E-ISSN : 2963-4946
Vol. 2 No. September 12, 2024
Asian Journal of Social and Humanities
https://ajosh.org/

Evaluation of IT Service Level Infrastructure In Organizations Using ITIL (Information Technology Infrastructure Library) Version 3 Standardization

Achmad Randhy Hans, Gerry Firmansyah, Budi Tjahyono, Agung Mulyo Widodo
Universitas Esa Unggul, Indonesia
E-mail: randhy.h.s.dt@gmail.com, gerry@esaunggul.ac.id, agung.mulyo@esaunggul.ac.id, budi.tjahjono@esaunggul.ac.id

***Correspondence:** gerry@esaunggul.ac.id

KEYWORDS
ITIL; self-assessment; service management; service delivery

ABSTRACT
The rapid advancement of information technology has become a critical factor in supporting business processes, especially for startups operating 24/7. These businesses rely heavily on robust IT systems to ensure service availability. IT service assessment plays a vital role in evaluating and improving the quality of IT services within organizations. This study evaluates IT service management at PT Loyal.id using the ITIL (Information Technology Infrastructure Library) V3 framework, focusing on service management and service delivery. By implementing ITIL, the organization can enhance incident management, problem management, and service desk performance. The study uses a self-assessment tool in the form of a website for evaluation. The assessment revealed that IT services at PT Loyal.id are still inadequate, with service desk and incident management reaching only level 1.5, and problem management reaching level 2. The results indicate that the organization's IT services require significant improvements to meet ITIL standards and enhance service quality, ultimately aligning IT operations with business objectives.

Introduction

The rapid development of business and advancements in information technology today are highly significant, especially in supporting the progress of ongoing businesses. Many businesses, particularly startups, make information technology the backbone supporting every main business process to achieve their business goals. Startups that operate 24/7 require sufficiently robust information technology, which must always be ready to provide the needed services to support the business (Deyantoro et al., 2022).

By implementing IT service management based on the ITIL V.3 framework, organizations can effectively design incident management and problem management processes. The implementation of IT service management based on the ITIL V.3 framework enables organizations to establish standardized incident and problem management processes in their service operations. This involves creating standard

operating procedures derived from network assessments and IT service infrastructure evaluation results (Prayogo et al., 2023).

Furthermore, ITIL standardization facilitates the identification of areas needing improvement in IT services, allowing organizations to align their IT operations with overall business goals (Fiqri & Sutabri, 2023). It also provides a framework for establishing best practices and benchmarks in IT service management, leading to increased efficiency and alignment with business objectives. Moreover, periodic evaluations in line with ITIL standards can help organizations continually assess the performance and effectiveness of various aspects of IT services, such as change management and service level management, ensuring they add value to the business (Lestari et al., 2021).

In summary, implementing ITIL and adhering to its standards is essential in assessing and improving IT service management within organizations. By adopting and complying with ITIL standards, organizations can evaluate the quality of their IT services and ensure they meet customer needs (Herbayu et al., 2020). The ITIL V.3 framework forms the basis for implementing critical IT service management processes to maintain and enhance IT services within an organization. This framework provides a structured approach to incident and problem management, allowing organizations to establish standard procedures derived from network assessments and infrastructure evaluations (Handayani & Aziz, 2020).

In addition to optimizing incident and problem management, ITIL standardization enables organizations to continuously identify areas for improvement in their IT services, ensuring alignment with overall business goals. By establishing best practices and benchmarks, organizations can enhance the efficiency of their IT service management, ultimately fostering better alignment with business objectives (Marthaningrum et al., 2019).

Furthermore, integrating periodic assessments according to ITIL standards allows organizations to consistently evaluate the performance and effectiveness of various aspects of IT services, including change management and service level management (Yasmi et al., 2019). This continuous evaluation ensures that IT services continue to add value to the business and can adapt to the evolving needs of the organization and its customers. Overall, the adoption of the ITIL V.3 framework and compliance with its standards are crucial in assessing and improving IT service management within organizations, ultimately resulting in improved service quality and customer satisfaction (Triandini et al., 2019).

Study Literatur

ITIL

ITIL is a best practice framework for managing IT services, adaptable to any business environment. ITIL introduces a systematic methodology for managing IT services within an organization. Established in the late 1980s (Putri, 2023) by the UK government service provider, Central Computer and Telecommunication Agency (CCTA). Table 1 shows the history of ITIL development. The ITIL implementation framework is designed to deliver various benefits to an organization. Here are examples of potential benefits (H. Gunawan, 2019):

1. Increased user and customer satisfaction with IT services.
2. Improved service availability, directly leading to increased business profits and revenue.
3. Faster time to market for new products and services.

