Journal of Innovative and Creativity
Journal Homepage: https://joecy.org/index.php/joecy
e-mail: journaljoecy@gmail.com

Faculty of Education
University of Pahlawan Tuanku Tambusai
ISSN 2775-771X (Online)
ISSN 2962-570X (Printed)
5 (2) 2025, Page: 18487-18491

Optimizing Incident Management With Itil V4 Framework For Internet Network Stability At Mahardika Institute Of Technology And Health Cirebon

Ahmad Ngiliyun[1], Franciskus Antonius Alijoyo[2]
[1]Informatics, Institut Teknologi dan Kesehatan Mahardika, Cirebon
[2]School of Business and Information Technology STMIK LIKMI Bandung – Indonesia
Corresponding Author: [1]ahmadngiliyun@gmail.com, [2]franciskus.antonius.alijoyo63@gmail.com

Published: Agust , 2025

ABSTRACT

In the evolving digital era, computer networks have become vital infrastructure for various institutions and organizations, including educational institutions such as the Mahardika Institute of Technology and Health. At the same time, network instability can cause disruptions in daily activities, including teaching and learning activities, access to information resources, and various other support services. This research aims to identify and address network instability at the Mahardika Institute of Technology and Health using a Case Study research method.

Keywords: Incident Management, ITIL v4 Framework

© The Author(s). 2021 Open Access This article is licensed under a Creative Commons Atibution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. To view a copy of this licence, visit http://creativecommons.org/licenses/by/4.0

INTRODUCTION

The availability and stability of internet networks are critical factors supporting the smooth running of educational and administrative activities in higher education institutions, especially in the current digital era (Pontoan et al., 2023; Wibowo et al., 2018). However, the presence of information technology also often brings various risks and incidents that affect network availability, security, and performance (Hamidha & Jimmie, 2022; Siswanto et al., 2021). In facing these risks and incidents, higher education institutions need to implement incident management to address and minimize the negative impacts caused (Alijoyo & Fisabilillah, 2021).

Incident management is a systematic and structured approach to managing incidents that occur in the information technology environment (Haryadi, Wijayanti, et al., 2021). There are several methods or frameworks that can be used in managing incident management. Some of these frameworks include ITIL version 4 framework (Kurniawan et al., 2022; Nugroho & Fianty, 2023), COBIT 5 (Arthananda & Wella, 2022), NIST framework (Haryadi, Yuliandari, et al., 2021), and ISO 20000 (Aurachman et al., 2021). In the context of incident management in higher education institutions, the use of ITIL version 4 framework is highly relevant because this framework refers to best practices in information technology service management.

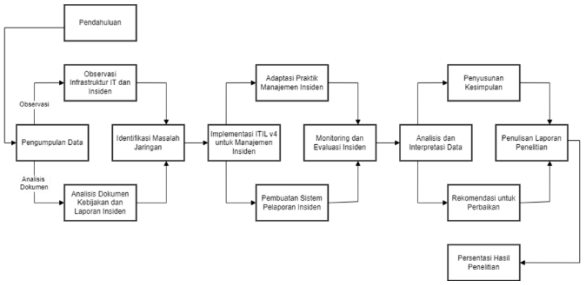
Mahardika Institute of Technology and Health Cirebon, as an educational institution that prioritizes innovation and technology, faces challenges in ensuring the stability of its internet

network. Network instability in several buildings has caused disruptions in the teaching and learning process, research, and daily operations. By using fiber optic services from Biznet and Indihome, as well as infrastructure consisting of MikroTik technology and 15 access points scattered across various units such as the Foundation for Providers (YPIM), Rectorate, Faculties, to dormitories and students, this institute faces issues of unstable access speed and unstructured incident reporting systems. This highlights the urgent need for an effective incident management strategy to address these issues.

