

# Analysis of the Implementation of the ITIL Framework in Information Technology Service Management at Universities

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## Abstract

This study examines the implementation of the Information Technology Infrastructure Library (ITIL) framework in information technology service management at universities through a literature review approach. This study provides a synthesis of ITIL implementation trends in higher education and identifies gaps for future research. The study used a qualitative descriptive method by analyzing 15 scientific articles obtained from various academic databases.

The results show that the Service Operation domain is the most widely implemented ITIL domain, particularly in incident management, request fulfillment, and service desk activities. Of the 15 reviewed articles, most studies focused on operational IT service management to improve service responsiveness and system stability.

The findings also indicate that ITIL implementation helps improve IT service quality, accelerate incident resolution, enhance service effectiveness, and increase user satisfaction. However, ITIL implementation in higher education institutions is still limited to operational aspects and has not comprehensively implemented the entire ITIL lifecycle, such as Service Design, Service Transition, and Continual Service Improvement.

The main challenges identified include limited human resources, lack of understanding of the ITIL framework, and insufficient integration of IT service management systems. Therefore, further development of ITIL implementation is needed to support more comprehensive and integrated IT service management in higher education institutions.

**Keywords:** Higher Education; Information Technology Service Management; ITIL; Literature Review; Service Operation

## 1. Introduction

The development of information technology in higher education institutions is currently advancing at a rapid pace and has become an essential component in supporting various academic and administrative activities. The use of information technology is not limited to serving as a learning support tool; it also plays a role in academic data management, administrative services, e-learning systems, and communication between students and educational institutions. Therefore, the quality of information technology services is a key factor that higher education institutions must prioritize to ensure that the services provided operate effectively and efficiently.

In practice, the management of information technology services often faces various challenges, such as slow response times to system outages, suboptimal user services, and a lack of standardization in IT service processes. These conditions can affect the quality of services received by users, including students, faculty, and staff. These issues indicate that universities need an approach that can help manage information technology services in a more structured and focused manner [1].

One of the most widely used frameworks in information technology service management is the Information Technology Infrastructure Library (ITIL). This framework provides guidelines and best practices for managing IT services, covering processes ranging from planning and development to service operations and ongoing service evaluation. The implementation of ITIL is considered effective in helping organizations improve service quality, accelerate incident resolution, and enhance the effectiveness of IT service processes [2].

Previous studies have shown that the implementation of ITIL in educational institutions generally focuses on the Service Operation domain, as it is directly related to daily service operations. This domain includes incident management, the service desk, and request fulfillment, which serve to address In addition, the implementation of the ITIL framework is also considered capable of improving the standardization of service processes and helping organizations manage IT services in a more measurable way service disruptions and user needs in a more responsive manner [3]. In addition, the implementation of the ITIL framework is also considered capable of improving the standardization of service processes and helping organizations manage IT services in a more measurable way [4].

Nevertheless, the implementation of the ITIL framework in higher education institutions still faces several challenges. Several studies indicate that limited human resources, a lack of understanding of the ITIL framework, and suboptimal integration of service systems are factors that influence the ITIL implementation process[5]. In addition, the implementation of ITIL in various institutions still tends to focus on operational aspects and does not yet cover the entire service lifecycle comprehensively [6].

Given these circumstances, this study was conducted to analyze the application of the ITIL framework in information technology service management at universities, based on various previous studies. This study is expected to provide an overview of the most widely applied ITIL domains, the benefits of ITIL implementation, and the challenges still faced in managing information technology services in the university setting.

## **2. Research Methodology**

This study employs a literature review approach using a qualitative descriptive method. This method was used to identify, examine, and analyze various findings from previous studies related to the implementation of the Information Technology Infrastructure Library (ITIL) framework in information technology service management at universities in Indonesia [7].

The literature review method was chosen because this study does not involve the collection of primary data in the field, but rather uses secondary data sourced from previously published scientific articles. This approach allows the researcher to gain a comprehensive understanding of trends, implementation patterns, benefits, and challenges associated with ITIL implementation based on the results of previous research[8].

### **2.1. References**

The data sources for this study were scientific articles obtained from national journals, open-access journals, Google Scholar, and ResearchGate that were relevant to the research topic [9].

The articles used were selected based on the following criteria:

1. Discuss the Information Technology Infrastructure Library (ITIL) framework
2. Relates to IT Service Management
3. The study was conducted at a university or organization that implements IT services
4. Includes a discussion of ITIL domains, benefits, or implementation challenges
5. Is a scientific article available in (full text)

### **2.2. Literature Review Methods**

The literature review was conducted through a systematic search using relevant keywords, namely: "ITIL framework," "IT Service Management," "ITIL Service Operation," "IT service management," and "higher education institutions" [10]. The literature was collected from the Google Scholar database, accredited national journals, and other scientific repositories. Once obtained, the materials underwent a selection process based on the relevance of the title, abstract, and content to the research focus

### **2.3. Literature Review Techniques**

The literature review was conducted using a qualitative descriptive analysis method with a thematic approach. Each article was analyzed to identify key patterns related to the implementation of the ITIL framework [11].

