Evaluation *of PowerApps* Usability in *Warehouse Material Tracking* with the *System Usability Scale* (SUS) Method in PT. XYZ

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Abstract

Efficient warehouse management requires a reliable material tracking system. PT. XYZ faces challenges in stock visibility and manual recording that hinder operational performance. As a solution, the company implemented a *PowerApps-based* Warehouse Material Tracking *application*. This study aims to evaluate the usability level of the application using *the System Usability Scale* (SUS) method. The research was conducted with a quantitative approach through the distribution of SUS questionnaires to 30 active user respondents. The measurement results showed an average score of 79.91, which was categorized as "*Good*" with an acceptance rate of "*High Acceptable*". These findings show that the app is rated as having a high level of usability according to user perception. In conclusion, *PowerApps* is able to support warehouse operational efficiency and is suitable for use as a digital tool in daily logistics activities at PT. XYZ.

Keywords: ***Usability, System Usability Scale, PowerApps, Warehouse Material Tracking***

1. Introduction

In an era of digital transformation that demands efficiency, transparency, and operational speed, organizations are increasingly driven to adopt digital-based technologies to support their business processes. One of the widely used platforms in this context is Microsoft *PowerApps*, a low-code platform that allows non-technical users to develop business applications quickly and flexibly without requiring an in-depth understanding of programming languages (Chou, 2020). The advantage of *PowerApps* lies in its easy integration with other *Microsoft* services such as *SharePoint, Excel,* and *Dynamics* 365, as well as various third-party connectors, which accelerate the process of digitizing workflows and data collection across various lines of the company's operations, including in warehouse and manufacturing environments (Shah & Patel, 2021).

In addition, *PowerApps* also supports responsive and *mobile-friendly* app development, allowing users to access and update data in *real-time* in the field. This capability makes *PowerApps* ideal for use in *the material tracking warehouse process*, where the speed and accuracy of information are key factors in maintaining the efficiency of material distribution (Vimal & Ponnambalam, 2020). According to Laudon and Laudon (2016), technologies such as *PowerApps* have an important role in improving operational efficiency by simplifying tasks that were previously done manually. The right implementation of *PowerApps* can speed up business processes, reduce errors, and provide better data

visibility for management (Verma & Gurnani, 2021).

Warehouse management itself is a crucial element in the supply chain because it includes managing the flow of goods in, storage, and distribution to customers. Success in warehouse management is greatly influenced by speed, accuracy, and effective stock control systems (Chopra & Meindl, 2016). However, challenges such as low stock visibility, error-prone manual record-keeping, and delays in the delivery of goods are still frequently found in operational practices (Stefanelli et al., 2021). In the face of these challenges, technologies such as *PowerApps* are used to support digital material tracking to improve system efficiency and reliability.

One of the case studies of PowerApps implementation in warehouse management is found at PT. XYZ, a company engaged in the production and distribution of oil and gas industrial equipment. Since 2020, the company has started implementing *the PowerApps-based* Warehouse Material Tracking application to address the issues of stock visibility, manual recording, and delivery delays. The goal of this implementation is to reduce reliance on manual systems, speed up the reporting process, and improve real-time visibility of stock.

However, the success of a digital application is not only determined by its technical or functional side, but also by its *usability* or usability from the point of view of the end user. *Usability* plays an important role in determining whether an application is able to help users complete their tasks efficiently, easily, and enjoyably (Nielsen, 1993). Applications with low *usability* levels have the potential to cause frustration, resistance to use, and decreased productivity (Bevan et al., 2015). Therefore, it is important to evaluate the usability of the Warehouse Material Tracking application used at PT. XYZ.

One of the *most commonly used* usability evaluation methods is the *System Usability Scale* (SUS), which was developed by John Brooke in 1986. SUS is a simple instrument consisting of 10 statements on a Likert scale of 5 points, the results of which are converted into scores between 0 and 100. This score is then interpreted using interpretation guides, where a value above 68 is generally considered an indicator that the system has good *usability* (Lewis & Sauro, 2018). SUS provides a quantitative picture of user perceptions and is very useful in identifying more targeted system improvement areas.

The use of SUS in the context of warehouse applications such as *PowerApps* is particularly relevant because it involves direct evaluation of users who are actively involved in daily operations. Aspects such as ease of navigation, consistency of interface, and ease of use have a direct influence on the work efficiency of warehouse staff (Martins et al., 2021). Therefore, this method is important to ensure that the implementation of *PowerApps* really delivers optimal benefits from both the technical side and the user experience.