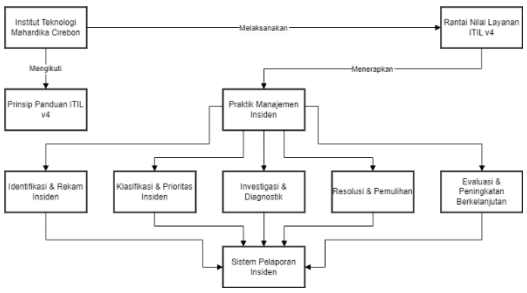
In this context, the implementation of ITIL v4 framework, which is a global standard for IT service management, becomes highly relevant. ITIL v4 offers structured guidance for incident management, focusing not only on restoring disrupted IT services but also on understanding and preventing future incidents (Nugroho & Fianty, 2023). With direct experience as part of the institute's IT support team, the researcher has unique access to information and deep understanding of the challenges faced. Therefore, this research aims to explore how the implementation of incident management practices according to ITIL v4 can help improve the stability of the internet network at Mahardika Institute of Technology and Health Cirebon, ensuring the smooth running of academic and administrative activities, and enhancing user satisfaction.

METHOD

This research employs a qualitative approach to gain a deep understanding of how the implementation of ITIL v4 can optimize incident management and improve internet network stability. The qualitative approach is chosen because it allows the researcher to explore perceptions, experiences, and operational contexts at Mahardika Institute of Technology and Health Cirebon in depth.



RESULTS AND DISCUSSION



The implementation of ITIL v4 at Mahardika Institute has demonstrated strategic integration between IT service management principles and institutional needs. In the "Plan" component, the designed incident reporting strategy has contributed to the institutional vision by incorporating it into the master development plan. The "Engage" phase showcases the importance of two-way communication between users and service managers, where interview frameworks and feedback questionnaires have been established, indicating the Institute's dedication to listening to and addressing user input. The design and transition of the website-based reporting system emphasize the importance of user experience, making it easier for stakeholders to report incidents.

In the "Obtain/Build" stage, cloud-based automation promises scalability and flexibility, while "Deliver and Support" emphasizes a commitment to affordability and systematic integration with network monitoring tools. The "Improve" process supports dynamic growth, leveraging data and analytics to enhance services. In ITIL practices, risk management in the reporting system reflects a strong security awareness, and a focus on user services underscores the Institute's service-oriented approach. Integration with ITSM platforms like Atlassian Jira Service Management under "Technology Management Practices" strengthens the technology foundation with leading industry solutions.

The ITIL guiding principles, from "Focus on Value" to "Optimize and Automate," create an environment that supports continuous service improvement. "Governance" reinforces strategic guidance by incorporating manual documents into academic standards, and the "Continual Improvement" approach underscores a commitment to ever-evolving quality. Overall, these initiatives illustrate how Mahardika Institute not only embraces ITIL v4 as a theoretical framework but also as a living and breathing practice that contributes to holistic institutional digital transformation.

CONCLUSION

From the research on the implementation of the ITIL v4 framework at Mahardika Institute Cirebon, it can be concluded that the adoption of this framework in internet network incident management has positively contributed to the efficiency and effectiveness of IT services. The process from strategic planning to continuous service improvement has shown improvements in incident handling and user satisfaction. Integrated strategies, user-centric approaches, and the implementation of advanced technology demonstrate that the research goal of producing an effective incident

management system has been achieved. This provides a strong foundation for Mahardika Institute Cirebon to maintain the stability of its internet network..

REFERENCES

Alijoyo, A., & Fisabilillah, A. F. (2021). Risk Management Implementation in Public Sector Organizations: A Case Study of Indonesia. Organizational Cultures: An International Journal, 22(1), 1–23. https://doi.org/10.18848/2327-8013/CGP/v22i01/1-23

Arthananda, K. P., & Wella, W. (2022). The Role of COBIT5 as a Reference for Quality Service Quality Improvement. Ultima InfoSys: Jurnal Ilmu Sistem Informasi, 94–100. https://doi.org/10.31937/si.v12i2.2181

Aurachman, R., Sudianto, Y., & Utomo, N. S. (2021). Information system planning process design based on clause 8 iso 20000-1:2018 using sysml language. IOP Conference Series: Materials Science and Engineering, 1010(1), 012009. https://doi.org/10.1088/1757-899X/1010/1/012009

