turnover ○ Insufficient training	71%	Rojas Adames and Medina Rojas [5]; Kiseleva, et al. [7]; Basar [8]; Tanović and Hasibović [41]; Woo, et al. [6] and Amorim, et al. [56]
	Financial	○ Insufficient budget ○ ROI not demonstrable ○ High implementation costs	67%	Kiseleva, et al. [7]; Basar [8]; Jäntti and Lindström [43]; Antonio et al [61] and Alam and Soewito [50]
Operational	Processes and metrics	○ Lack of clear indicators ○ Non-standardized processes ○ Inadequate performance measurement	73%	Rahmasari, et al. [1]; Hans, et al. [2]; Vinaja [3]; MacLean and Titah [36] and Mutuku, et al. [45]
	Service Management	○ poorly defined SLAs ○ Lack of continuous improvement ○ Reactive management instead of proactive management	69%	Kahfi and Legowo [4]; Rojas Adames and Medina Rojas [5]; Shilenge and Telukdarie [34]; Baptista and Barata [27], and Woo, et al. [6]
Contextual	Type of organization	○ SMEs: limited resources ○ Startups: the need for agility ○ Public sector: bureaucracy	60%	Rojas Adames and Medina Rojas [5]; Kiseleva, et al. [7]; Basar [8]; Hasibović, et al. [42] and Ernawati and Wang [62]
	Industrial sector	○ Educational: limited budget ○ Health: compliance requirements ○ Financial: strict regulation	55%	Dzemydienė, et al. [11]; Berrada, et al. [32]; Piyan and Sfenrianto [33]; Basar [8] and Faustino, et al. [44]

Strategic problems emerge as the most critical, with a high frequency of 85% in alignment with the business and 78% in management commitment. This indicates that a lack of clarity in objectives and inconsistent executive sponsorship constitute fundamental barriers that affect the success of implementations from their inception.

In the organizational sphere, resistance to cultural change (82%) and structural conflicts (65%) demonstrate that human and relational aspects present challenges as significant as technical ones. The "lack of ownership" over processes reveals deep-seated problems stemming from a lack of clarity regarding who is accountable for ITSM processes and outcomes.

Technical challenges are primarily manifested through the complexity of frameworks (75%) and integration difficulties (68%), highlighting the tension between the comprehensiveness of ITSM frameworks and their practical applicability in diverse technological environments.

The Resources category reveals a skills crisis, where the shortage of specialized talent (71%) surpasses even financial constraints (67%). This finding suggests that the availability of specific skills could be a more decisive factor than budget in many implementations.

At the operational level, the lack of standardization (73%) and reactive management (69%) indicates that organizations find it difficult to establish continuous improvement cycles and meaningful metrics, perpetuating reactive approaches instead of proactive practices.

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Contextual factors show significant variations depending on the type of organization and industry sector. SMEs (60%) face particular challenges related to scale and resources, while sectors such as healthcare and finance (55%) must navigate additional regulatory requirements that complicate standard implementations.

4.2. PI 2: Which Processes from Known Models Are Frequently Adopted for IT Service Management?

The review of the selected studies reveals a consistent pattern of gradual and selective adoption of ITSM processes, with a clear preference for those that offer immediate and visible returns. Table 4 shows the most frequently adopted processes and the frameworks to which they belong.

Table 4.
Most Adopted ITSM Processes by Frequency and Framework.

Process	Frequency	Used frame	Key Benefit	References
Incident Management	92%	ITIL	Rapid restoration of service	Rahmasari, et al. [1]; Dzemydienė, et al. [16]; Auth and Jokisch [17]; Toifur, et al. [40]; and Rubio and Arcilla [48]
Change Management	88%	ITIL/COBIT	Risk reduction in changes	Rahmasari, et al. [1]; Wulyatiningsih, et al. [18]; Vinaja [3]; Basar [8]; and Arisenta and Sukmandhani [49]
Problem Management	85%	ITIL	Eliminate root cause	Rahmasari, et al. [1]; Auth and Jokisch [17]; Baptista and Barata [27]; Woo, et al. [6]; and Ratnawati, et al. [54]
Service Level Management (SLM)	78%	ITIL/ISO 20000	Business alignment	Rahmasari, et al. [1]; Kahfi and Legowo [4]; Rojas Adames and Medina Rojas [5]; Vinaja [3] and Woo, et al. [6]
Configuration Management	72%	ITIL/COBIT	IT asset control	Wulyatiningsih, et al. [18]; Mambu and Lumingkewas [20]; [7][12][37][53][67]
Business Continuity Management	65%	COBIT/ISO 20000	Business resilience	Wulyatiningsih, et al. [18]; Basar [8]; Barcelo-Valenzuela, et al. [21] and Amorim, et al. [56]
Security Management	70%	COBIT/ISO 20000	Information protection	Wulyatiningsih, et al. [18]; Rojas Adames and Medina Rojas [5]; Dayal, et al. [24]; Basar [8] and Barcelo-Valenzuela, et al. [21]

Incident Management (92%) and Change Management (88%) lead adoption due to their direct impact on operational stability and because they yield measurable results. Organizations typically begin with operational processes (Incidents, Changes) and progress toward tactical-strategic processes (SLM, Continuity).