Based on this background, this study aims to measure the usability level of the *Warehouse Material Tracking* application applied at PT. XYZ using *the System Usability Scale* (SUS) method. In addition, this study also aims to evaluate whether the *usability* score obtained from the SUS results has met the standards of the "*usable*" or "*acceptable*" category in accordance with the interpretation guidelines. Thus, the results of this evaluation are expected to provide an objective picture of the user experience of the application, as well as become a basis for companies to develop features, user training, or improve the system interface that is more in line with operational needs.

2. Research Methods

This study uses a quantitative method that aims to measure the usability level of the PowerApps-based Warehouse Material Tracking application at PT. XYZ. The main focus of the research is to evaluate users' perceptions of the ease of use of applications using the System Usability Scale (SUS)

instrument.

This research was carried out at PT. XYZ, a company engaged in the production and distribution of oil and gas products, is located at Jalan Tenggiri, Kavling 21, Batu Merah, Batu Ampar, Batam, Riau Islands, Indonesia. The company implements PowerApps in many operational activities, one of which is in the warehouse department, whose applications are the main focus of research.

2.1 Variable Operation and Its Measurement

System Usability Scale (SUS) is an evaluation instrument designed to measure the level of success in using a system or application based on user perception (Lewis, 2018). In this study, *the System Usability Scale* (SUS) method was used to measure the usability level of PowerApps applications in the *warehouse* area. SUS is a *usability* evaluation instrument developed by John Brooke in 1986 and consists of 10 statements answered by respondents using *a Likert* scale of 1 to 5. The ten items in the SUS questionnaire were arranged alternately between positive (odd items) and negative (even items) statements.

Table 1.System Usability Scale *(SUS)* Variables and Measurements

Variabel	Indicator	How to Measure
Usability	10 question items from the SUS questionnaire (based on Brooke's (1996) questionnaire translated into Indonesian)	Likert scale 1–5

Source: (Brooke, 1996)

The following is a list of SUS questionnaire questions in Table 2.

Table 2.System Usability Scale *(SUS)* Question List

No.	Indicator
1	I think I will use this system a lot
2	I feel like this system is too complicated
3	I think the system is easy to use
4	I need technical assistance to be able to use this system
5	I feel that the features in this system are well integrated
6	I feel like the system is too inconsistent
7	I believe most people can learn to use this system quickly
8	I feel that the system is too much of a burden when used
9	I feel confident when using this system
10	I had to learn a lot before I could use this system

Source: (Brooke, 1996)

2.2 Research Instruments

The instrument that will be used in this study is a questionnaire containing questions regarding the efficiency, effectiveness, and visibility of the use of *the PowerApps* application.

2.3 Sample Count Determination Technique

The sample size determination technique in this study uses *a non-probability sampling* approach with *the purposive sampling method*, where the researcher selects respondents based on certain criteria that are relevant to the research objectives. Because this study is a case study and prioritizes the direct user experience, the number of samples is not statistically determined. For the purpose of filling out the SUS questionnaire, the number of respondents is 30 people, so that the quantitative data obtained has a stronger representation.

2.4 Sample Drawing Technique

The *sampling* technique used is *purposive sampling,* with the criteria: active PowerApps users at PT. XYZ is at least 1 month old, directly involved in the use of PowerApps, and willing to participate in the research.

2.5 Data Analysis Techniques

Data from SUS was analyzed

quantitatively. The SUS score was calculated based on 10 statement items and was converted to a scale of 0–100 using a formula from Brooke (1996). The formula for calculating the SUS score is as follows:

$$\text{Skor SUS} = \left(\sum_{i=1,3,5,7,9} (Q_i - 1) + \sum_{j=2,4,6,8,10} (5 - Q_j) \right) \times 2.5$$

Picture 1 SUSSumber: Brooke (1996)

3. Results and Discussion

The System Usability Scale (SUS) is used to measure users' perceptions of the subjective ease of use of an application. The measurement was carried out on 30 active users of the *PowerApps-based* Warehouse Material Tracking System *application*.

The results of the questionnaire are processed using the SUS standard formula to obtain the SUS score, then the results of the assessment are presented in the form of a final score.

