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Evaluation of Enterprise Resource Planning System Maturity with IT-IL V3 Framework at CV. Syntax Corporation Indonesia

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ABSTRACT

This research aims to evaluate the development of the Enterprise Resource Planning (ERP) service system at CV. Syntax Corporation Indonesia uses the IT-IL V3 framework, especially in the Service Operations domain. This research is conducted by analyzing the performance and effectiveness of the ERP system that has been implemented, as well as how the system supports the company's daily business operations. Through an IT-IL V3-based evaluation approach, the study assessed critical aspects of ERP service operations such as incident management, problem management, and request management. The findings of this study provide insights into the strengths and weaknesses in the ERP system implementation at the company, as well as recommendations for improvements that can increase efficiency and user satisfaction. Using the IT-IL V3 framework, this study provides practical guidance for better management and development of ERP systems in the future.

Introduction

In today's digital era, Enterprise Resource Planning (ERP) systems have become a vital component for many companies in managing and integrating their business processes efficiently (Al-Amin, Hossain, Islam, & Biwas, 2023). ERP brings together various corporate functions, such as accounting, human resources, and supply chain management, in one unified platform that supports better decision-making and speeds up workflows. Although many companies have adopted ERP systems, the implementation and management of these systems often pose significant challenges, especially in ensuring that the system runs optimally and supports dynamic business needs (Erturk & Arora, 2017).

CV. Syntax Corporation Indonesia is an example of a company that has implemented an ERP system to improve operational efficiency and integration. However, even though this system is designed to improve various business processes, there are times when companies experience problems in their day-to-day operations, such as incident handling, problem management, and demand fulfillment that do not go as

expected. This signals the need for an in-depth evaluation of the ERP system to ensure that it truly delivers the expected benefits and can adapt to changing business needs (Okanga & Groenewald, 2019).

Specifically, the Service Operations domain in the IT-IL V3 framework guides the management of IT services involving aspects such as incident management, issues, and requests (Verlaine, Jureta, & Faulkner, 2014). Using this framework, ERP system evaluation can be carried out with a more systematic and structured approach, allowing for more accurate identification of problems as well as a better understanding of how the system can be optimized. Implementing IT-IL V3 on an existing ERP system will help uncover the strengths and weaknesses in the operational system of CV. Syntax Corporation Indonesia (Pratama & Wella, 2024).

In addition, the application of IT-IL V3 in ERP system evaluation has not been widely carried out in a practical context such as in CV. Syntax Corporation Indonesia makes this research unique and innovative. With a focus on the Service Operations domain, the study aims to offer a new approach to managing and evaluating ERP systems, as well as provide practical recommendations for improvements that can improve the effectiveness and efficiency of enterprise operations. This evaluation is expected to make a significant contribution to ERP system management practices and help other companies facing similar challenges (Mahmood, Khan, & Bokhari, 2020).

The formulation of the problem in this study is how to evaluate the performance of the ERP system applied in CV. Syntax Corporation Indonesia can be implemented using the IT-IL V3 framework, especially in the Service Operations domain. What are the strengths and weaknesses identified in ERP system operations based on this evaluation? What are the recommendations for improvements that can improve the efficiency and effectiveness of the ERP system in the company? (Chopra, Sawant, Kodi, & Terkar, 2022).

The novelty of this study lies in the use of an IT-IL V3-based approach to evaluate the ERP system in CV. Syntax Corporation Indonesia. Although IT-IL V3 is often applied to IT services in general, its specific application to the ERP system Service Operations domain has not been widely explored in this context. This research provides a new perspective by linking the principles of IT-IL V3 with the operational management of ERP systems, which is expected to make a significant contribution to ERP system management practices in companies (Haq, Asadullah, & Manzoor, 2023).

The purpose of this study is to evaluate and analyze the development of the ERP service system in CV. Syntax Corporation Indonesia by using the IT-IL V3 framework, specifically in the Service Operations domain. This research aims to identify the strengths and weaknesses of existing ERP systems, as well as provide concrete recommendations for improvement. In addition, this research aims to provide practical and theoretical insights that can be used to improve the management of ERP systems in other companies with similar characteristics (Ruivo, Oliveira, & Neto, 2014).