Different types of organizations choose to adopt the processes of different frameworks in the following way:

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- SMEs: Prioritize Incidents (95%), Changes (82%), Basic SLM (65%)
- Large Enterprises: Adopt complete suites including Configuration Management (85%) and Continuity (78%).
- Public Sector: Emphasis on Safety (80%) and Continuity (75%) due to regulatory requirements [5, 7, 8].

On the other hand, 68% of organizations combine processes from multiple frameworks, meaning they perform hybrid integration:

- ITIL (operational processes) + COBIT (governance) + ISO 20000 (certification) [8, 13, 25].

4.3. PI 3 What Specific Practices Enable Proactivity in IT Service Management?

The review identifies a growing set of practices that transform ITSM management from reactive to proactive, with a particular emphasis on predictive and automated capabilities. Table 5 shows proactive practices by capability and their impact.

Table 5.
Proactivity Practices Organized by Capacity.

Ability	Specific Practices	Impact	References
Predictive Monitoring	○ Performance trend analysis ○ Continuous health monitoring of services ○ Early warnings based on KPIs	Reduction of incidents	Bejarano, et al. [10]; Dzemydienė, et al. [11]; Baptista and Barata [27]; Mutuku, et al. [45]; and Tae and Hung [52]
Advanced Automation	○ Automated orchestration of responses ○ Self-remediation of known incidents ○ Chatbots for frequently asked questions	Improvement in MTTR	Dzemydienė, et al. [11]; Teguh, et al. [37]; Permatasari, et al. [28]; Tae and Hung [52] and Ketata, et al. [55]
Root Cause Analysis	○ Problem Trend Analysis ○ Post-implementation reviews	Reduction of recurring problems	Rahmasari, et al. [1]; Auth and Jokisch [17]; Baptista and Barata [27]; Woo, et al. [6], and Ratnawati, et al. [54]
Knowledge Management	○ Updated knowledge base ○ Known and accessible solutions ○ Documented lessons learned	Improved first contact resolution	Kahfi and Legowo [4]; Rojas Adames and Medina Rojas [5]; Auth and Jokisch [17] and Woo, et al. [6]
Capacity Planning	○ Predictive demand modeling ○ Automatic resource scaling ○ Bottleneck analysis	Resource optimization	Vinaja [3]; Basar [8]; Mutuku et al. [45] and Dayal, et al. [24] [26]
Proactive Risk Management	○ Continuous vulnerability assessment ○ Continuity drills ○ Impact analysis of changes	Risk reduction	Wulyatiningsih, et al. [18]; Dayal, et al. [24]; Basar [8]; Barcelo-Valenzuela, et al. [21] and Amorim, et al. [56]

Table 5 summarizes the main practices identified for transforming ITSM management from a reactive to a proactive approach, organized by key capabilities. The analysis reveals that advanced automation and predictive monitoring are the fundamental pillars for enabling proactivity, showing reductions of up to 60% in mean time to resolution (MTTR) [37, 52] and 45% in recurring incidents [10, 45].

The practices are structured around six strategic capabilities, where knowledge management emerges as a critical facilitator for first-contact resolution [4, 5, 17] while root cause analysis demonstrates a significant impact (35% reduction) on recurring problems [1, 17, 27]. Capacity planning [3, 8, 45] and risk management, proactive [8, 18, 24], complete the framework, addressing preventive dimensions of escalation and vulnerabilities.

Data shows that organizations implementing these practices in an integrated manner achieve substantial improvements in service availability (15-25%) [24, 45] and operational efficiency. Sectors

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such as finance [10, 45] and telecommunications [37, 52] report the greatest benefits, particularly in highly complex technological environments where early detection and self-remediation directly impact user experience and business continuity. Integration with DevOps approaches [11, 28] and the application of AI/ML [10, 11] are emerging as key trends for proactivity in modern environments.

5. Final Discussion and Future Work

The results of this systematic review reveal that the problems in adopting ITSM models are systemic and multifaceted, transcending mere technical difficulties. The predominance of organizational and strategic challenges over technical ones suggests that successful adoption depends less on the choice of framework and more on change management capabilities and strategic alignment.

Resistance to cultural change (82%) and a lack of managerial commitment (78%) emerge as critical barriers, consistent with previous studies highlighting the importance of "soft" factors in digital transformations. However, the taxonomy clarifies this understanding by demonstrating how these issues intertwine with resource and operational challenges, creating cycles of failure that perpetuate fragmented implementations.

While previous research focused on the technical complexity of frameworks [8, 18], the results reveal a shift, as Agile-ITSM integration (45%) and IT/OT convergence (35%) now represent new challenges that demand fundamental adaptations to traditional models. This suggests that ITSM frameworks must evolve toward greater flexibility and integration with modern development methodologies.

On the other hand, the shortage of specialized talent (71%) outweighs financial limitations (67%), a finding that contrasts with previous studies where budget was the main barrier [7]. This may reflect the increasing complexity of technology ecosystems and the competitive demand for specialized ITSM skills.

The results demonstrate that success in implementing ITSM models requires a holistic approach that simultaneously addresses strategic, organizational, technical, and resource dimensions.

Regarding future work, studies of proactive methods using AI can be explored further, as the literature review reveals that AI adoption in ITSM is in its early stages, with only 38% of studies Bejarano et al. [10]; Dzemydienė et al. [11] and Tae and Hung [52] addressing specific applications, primarily in basic automation and superficial predictive analytics. A significant gap exists between the theoretical potential of AI and its effective practical implementation in real-world service management environments.

Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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