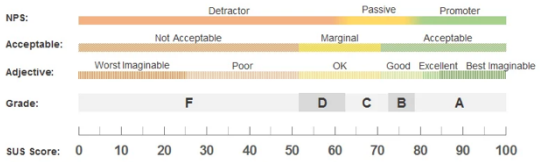
Table 3. SUS Questionnaire Data Results

Respond	Shoes (0–40)	Total Score (×2.5)
R1	28	70
R2	34	85
R3	33	82.5
R4	26	65
R5	30	75
R6	32	80
R7	35	87.5
R8	29	72.5
R9	31	77.5
R10	30	75
R11	28	70
R12	27	67.5
R13	33	82.5
R14	32	80
R15	36	90
R16	30	75
R17	29	72.5
R18	31	77.5
R19	34	85
R20	28	70
R21	30	75
R22	32	80
R23	31	77.5
R24	29	72.5
R25	27	67.5
R26	28	70
R27	34	85
R28	35	87.5
R29	33	82.5
R30	29	72.5
Final score	61.87	79.91

Source: Processed by Researcher, 2025

The average SUS score must be more than 70 to be included in the "*Acceptable*" category (Brooke, 2013). Meanwhile, the SUS score is categorized as "*Good*" on the *adjective rating* scale if the score exceeds 70.4 (Bangor et al., 2019). The process that is a reference in the measurement based on the interpretation of the SUS scale in figure 2 developed by Brooke (1996) is as follows:

Figure 2. SUS Scale, Description and Final Score Results



Source: (Brooke, 1996)

Based on figure 2, the results of testing and measurement distributed to 30 respondents who are active users of *the PowerApps-based* Warehouse Material Tracking application obtained the final result of the SUS score with a value *of "79.91" classified as "*Good*",* Grade Scale *is "Grade B" and* Acceptability Score *is High Acceptable.*

From the measurement results of *the PowerApps-based Warehouse Material Tracking* application using *the System Usability Scale*, it illustrates that the application is considered to have a high level of usability according to user perception. The *PowerApps-based Material Tracking System*

application is able to support warehouse operational efficiency and is suitable for use as a digital tool in helping the process of tracking goods in warehouses at PT. XYZ.

4. Conclusions and Suggestions

4.1 Conclusion

Based on the results of research conducted on *the Warehouse Material Tracking* application at PT. XYZ using the System Usability Scale (SUS) method, it can be concluded that:

1. The application obtained an average SUS score of 79.91 from a total of 30 respondents. Based on the SUS interpretation scale developed by Brooke (1996), this value is classified as "*Good*", included in *the Grade Scale* B, and has an *acceptability level* of "*High Acceptable*". This value indicates that the application is good enough in terms of ease of use, interaction efficiency, and user satisfaction. This score also shows that users feel that the application is able to support their tasks smoothly and with minimal obstacles so that it can be positively accepted by the majority of users.
2. Overall, the application has met the usability standards that are acceptable to users and is included in the category of "*usable*" systems. The app is developed using *Microsoft Power Apps*, a *low-code platform* that is now widely used by companies to build in-house digital solutions quickly and efficiently. In this context, the evaluation results show that *Power Apps* as a development base has succeeded in creating an intuitive and easy-to-use interface. This supports work productivity in a warehouse environment and minimizes the risk of errors that are common in manual processes or legacy systems.

4.2 Suggestions

Based on the conclusions that have been presented, the suggestions that can be given are classified into practical advice and theoretical suggestions as follows:

1. Practical Advice
   a). For companies (PT. XYZ)
   Companies are advised to maintain and continue the use of *the PowerApps* application to support *the material tracking warehouse process*, considering that the usability level has been categorized as "good" based on the results of measurements using *the System Usability Scale* (SUS) method. In addition, companies can also improve user competence through the provision of more structured and continuous training, in order to optimize the use of the features available in the application.
   b). For app developers
   Based on the findings of the SUS evaluation, one of the aspects with a relatively lower score is novelty, which refers to the impression of novelty and the user's attractiveness to the interface. Therefore, developers are advised to make improvements to visual elements, interface design, or interactivity, in order to create a more engaging and innovative user experience, without sacrificing the already good ease of use.

2. Theoretical Suggestions
   Further research is suggested to expand the scope of the research to other types of applications or modules in different work environments, so that the generalization of results becomes stronger.

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