This research has several limitations that need to be considered. First, the main focus of this research is on the Service Operations domain of the IT-IL V3 framework

and does not cover the entire IT-IL V3 domain. Second, this research is limited to the ERP system implemented in CV. Syntax Corporation Indonesia does not include comparisons with ERP systems in other companies. Third, the analysis carried out is more focused on the managerial and operational aspects and does not cover the in-depth technical aspects of the ERP system implementation.

Method

This study uses the IT-IL V3 Framework method in the service operation domain. This is in contrast to V2, which provides a separate practical scope with grouping across deployment, support, and security management.

a. Framework IT-IL V3

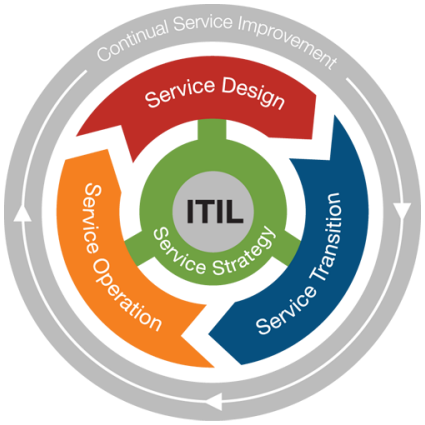

Figure 1 IT-IL V3 Framework

IT-IL is a set of concepts and methodologies for managing IT infrastructure, development, and operations that provide detailed processes, steps, and tasks to achieve integration between IT and organizational strategy when implementing ITSM in an organization (Hamzane & Belangour, 2019). There are four main parts of IT services which are as follows:

1. Service Strategy is the phase where you design, develop, and implement service management for strategic resources.
2. Service Design is the design phase of the development of the right IT services, including architecture, processes, policies, and documentation. The design goal is to meet the needs of current and future businesses.
3. Service Transition is a phase used to develop and improve functionality to move new and changed services into production.
4. Service Operation is the phase where the effectiveness of delivery and support is achieved to ensure value for customers and service providers.

b. RACI

RACI stands for Responsible, Accountable, Consulted, and Informed. RACI is a process to carry out tasks, activities, initiatives, decisions, or audits to determine who is

accountable, informed, or consulted. RACI is typically used for service tools that assist in management, and defining employee roles and responsibilities. The tools used for RACI analysis are as follows:

1) Responsible, carrying out decisions on answers responsibly.
2) Accountable, authorized to approve decisions on answers.
3) Consulted, someone whose opinion can be obtained through two-way communication with someone.
4) Informed, those who are informed after a decision has been made through one-sided communication with someone.

c. Maturity Level

It is a method that can be used to measure the maturity of information technology service management in an organization. The maturity level includes the Process Maturity Framework (PMF) which has six levels including level) (None), Level 1 (Beginning), Level 2 (repeatable), Level 3 (Definition), Level 4 (Management), and Level 5 (Optimization). The higher the score or number you get for your maturity level, the better the process of managing technology services. Indirectly, this means trust, meaning you can be more confident that your IT support is on track to achieve your desired goals.

Table 1. Maturity Level

No	Level	Focus	Commentary
0	Non-existent	-	No IT process
1	Initial	Technology	Superior Technology
2	Repeatable	Service	Service Operations
3	Defined	Customer	Management Level Services
4	Manage d	Business	Management Level Business
5	Optimized		

Results And Discussion

RACI Chart

The RACI Chart is a tool used to assist you in identifying the roles and responsibilities of each employee. Accountability refers to the role and responsibility of employees in meeting the needs of the organization, so it is clear who is doing what. The person in charge explained who has the right to say yes or no to the implementation of the decision. Here is an example of a mapping from the RACI Chart.

Table 2. RACI Chart

Sub Domain	Head of Operation	Developer	Operation Manager

Service Management as aPractice	RACE	RI	RAC
Service Operation Principles	RACE	I	RC
Service Operation Processes	CI	RACE	RC
Common Service Operation Activities	I	RACE	-
Organising Service Operation	RACE	RACE	RC
Service Operation Technology Consideration	I	RACE	-
Implementing Service Operation	CI	RCI	R

Source: Author 2024

Based on the table above, the head of operation has an informed role in all activities. The reason is that operations managers have the responsibility and perspective to ensure that IT is applied to their talents to ensure that they do not deviate from the operational management that has been set. Next, there are some activities and additions that include the letter "A". And lastly, there is the operational manager, it seems that there is only one activity with the letter "A" because the operational manager has the authority to make decisions and carry them out.