Over the years, there have been developments and modifications to the ITIL framework. The current version, ITIL v3, was developed in 2007 and consists of five core volumes (or books), namely Service Strategy, Service Design, Service Transition, Service Operation, and Continual Service Improvement (Aditya et al., 2019). The ITIL cycle is explained through the following five phases:

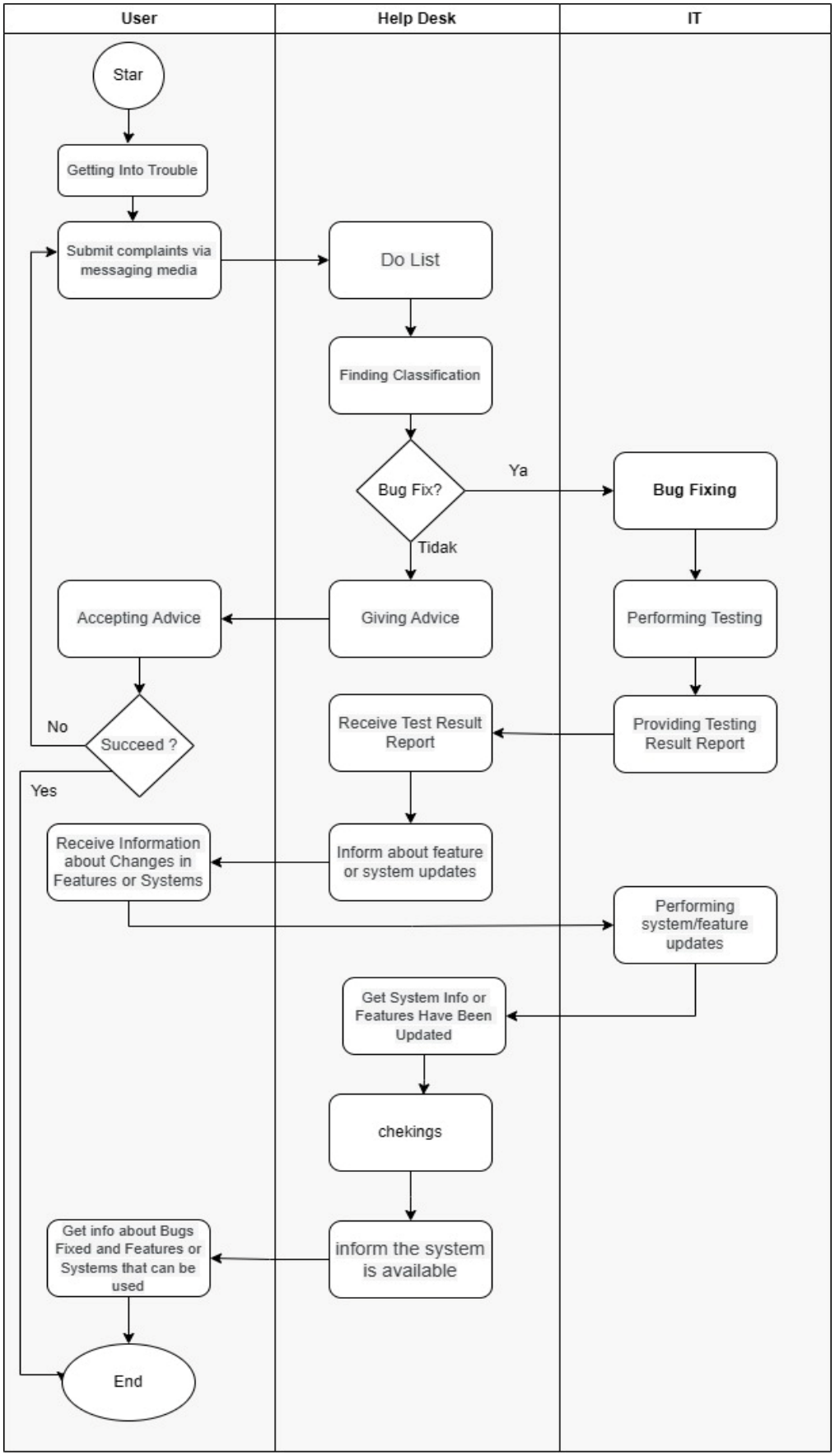
1. Service Strategy: This phase focuses on identifying the customers, the services to meet customer needs, the resources required to develop these services, and the conditions for successful service delivery. This phase tries to identify the client's business objectives and create an IT service portfolio to meet those goals. When developing a strategy, the costs incurred must be equivalent to the value provided to the client. This guide is presented in the form of basic principles of ITSM concepts, references, and core processes that operate throughout the ITIL Service Lifecycle stages.
2. Service Design: In this phase, we move from conceptualization to development. We need to start determining the necessary technology and architecture to provide the services required by customers. We should identify the management tools and systems needed to support and monitor the IT services planned to be offered. Under the service design stage, there should be a blueprint for a predictable and stable IT environment. Service Design includes principles and design methods to convert IT and business strategic objectives into a portfolio/collection of IT services and service assets such as servers, storage, etc. Service Design starts with a set of business requirements and ends with the development of a service solution designed to meet the documented business needs, and provides a Service Design Package (SDP) for use later in the Service Transition stage. The SDP defines all aspects of services and IT requirements through each stage in service design and is created for each new IT service, major change, or retired service (Handayani, 2020). Therefore, the scope of service design is not only to design new IT services but also to improve service quality, continuity, or performance (Febriant, 2009).
3. Service Transition: In the service transition phase, we must move from the blueprint to the actual building and testing of services that will eventually be produced. When entering this stage, the service design we have created will be moved to the operational stage. The environment in the design stage will also transition to the operational environment. This phase will provide an overview of the needs defined in the previous stages, so they can be realized effectively and efficiently in the next stage.
4. Service Operation: After the transition stage is complete, the focus of the service will shift to keeping the IT environment running smoothly. The services provided daily will be monitored for overall health. Additionally, if there are service disruptions, they must be quickly addressed, the root cause investigated, recurring issues analyzed, and user requests handled while keeping costs to a minimum. Guidance will also be provided on managing IT services effectively and efficiently so that the performance of IT services agreed upon and promised to customers can be met.
5. Continual Service Improvement (CSI): The CSI phase covers all stages of the service lifecycle. In this stage, the IT environment's performance will be assessed, measured, and improved. The term "continual" is used instead of "continuous" to emphasize achieving process efficiency through incremental or gradual improvements. The results of CSI are used to continually enhance infrastructure, workflows, and functionality as new technologies and practices emerge. CSI also incorporates various principles and methods from quality management.