The analysis process was conducted as follows:

1. Reading and understanding all the collected articles
2. Grouping the research findings based on main themes
3. Comparing findings across studies
4. Synthesizing the findings to identify common patterns and conclusions

The analysis focuses on four main aspects, namely:

1. The ITIL domains used in the study
2. The benefits of implementing the ITIL framework
3. Challenges in implementing ITIL
4. Patterns of ITIL implementation in higher education institutions

### **2.4. Research Procedures**

The research steps in this literature review are as follows:

1. Identification of the research topic and scope
2. Collection of relevant scientific articles
3. Selection of articles based on inclusion criteria
4. Content analysis of each article
5. Grouping of data based on research themes
6. Synthesis of the literature analysis results
7. Formulation of research conclusions

### 3. Results and Discussion

#### 3.1. The Application of the ITIL Framework in Previous Research

To provide a clearer overview of the literature analyzed in this study, Table 1 presents the 15 scientific articles reviewed, including the research focus, ITIL domains applied, and the main findings of each study.

**Table 1.** Summary of Reviewed Articles

| No | Author                      | Year | Research Object                    | ITIL Domain                              | Main Findings                                                       |
|----|-----------------------------|------|------------------------------------|------------------------------------------|---------------------------------------------------------------------|
| 1  | Prayogo et al.              | 2023 | IT Service Management in Indonesia | ITIL Framework                           | ITIL improves IT service management standardization                 |
| 2  | Meidiandra & Sutabri        | 2023 | Operational Unit Services          | Service Operation                        | Improved effectiveness of IT services                               |
| 3  | Albert et al.               | 2024 | Universities in Indonesia          | Service Operation                        | Service desk and incident management improve service responsiveness |
| 4  | Herlinudinkhaji & Ramadhani | 2023 | IT Service Governance              | ITIL V4                                  | ITIL supports measurable service estimation                         |
| 5  | Damayanti & Megira          | 2023 | E-learning Services                | Service Operation                        | ITIL improves e-learning service management                         |
| 6  | Retnawiyati et al.          | 2020 | LLDIKTI Region II                  | ITIL V3                                  | ITIL supports structured IT service management                      |
| 7  | Fiqri & Sutabri             | 2023 | E-learning at SMK Muhammadiyah     | Service Operation                        | Faster handling of IT service issues                                |
| 8  | Lazuardi & Sutabri          | 2023 | Information System at BNN SUMSEL   | ITSM and ITIL V3                         | Improved IT service monitoring                                      |
| 9  | Suban et al.                | 2020 | UAJY Library                       | ITIL V3                                  | Increased IT service quality                                        |
| 10 | Stiper et al.               | 2023 | Administrative Services            | ITSM                                     | Better management of administrative services                        |
| 11 | Ekadana & Kurniawan         | 2024 | Universitas Ma Chung               | Service Strategy and Service Design      | ITIL supports service planning and design                           |
| 12 | Putri & Sutabri             | 2023 | CV. Cemerlang Komputer             | Service Operation                        | Improved incident handling process                                  |
| 13 | Aryani & Absharina          | 2024 | Cloud Computing Security           | IT Governance                            | ITIL contributes to IT risk mitigation                              |
| 14 | Pada & Ma                   | 2023 | Universitas Ma Chung               | Service Transition and Service Operation | ITIL improves service transition processes                          |
| 15 | Dheanda                     | 2023 | RF Mobile Application              | User Satisfaction Analysis               | IT services increase user satisfaction                              |

Based on the analysis of 15 scientific articles reviewed, the application of the Information Technology Infrastructure Library (ITIL) framework in information technology service management at universities and organizations in Indonesia shows an implementation pattern focused on improving the quality of IT services.

Most studies show that the Service Operation domain is the most widely implemented domain, particularly in incident management, request fulfillment, and service desk activities. These processes help organizations respond more quickly to system disruptions and user requests. Most studies also indicate that ITIL is used to standardize IT service processes, making them more structured, measurable, and responsive to user needs. In previous studies, ITIL implementation was generally applied to incident management, service requests, and IT service operations management [12].

In addition, several studies have shown that the implementation of ITIL helps organizations improve the effectiveness of IT service management through process documentation, standardization of procedures, and improved service quality for users. This demonstrates that ITIL plays a crucial role as a best-practice framework in supporting better information technology service management [13].

#### 3.2. The Most Widely Implemented ITIL Domains

The results of the literature review indicate that not all ITIL domains were used equally in the studies examined. The most frequently used domain was Service Operation, which encompasses processes such as incident management, request fulfillment, and service desk.