Questionnaire Results

The following is a summary table of the final results of the questionnaire that has been obtained. You can see the total number of Yes and No in the table below, the largest number of Yes is found on the problem management site and the incident management site gets the lowest number of Yes than other sites.

Table 3. Summary of the final results of the questionnaire

KD	Expert Respondents	*Service Desk*						*Incident Management*						*Problem Management*					
		Menu		CRM		Export		Menu		CRM		Export		Menu		CRM		Export	
		Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
A	Founder/Director	38	10	38	10	38	10	25	22	25	22	25	22	14	36	14	36	14	36
B	*Board of Supervisor*	37	11	37	11	37	11	26	21	26	21	26	21	13	37	13	37	13	37
C	*President Director*	31	17	31	17	31	17	22	25	22	25	22	25	13	37	13	37	13	37
Jumlah Total		106	38	106	38	106	38	73	68	73	68	73	68	40	110	40	110	40	110

Source: Author 2024

Based on the final results of the questionnaire obtained, the research continued by implementing IT-IL self-assessment (high-level self-assessment). There are a few additional columns that distinguish it from the previous table.

Maturity of CV Syntax Corporation Indonesia's ERP service

The maturity of CV Syntax Corporation Indonesia's ERP services can be measured using the IT-IL Maturity Level Self-assessment. With this method, an organization/company can understand the extent of the maturity of their IT services. To get the expected results, the organization/company must meet the minimum requirements that have been determined. There are 9 assessment areas to measure Maturity Level, including:

a. Level 1: Pre-requires
b. Level 1.5: Management Intent
c. Level 2.5: Process Capability
d. Level 3: Products
e. Level 3.5: Quality Control
f. Level 4: Management Information
g. Level 4.5: External Integration
h. Level 5: Customer Interface

An organization/company measures the level of service maturity by using IT-IL maturity level self-assessment can be done step-by-step starting from level 1 to level 5 sequentially. If level 1 has met the minimum requirements that have been determined, then the measurement can be continued to a higher level (Graham et al., 2019).

Another way is to measure at all levels first to find out the achievements of the organization/company at all levels. That way, it can be seen the level of time that is PASS

(pass) or FAIL (fail). If level 1 to level 2 get a PASS status, but at level 3 get a fail status, then the organization/company only reaches level 2 even though level 4 gets a pass status.

To explain the results of the maturity level self-assessment so that it can be easily understood, the data obtained is processed in the form of tables. The table displays data containing ERP service achievement values, as well as limitations and requirements for passing (PASS) or failing (FAIL) at each level. In each table, there are 8 important columns, including the following:

1. The level column, in this column contains 9 scoring areas.
2. The Passing Requirements column, contains a way to calculate the minimum score for passing that has been determined by IT-IL.
3. The minimum pass column, contains the value obtained from the M+n formula. The value of the n variable is a provision of IT-IL. The minimum pass column is the minimum score that must be obtained to pass each level.
4. The maximum passing column contains the maximum score that can be obtained if all questions are answered at each YES level.
5. The Score Achievement column, contains the values that CV Syntax Corporation Indonesia has achieved after taking measurements at each level.
6. The Score Difference column, contains the score difference obtained from the result of the reduction between the maximum passing column and the score achievement column, from the reduction it can be seen the difference in scores to achieve the maximum passing score.
7. Status column, this column contains the PASS or FAIL status at each level based on the value of the score achievement column. To get PASS status, the score in the achievement column must be greater than or equal to the minimum pass column. If the score achievement column is smaller than the minimum pass column, the level gets a FAIL status.
8. Cumulative Score column, the cumulative score is obtained from the result of summing the achievement of the previous level score with the achievement of the next level score.
9. The diagonal line block serves as a marker that the achievement obtained only reaches that level. To find out the achievement of CV Syntax Corporation Indonesia's ERP services, here is a summary of the results of measuring the maturity level of all services according to the data obtained.