Previous Research

No	Researcher	Research Topic	Research Results
1	(C. R. S. I. Putri et al., 2020)	Analysis, Design, Service Asset, and Configuration Management at PT Dirgantara Indonesia by Applying the ITIL V3 Framework	The result of this research is the design and implementation of service assets using ITIL.
2	(N. K. Gunawan et al., 2020)	Comparative study between the integration of ITIL and ISO / IEC 27001 with the integration of COBIT and ISO / IEC 27001	The result of this research is a comparative study of ITIL integrated with COBIT and ISO.
3	(Aditya et al., 2019)	Comparison of COBIT 2019 and ITIL V4 as Governance and IT Management Guides	The result of this research is a comparison of COBIT 2019 with ITIL v4 in IT Service Management.
4	(Joyto, 2021)	Analysis of the Comparison between COBIT 5.0 Framework and ITIL in Auditing Information Systems	The result of this research is a comparison between COBIT 5 and ITIL.
5	(G. B. Putri & Sutabri, 2023)	Analysis of Information Technology Service Management Using ITIL V3 Domain Service Operation in CV Company	The result of this research is the implementation of service management evaluation using ITIL in the service operation domain.

The running business process

The business process running at PT Loyal.id's IT services begins when the product is delivered to the client. At this stage, a soft launch will be conducted. However, during the system usage, users sometimes forget to use the system or encounter system issues. These issues are reported to PT Loyal.id through various chat platforms such as WhatsApp, email, or Google Forms. Sometimes, these reports are either lost or unread due to the volume of reports from various clients partnering with PT Loyal.id. Moreover, delays in responding to these findings also affect client performance and trust.