The dominance of Service Operation indicates that the primary focus of ITIL implementation in higher education institutions remains at the operational level, where responses to service disruptions or user requests are reactive in nature. This is because the primary need of educational institutions is to ensure that information technology services remain stable and readily available to users.

In addition to Service Operations, another frequently mentioned area is Incident Management, which plays a role in addressing service disruptions quickly and in a structured manner [14]. This domain is widely used because it can speed up the service recovery process in the event of a system outage.

Furthermore, the Service Desk is also a key component of ITIL implementation, as it serves as the primary point of contact between users and the IT team for handling complaints and service requests.

Meanwhile, other domains such as Service Design, Service Transition, and Continual Service Improvement are still rarely implemented comprehensively in the studies analyzed. This indicates that the implementation of ITIL in higher education institutions does not yet cover the entire service lifecycle.

### 3.3. Benefits of Implementing the ITIL Framework

Based on the results of a literature review, the implementation of the ITIL framework offers various benefits for information technology service management in higher education institutions. The primary benefit most frequently identified is an improvement in the quality of IT services. Through process standardization, services become more structured and consistent, thereby reducing inconsistencies in service management. Additionally, ITIL also offers benefits in terms of efficiency in issue resolution. Incident handling and service request processes become faster due to clear and documented workflows. The implementation of ITIL also leads to increased satisfaction among service users, such as students, faculty, and academic staff. This is because IT services become more responsive, transparent, and easily accessible. Furthermore, ITIL helps organizations improve IT service documentation and control, so that every process can be continuously evaluated and improved.[15]

### 3.4. Challenges in Implementing the ITIL Framework

Although it offers many benefits, various studies on the implementation of the ITIL framework have also identified several challenges. The most common challenge is a lack of understanding of the ITIL framework among IT service managers. This results in ITIL implementation not functioning optimally and being applied only to specific areas. Another challenge is the limited availability of personnel with the necessary competencies for ITIL-based IT service management. A lack of training and certification prevents ITIL implementation from meeting best practice standards.

In addition, the fact that ITIL implementation remains partial is another significant challenge. Many organizations implement only a small portion of the ITIL domains—primarily operational aspects—without adopting the full ITIL lifecycle. Another challenge is the lack of an integrated IT service support system, which means that service recording and management processes are still carried out manually or semi-manually.

### 3.5. Summary of the Literature

Based on a synthesis of the analyzed articles, it can be concluded that the implementation of the ITIL framework in Indonesia, particularly in higher education institutions, still focuses on the operational aspects of service delivery.

Service Operation is the most widely used domain, with a primary focus on incident management and user support. This indicates that ITIL implementation is still in the operational phase and has not yet fully evolved toward strategic initiatives and continuous improvement.

In terms of benefits, ITIL has proven effective in improving service quality, process efficiency, and IT service user satisfaction. However, the implementation of ITIL still faces challenges such as limited human resources, a lack of understanding of the framework, and suboptimal integration of service systems.

Thus, it can be concluded that ITIL has great potential for improving information technology service management; however, its implementation still needs to be refined to cover the entire service lifecycle more comprehensively

## 4. Conclusion

Based on an analysis of scientific articles discussing the application of the Information Technology Infrastructure Library (ITIL) framework in information technology service management at universities, it can be concluded that ITIL implementation at various educational institutions in Indonesia is still dominated by the Service Operation domain. This domain primarily covers incident management and service desk processes, which focus on handling service disruptions and direct user requests.

The study findings indicate that the implementation of ITIL generally has a positive impact on improving the quality of information technology services at universities. ITIL helps organizations standardize service processes, expedite the resolution of system incidents, and enhance service responsiveness to the needs of users such as students, faculty, and staff. Additionally, the implementation of ITIL also contributes to increased user satisfaction because services become more structured, well-documented, and easily accessible.

Nevertheless, the implementation of the ITIL framework observed in various studies remains suboptimal and tends to be fragmented. Many institutions implement only a small portion of the ITIL framework—particularly the operational aspects—without integrating the entire ITIL lifecycle, such as Service Design, Service Transition, and Continual Service Improvement. This indicates that the adoption of ITIL is still in its early stages of development within the higher education sector.

In addition, there are several major obstacles hindering the comprehensive implementation of ITIL, including a shortage of personnel who understand ITIL concepts, a lack of training or certification in IT Service Management, and the suboptimal integration of information technology systems that support the full implementation of ITIL.

Based on these findings, it can be concluded that ITIL has great potential to improve information technology service management in higher education institutions. However, to achieve more optimal results, a comprehensive development of ITIL implementation, enhanced human resource competencies, and better service system integration are required. Further research is also recommended to examine end-to-end ITIL implementation and link it to the digital transformation of higher education services.

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