To find out the achievements of CV Syntax Corporation Indonesia's ERP services, the following is a summary of the results of the measurement evaluation on all services according to the data obtained.

Table 4 Maturity of ERP services: service desk

No	Level	Graduation Requirements	Minimal Pass	Maksimal Pass	Score Achievement	Score Difference	Statu	Cumulative Score

1	Level 1: Pre-requires	M+1	5	6	6	0	**PASS**	**6**
2	Level 1.5: Management Intent	M+1	7	9	8	1	**PASS**	**14**
3	Level 2.5: Process Capability	M+1	22	26	25	1	**PASS**	**39**
4	Level 3: Products	M+1	6	8	7	1	**PASS**	**46**
5	Level 3.5: Quality Control	M+1	13	16	14	3	**PASS**	**60**
6	Level 4: Management Information	M+1	10	11	11	0	**PASS**	**71**
7	Level 4.5: External Integration	M+1	7	8	7	1	**PASS**	**78**
8	Level 5: Customer Interface	M+1	5	6	4	2	**FAIL**	**82**
9	Level 1: Pre-requires	M+1	10	10	8	2	**FAIL**	**90**
Total Score			85	100	90	10		

Source: Author 2024

The table above shows that the maturity of CV Syntax Corporation Indonesia's ERP service system (menu, CRM, and export) at the service desk site stops at level 4: management information. The score obtained with a passing status amounted to 78 and the total score achieved amounted to 90 points with a difference of 10 points to pass perfectly. This achievement is included in the Average category.

Table 5. ERP service maturity: *incident management*

No	Level	Graduation Requirements	Minimal Pass	Maksimal Pass	Score Achievement	Score Difference	Status	Cumulative Score
1	*Level 1: Pre-requires*	M+1	5	6	6	0	**PASS**	**6**
2	*Level 1.5: Manag*	M+1	7	8	1	7	**FAIL**	**17**

	ement Intent							
3	*Level 2.5: Process Capability*	M+1	25	28	21	7	**FAIL**	**28**
4	*Level 3: Products*	M+1	3	4	2	2	**FAIL**	**30**
5	*Level 3.5: Quality Control*	M+1	10	12	7	5	**FAIL**	**37**
6	*Level 4: Management Information*	M+1	10	11	11	0	**FAIL**	**48**
7	*Level 4.5: External Integration*	M+1	8	8	4	4	**FAIL**	**52**
8	*Level 5: Customer Interface*	M+1	11	13	6	7	**FAIL**	**58**
9	*Level 1: Pre-requires*	M+1	10	10	6	4	**FAIL**	**64**
Total Score			89	100	64	36		

Source: Author 2024

Based on 9 levels, only two levels received a pass status, namely level 1: Prerequisites, and level 3.5: quality control. Therefore, the maturity level of ERP services in site incident management can only reach level 1, because at level 1.5 it gets a FAIL status. The score obtained with PASS status amounted to 6 points and the total score achieved amounted to 64 points with a difference of 36 points to pass perfectly. This achievement is included in the category of not compliant.

Table 6. ERP service maturity: *problem management*

No	Level	Graduation Requirements	Minimal Pass	Maksimal Pass	Score Achievement	Score Difference	Status	Cumulative Score

1	Level 1: Pre-requires	M+1	5	7	1	0	**FAIL**	**1**
2	Level 1.5: Management Intent	M+1	6	8	0	8	**FAIL**	**1**
3	Level 2.5: Process Capability	M+1	17	20	0	20	**FAIL**	**1**
4	Level 3: Products	M+1	12	14	0	14	**FAIL**	**1**
5	Level 3.5: Quality Control	M+1	4	6	1	5	**FAIL**	**2**
6	Level 4: Management Information	M+1	9	10	0	10	**FAIL**	**2**
7	Level 4.5: External Integration	M+1	9	10	0	10	**FAIL**	**2**
8	Level 5: Customer Interface	M+1	10	15	6	9	**FAIL**	**8**
9	Level 1: Pre-requires	M+1	10	10	0	10	**FAIL**	**8**
Total Score			89	100	8	92		

Source: Author 2024

All levels on the problem management site get FAIL status and the maturity of the ERP service on this site is included in the Not Satisfied category because this ERP service does not meet level 1 in the self-assessment maturity. Therefore, CV Syntax Corporation Indonesia only reaches level 0 – chaos.