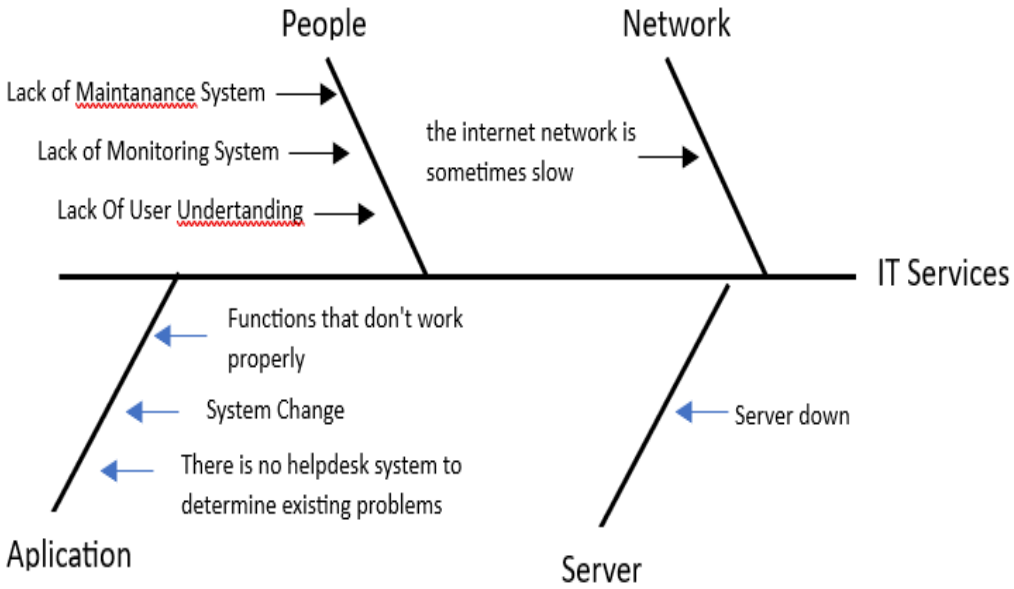

User
Help Desk
IT
Star
Getting Into Trouble
Submit complaints via messaging media
Do List
Finding Classification
Bug Fix?
Ya
Bug Fixing
Tidak
Accepting Advice
Giving Advice
Performing Testing
No
Succeed ?
Receive Test Result Report
Providing Testing Result Report
Yes
Receive Information about Changes in Features or Systems
Inform about feature or system updates
Performing system/feature updates
Get System Info or Features Have Been Updated
chekings
Get info about Bugs Fixed and Features or Systems that can be used
inform the system is available
End

Problem Analisis

No	Problem Analysis	Root Cause
1	The available features do not function properly.	• Lack of regular system maintenance from the relevant division. • Errors during deployment.
3	Slow response to user complaints	Lack of intensive monitoring of complaints
2	Servers frequently experience downtime.	Lack of intensive monitoring from both the internal organization and the vendor.
3	Internet network that is sometimes slow	Lack of monitoring of the support devices frequently used by the service division.
4	Difficulty in finding solutions when encountering a problem	There is no knowledge management system that records past issues and identifies solutions.

If the problem with the management information system is not complex, it can be resolved in approximately 3 hours. However, if the problem is very complex, the relevant system division usually takes up to 1-2 days to fix it, depending on the difficulty level of the issue.

Research Methods



Results and Discussions

IT Service Measurement

The measurement of IT services at PT Loyal.id is conducted by evaluating the IT services provided to clients from an internal perspective.

Service Desk

No	Level	Pass Requirement	Minimum Pass	Maximum Pass	Score Achieved	Score Difference	Status	Cumulative Score
1	Level 1: Pre-requisites	M+1	3	4	4	0	PASS	4
2	Level 1.5: Management Intent	M+1	7	9	9	0	PASS	13
3	Level 2: Process Capability	M+2	22	26	20	6	FAIL	33
4	Level 2.5: Internal Integration	M+2	3	7	5	2	PASS	38
5	Level 3: Products	M+1	13	16	4	12	FAIL	42
6	Level 3.5: Quality Control	M+1	7	8	8	0	PASS	50
7	Level 4: Management Information	M+1	7	8	7	1	PASS	57
8	Level 4.5: External Integration	M+2	5	6	6	0	PASS	63
9	Level 5: Customer Interface	M+1	5	5	1	4	FAIL	64
Total Score			72	89	64	25		

The conclusion from the service desk assessment results for IT services at PT Loyal.id is that it only reaches level 1.5. Here are the detailed results of the service desk questionnaire:

1. Pass (Level 1, Level 1.5, Level 2.5, Level 3.5, Level 4, Level 4.5)
2. Fail (Level 2, Level 3, and Level 5)

Although IT services at PT Loyal.id received a pass at levels 3.5, 4, and 4.5, they did not meet the mandatory requirements at level 2, resulting in a fail. Therefore, the IT service help desk at PT Loyal.id only reaches level 1.5.