Azizah, N., Kusumawati, Y., & Sani, R. R. (2020). Perancangan Manajemen Insiden pada Layanan Teknologi Informasi Inventory Menggunakan Framework ITIL Versi3 (Studi Kasus: PT. Genta Semar Mandiri Semarang). JOINS (Journal of Information System), 5(1), 136–146. https://doi.org/10.33633/joins.v5i1.3610

Berger, D., Shashidhar, N., & Varol, C. (2020). Using ITIL 4 in Security Management. 2020 8th International Symposium on Digital Forensics and Security (ISDFS), 1–6. https://doi.org/10.1109/ISDFS49300.2020.9116257

Dayal, R., Vijayakumar, V., Kushwaha, R. C., Kumar, A., Ambeth Kumar, V. D., & Kumar, A. (2020). A cognitive model for adopting ITIL framework to improve IT services in Indian IT industries. Journal of Intelligent & Fuzzy Systems, 39(6), 8091–8102. https://doi.org/10.3233/JIFS-189131

Hamidha, E. & Jimmie. (2022). Design of local area network at the laboratory of sma 2 pgri palembang. International Journal Cister, 1(02), 76–79. https://doi.org/10.56481/cister.v1i02.139

Haryadi, E., Wijayanti, D., Yuliandari, D., -, S., & Bambang, A. (2021). DESIGN OF MANAGEMENT INFORMATION SYSTEM OF FINAL ASSIGNMENT GUIDANCE (SIMBITA) WEB-BASED. JURNAL TEKNOLOGI DAN OPEN SOURCE, 4(1), 28–36. https://doi.org/10.36378/jtos.v4i1.1313

Haryadi, E., Yuliandari, D., Abdussomad, A., Wijayanti, D., Amelia, M., & Syafrianto, S. (2021). Maintaining The Continuity of The Company's Operation using the NIST Framework for SME. Jurnal Teknik Komputer, 7(1), 74–78. https://doi.org/10.31294/jtk.v7i1.9486

Kurniawan, S. E. D., Widodo, A., & Nugroho, A. (2022). Meningkatkan Sistem Layanan Pelanggan Dengan Pendekatan Framework ITIL. JOINTECS (Journal of Information Technology and Computer Science), 7(1), 1. https://doi.org/10.31328/jointecs.v7i1.2550

Nugroho, A. F. J., & Fianty, M. I. (2023). Streamlining IT Help Desk and Incident Management: Harnessing the Power of the ITIL Framework for Enhanced Efficiency in IT Services. Journal of Information Systems and Informatics, 5(2), 683–695. https://doi.org/10.51519/journalisi.v5i2.496

Palilingan, V. R., & Batmetan, J. R. (2018). Incident Management in Academic Information System using ITIL Framework. IOP Conference Series: Materials Science and Engineering, 306, 012110. https://doi.org/10.1088/1757-899X/306/1/012110

Pontoan, M. C., SIhotang, J. I., & Lompoliu, E. (2023). Information Security Analysis of Online Education Management System using Information Technology Infrastructure Library Version 3. MATRIK: Jurnal Manajemen, Teknik Informatika dan Rekayasa Komputer, 22(2), 207–216. https://doi.org/10.30812/matrik.v22i2.2474

Siswanto, D., Priyandoko, G., Tjahjono, N., Putri, R. S., Sabela, N. B., & Muzakki, M. I. (2021). Development of Information and Communication Technology Infrastructure in School using an Approach of the Network Development Life Cycle Method. Journal of Physics: Conference Series, 1908(1), 012026. https://doi.org/10.1088/1742-6596/1908/1/012026

Wibowo, A., Nugroho, A., Marbun, P., & Chika Fransi, D. (2018). Information system planning strategy on higher education institution based computer: A case study of a STIKOM yos sudarso purwokerto Indonesia. International Journal of Engineering & Technology, 7(4), 2835. https://doi.org/10.14419/ijet.v7i4.17141