Table 7. Recommended Corrective Action

No.	Problems Identified	Proposed Corrective Action
1.	Product forms do not provide barcode fields	Add a barcode field to a product form
2.	The sales order form is not intuitive	Redesigning the sales order form
3.	Lack of integration between departments	Implement system integration between departments
4.	Absence of an automatic notification system	Develop an automatic notification feature on the system
5.	Difficulties in tracking order status	Update real-time order status tracking feature
6.	Limitations in stock management	Added more comprehensive stock management features
7.	The slow process of receiving and managing orders	Optimize order-receiving and management processes
8.	Unavailability of reporting system	Implement an effective reporting system
9.	Lack of integration with external systems	Improve integration with external systems
10.	Lack of customer support	Forming a more responsive customer support team
11.	Slow system performance	Perform infrastructure updates to improve performance
12.	Errors in data entry	Provide training to staff to improve their skills
13.	Lack of system documentation	Create complete and structured system documentation
14.	Limitations in user management	Implement a more effective user management system
15.	Data security issues	Conduct security audits and implement stricter security measures
16.	Absence of a disaster recovery process	Developing a comprehensive disaster recovery plan
17.	Lack of monitoring of system performance	Installing a performance monitoring system for early detection of problems
18.	Lack of use of system features	Provide training to users on existing features
19.	Lack of regular maintenance	Schedule and carry out regular maintenance
20.	Absence of a data privacy policy	Developing data privacy policies and conducting training on compliance

Source: Author 2024

The problems identified in CV Syntax Corporation Indonesia's ERP service system show several weaknesses that affect operational efficiency and data management (Jackson, 2020). From a lack of integration between departments to a lack of monitoring of system performance, these challenges can hinder productivity and cause delays in responding to customer demands. For example, the lack of an automated notification system can lead to confusion in order status tracking, which in turn can lead to customer dissatisfaction and disrupt the company's internal workflow (Martin, 2021). To overcome these problems, it is necessary to carry out a series of measurable and directed corrective actions. The development of an automated notification feature is an important step to improve responsiveness and ensure that teams can quickly respond to changes in order status. Additionally, installing a performance monitoring system will help identify and proactively address system performance issues, thereby minimizing downtime and improving overall system reliability (Lee et al., 2020). All proposed corrective actions need to be supported by the full commitment of the company's management and its technical team. With a focus on improving integration, efficiency, and security, CV Syntax Corporation Indonesia was able to strengthen the foundation of its ERP system and improve its customer service and overall operational reliability.

Conclusion

Based on the results and discussions, it can be concluded that the evaluation of the maturity review of the ERP service system, such as that carried out at CV Syntax Corporation Indonesia which offers educational consulting services, skill upgrades/training, and journal/book publications, can provide an in-depth understanding of how well the system meets the needs of the company and its users. Measurement of ERP services in CV. Syntax Corporation Indonesia is carried out by looking at two different perspectives, namely external and internal. The maturity of CV Syntax Corporation Indonesia's ERP service system (menu, CRM, and export) at the service desk site stopped at level 4: management information. The score obtained with a passing status amounted to 78 and the total score achieved amounted to 90 points with a difference of 10 points to pass perfectly. This achievement is included in the Average category. Based on the 9 levels of maturity of the ERP service system, only two levels received a pass status, namely level 1: Pre-requiresites, and level 3.5: quality control. Therefore, the maturity level of ERP services in site incident management can only reach level 1, because at level 1.5 it gets a FAIL status. The score obtained with PASS status amounted to 6 points and the total score achieved amounted to 64 points with a difference of 36 points to pass perfectly. This achievement is included in the category of not compliant All levels on the site problem management get FAIL status and the stability of the ERP service on this site is included in the category of Not Compliant because this ERP service does not meet level 1 in the self-assessment maturity. Therefore, CV Syntax Corporation Indonesia only reaches level 0 – chaos.

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