No	Level	Pass Requirement	Minimum Pass	Maximum Pass	Score Achieved	Score Difference	Status	Cumulative Score
1	Level 1: Pre-requisites	M+1	3	4	3	1	PASS	3
2	Level 1.5: Management Intent	M+1	5	6	6	0	PASS	9
3	Level 2: Process Capability	M+1	25	28	9	19	FAIL	18
4	Level 2.5: Internal Integration	M+1	3	4	3	1	PASS	21
5	Level 3: Products	M+1	10	12	9	3	FAIL	30

6	Level 3.5: Quality Control	M+1	7	8	6	2	FAIL	36
7	Level 4: Management Information	M+2	5	6	4	2	FAIL	40
8	Level 4.5: External Integration	M+2	11	13	13	0	PASS	53
9	Level 5: Customer Interface	M+1	5	5	3	2	PASS	58
	Total Score		74	86	58	28		

Incident Management

The conclusion from the incident management assessment results for IT services at PT Loyal.id is that it only reaches level 1.5. Here are the detailed results of the incident management questionnaire:

1. Pass (Level 1, Level 1.5, Level 2.5, Level 3, Level 3.5, Level 4, Level 5)
2. Fail (Level 2 and Level 4.5)

Although IT services at PT Loyal.id received a pass at levels 2.5, 3, 3.5, 4, and 5, they did not meet the mandatory requirements at level 2, resulting in a fail. Therefore, in the aspect of Incident Management, IT services at PT Loyal.id only reach level 1.5.

Problem Management

No	Level	Pass Requirement	Minimum Pass	Maximum Pass	Score Achieved	Score Difference	Status	Cumulative Score
1	Level 1: Pre-requisites	M+1	4	6	4	2	PASS	4
2	Level 1.5: Management Intent	M+2	5	7	6	1	PASS	10
3	Level 2: Process Capability	M+2	14	17	15	2	PASS	25
4	Level 2.5: Internal Integration	M+2	8	10	8	2	PASS	33
5	Level 3: Products	M+1	4	5	2	3	FAIL	35
6	Level 3.5: Quality Control	M+1	5	6	4	2	FAIL	39
7	Level 4: Management Information	M+1	5	6	6	0	PASS	45
8	Level 4.5: External Integration	M+4	10	15	15	0	PASS	60
9	Level 5: Customer Interface	M+1	5	5	4	1	PASS	65
	Total Score		60	77	65	12		

The conclusion from the problem management assessment results for IT services at PT Loyal.id is that it only reaches level 2.5. Here are the detailed results of the problem management questionnaire:

1. Pass (Level 1, Level 1.5, Level 2, Level 2.5, Level 3.5, Level 4, Level 4.5, Level 5)
2. Fail (Level 3)

Although IT services at PT Loyal.id received a pass at levels 3.5, 4, 4.5, and 5, they did not meet the mandatory requirements at level 2, resulting in a fail. Therefore, in the aspect of Problem Management, IT services at PT Loyal.id only reach level 2.

Conclusion

Based on the discussions and assessments conducted using ITIL V3, the following conclusions can be drawn: All IT services (Help Desk) are treated equally across all sites (service desk, incident management, and problem management). The IT services provided by PT Loyal.id are still inadequate and require development as they are not yet optimal. After evaluating the level of IT services at PT Loyal.id, all sites are classified as "Not Comply." Upon internal evaluation, it can be concluded that there are still many shortcomings in the IT services provided by PT Loyal.id. This is evident from the lack of any site achieving compliance and the considerable distance to achieving excellent service.

References

Aditya, M. A., Mulyana, R. D., & Mulyawan, A. (2019). Perbandingan Cobit 2019 Dan Itil V4 Sebagai Panduan Tata Kelola Dan Management It. *Jurnal Computech & Bisnis (e-Journal)*, *13*(2), 100–105.

Deyantoro, A. F., Setyadi, R., & Saintika, Y. (2022). Penerapan Framework Information Technology Infrastructure Library (ITIL) Versi 3 pada Domain Service Operation untuk menganalisa Manajemen Layanan Teknologi Informasi. *JURIKOM (Jurnal Riset Komputer)*, *9*(3), 629–634.

Fiqri, A. M., & Sutabri, T. (2023). Analisis Manajemen Layanan E-Learning Berbasis Teknologi Informasi Menggunakan Framework ITIL Versi 3 Pada SMK Muhammadiyah 1 Palembang. *Indonesian Journal of Multidisciplinary on Social and Technology*, *1*(2), 74–80.

Gunawan, H. (2019). Strategic management for it services using the information technology infrastructure library (ITIL) framework. *2019 international conference on information management and technology (ICIMTech)*, *1*, 362–366.

Gunawan, N. K., Hadiprakoso, R. B., & Kabetta, H. (2020). Comparative study between the integration of ITIL and ISO/IEC 27001 with the integration of COBIT and ISO/IEC 27001. *IOP Conference Series: Materials Science and Engineering*, *852*(1), 12128.

Handayani, R. D., & Aziz, R. Z. A. (2020). Framework Information Technology Infrastructure Library (Itil V3): Audit Teknologi Informasi Sistem Informasi Akademik (Siakad) Perguruan Tinggi. *Explore: Jurnal Sistem Informasi dan Telematika*, *11*(1), 29–35.

Herbayu, D., Mursityo, Y. T., & Rachmadi, A. (2020). Evaluasi Layanan Data Center di Dinas Komunikasi dan Informatika Kota Batu dengan Menggunakan ITIL V. 3 Framework Sub Domain Common Service Operation dan Organizing Service Operation. *Jurnal Pengembangan Teknologi Informasi dan Ilmu Komputer*, *4*(9), 3143–3150.

Joyto, J. (2021). Analisis Perbandingan Framework COBIT 5.0 Dengan ITIL Dalam Mengaudit Sistem Informasi. *Jurnal Ilmiah Ilmu Terapan Universitas Jambi*, *5*(1), 76–85.

Lestari, I. E., Cholil, W., Antoni, D., Syamsuar, D., & Akbar, M. (2021). Perancangan Service Catalogue Pada Layanan IT Di Industri Pulp and Paper Divisi Teknikal Dokumen Kontrol Berdasarkan Framework ITIL Versi 3. *POSITIF: Jurnal Sistem Dan Teknologi Informasi*, *7*(2), 83–91.

Marthaningrum, H., Herlambang, A. D., & Putra, W. H. N. (2019). Evaluasi Pengelolaan Strategi dan Kerangka Kerja Teknologi Informasi pada Dinas Komunikasi dan Informatika Kota Malang Menggunakan COBIT 5. *Jurnal Pengembangan Teknologi Informasi dan Ilmu Komputer*, *3*(10), 9508–9517.

Prayogo, J. S., Alia, P. A., Setyadi, A. T., & Setyawan, A. B. (2023). Literature Review: Manajemen Layanan Teknologi Informasi dengan Framework Information Technology Infrastructure Library (ITIL) di Indonesia. *Jurnal Rekayasa Sistem Informasi dan Teknologi*, *1*(2), 154–158.

Putri, C. R. S. I., Abdurrahman, L., & Santosa, I. (2020). Analisis Perancangan Aset Layanan Dan Manajemen Konfigurasidi Pt. Dirgantara Indonesia Dengan Menerapkan Kerangka Kerja Itil V3. *eProceedings of Engineering*, *7*(2).

Putri, G. B., & Sutabri, T. (2023). Analisis Manajemen Layanan Teknologi Informasi Menggunakan ITIL V3 Domain Service Operation Pada Perusahaan CV. Cemerlang

Komputer Palembang. *Indonesian Journal of Multidisciplinary on Social and Technology*, *1*(2), 162–167.

Triandini, E., Jayanatha, S., Indrawan, A., Putra, G. W., & Iswara, B. (2019). Metode systematic literature review untuk identifikasi platform dan metode pengembangan sistem informasi di Indonesia. *Indonesian Journal of Information Systems*, *1*(2), 63–77.

Yasmi, P. S., Aknuranda, I., & Perdanakusuma, A. R. (2019). Evaluasi Maturitas Manajemen Layanan Infrastruktur Data Center di Dinas Komunikasi dan Informatika Kabupaten Gresik dengan Menggunakan ITIL v. 3 Framework. *Jurnal Pengembangan Teknologi Informasi dan Ilmu Komputer*, *3*(6), 5347–5356.