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Usability Scale System Method on Convogenius Platform for MSME Business Optimization

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Abstract

Usability is a critical factor in the successful adoption of technology, particularly for AI-based platforms designed to support micro, small, and medium enterprises (MSMEs). Convogenius AI is developed to assist MSME operations, yet its effectiveness and user-friendliness must be evaluated. This study aims to assess the usability of the Convogenius AI platform using the System Usability Scale (SUS) method and identify areas requiring improvement. The research employs a SUS survey to measure aspects such as ease of use, functional integration, and the need for technical support. The findings reveal favorable SUS scores for ease of use (average 3.04) and user intention to repeatedly use the platform (average 3.05). However, deficiencies are noted in system complexity (average 2.96) and technical support requirements (average 2.95). Overall, Convogenius AI is accepted by MSME users but requires enhancements in interface design and consistency to improve user experience. These improvements can potentially increase user satisfaction and support the operational efficiency of MSMEs.

Keywords: *Use about five key words or phrases in alphabetical order, Separated by Semicolon*

1. Introduction

The usability of digital platforms is a critical determinant of their success, particularly in assisting micro, small, and medium enterprises (MSMEs) to optimize their operations and improve competitiveness. Convogenius AI, an artificial intelligence-powered platform, has been specifically designed to support MSMEs in various areas, such as branding, operational efficiency, and customer interaction. However, the effectiveness of such platforms depends heavily on their usability, as ease of use directly impacts user adoption and satisfaction [1], [2], [3], [4], [5], [6], [7].

To evaluate the usability of Convogenius AI, this study employs the System Usability Scale (SUS), a widely recognized tool developed by John Brooke. SUS is known for its simplicity, reliability, and ability to provide actionable insights through a standardized questionnaire. By applying SUS, this study aims to identify the platform's strengths, pinpoint areas for improvement, and offer recommendations to enhance its user experience, thereby supporting the operational goals of MSMEs [8], [9], [10], [11].

The following subsections provide a detailed discussion of the SUS framework, its origin by John Brooke, and an overview of the Convogenius AI platform.

1.1. System Usability Scale (SUS)

The System Usability Scale (SUS) is a tool developed to measure the usability of systems, software, and digital platforms. Introduced by John Brooke in 1986, SUS consists of a 10-item questionnaire rated on a 5-point Likert scale, with alternating positive and negative statements. The scale captures user perceptions of system functionality, ease of use, and overall satisfaction, providing a usability score between 0 and 100.
SUS is widely regarded for its flexibility and reliability, making it suitable for evaluating various technologies, from software applications to hardware devices. The method offers a straightforward yet effective approach for identifying usability issues and guiding iterative improvements in design and functionality [12], [13], [14], [15], [16].

1.2. John Broke and the Development of SUS

John Brooke, a usability expert, developed the System Usability Scale as a standardized tool for evaluating system usability. His work addressed the need for a simple, universally applicable method to assess usability across different contexts and industries.

Brooke's SUS framework has since become a cornerstone in usability testing, praised for its adaptability and ease of implementation. Its ability to distill complex user feedback into a single score has made it a preferred choice for usability practitioners and researchers worldwide

1.3. Convogenius AI

Convogenius AI is an artificial intelligence-driven platform designed to support MSMEs in managing their operations, branding, and customer engagement. By offering tools for automation and analytics, the platform aims to enhance business efficiency and competitiveness.
Despite its potential, the usability of Convogenius AI plays a significant role in determining its success among MSME users. Ensuring that the platform is intuitive, user-friendly, and capable of meeting diverse user needs is essential. This study evaluates the platform's usability using SUS, providing insights into its performance and areas requiring improvement [17], [18], [19], [20], [21].

2. Research Method

The research method used in this study follows the Knowledge Discovery in Databases (KDD) framework, which involves a systematic process for extracting meaningful information from data. The primary objective is to evaluate the usability of Convogenius AI using the System Usability Scale (SUS). The research workflow consists of several stages, starting from data collection via user questionnaires to the processing and analysis of the collected data using Python.

2.1. Research Method with Knowledge Discovery in Databases (KDD)

The KDD process in this study involves the following stages:

1. Data Collection

Participants were invited to evaluate the usability of Convogenius AI by completing a SUS questionnaire. The questionnaire consists of 10 items rated on a Likert scale from 1 (Strongly Disagree) to 5 (Strongly Agree). The questions are designed to assess various aspects of usability, including ease of use, functionality, and overall satisfaction.

2. Data Storage

The responses from the SUS questionnaire were stored in a structured database to ensure data integrity and facilitate subsequent analysis. The database schema includes fields such as participant ID, question responses (Q1–Q10), and timestamps of submission.

3. Data Processing

The collected data were processed using Python, which included the following steps:

- **Cleaning**: Ensuring completeness and correctness of the data by handling missing or invalid responses.
- **Data Transformation**: Converting raw questionnaire responses into a format suitable for SUS score calculation.
- **SUS Scoring**: Applying the SUS scoring formula to calculate individual and aggregate scores. The scoring involved:
    - Adjusting odd-numbered questions by subtracting 1 from their score.
    - Adjusting even-numbered questions by subtracting their score from 5.
    - Summing the adjusted scores and multiplying the total by 2.5 to obtain a score out of 100.

4 . Result Interpretation

The SUS scores were analyzed to identify usability strengths and weaknesses in the Convogenius AI platform. Descriptive statistics, such as mean and standard deviation, were used to summarize the results and derive actionable insights.

5. Insights and Recommendations

Based on the SUS scores, recommendations were made to improve the platform's design and functionality, focusing on areas identified as needing enhancement.

3. Result and Discusssion

This section presents the findings of the research, starting from the selection of collected data, preprocessing of the dataset, and analysis of the System Usability Scale (SUS) results. The discussion focuses on evaluating the usability of Convogenius AI and providing actionable recommendations for improvement.

3.1. Text font of entire document

The data for this research was collected using the SUS questionnaire, with responses stored in a structured database. The table below represents the schema used to organize the collected data:

Table 1: Font Specifications for A4 Papers

Field	Description
Id	Unique Identifier for each respondent
Email	Respondents email address (for identification)
Q1- Q10	Responses to SUS question, rated on a scale of 1-5
Created_at	Timestamp indicating when the response was submitted

The data from the table was retrieved to facilitate further processing and analysis. A total of *n* respondents participated in the survey, contributing data for analysis of the usability of Convogenius AI.

3.2. Preprocessing

The preprocessing stage ensures that the data collected is clean and ready for analysis. The following steps were performed:

1. **Data Cleaning**
    - Removal of incomplete responses (e.g., missing values in q1–q10).
    - Verification of email formats to ensure valid respondent entries.
2. **Normalization**
    - Conversion of responses to a consistent format, preparing data for the SUS scoring algorithm.
3. **Data Transformation**
    - Adjusting the scoring of odd and even questions as per the SUS methodology:
        - For odd-numbered questions (e.g., q1, q3): Subtract 1 from the score.
        - For even-numbered questions (e.g., q2, q4): Subtract the score from 5.
4. **Storage for Analysis**
    - Storing the preprocessed data in a structured format for further computation of SUS scores.

3.3. SUS Score Calculation and Results

The SUS score for each respondent was calculated using the following formula:

- Sum the adjusted scores for all 10 questions.
- Multiply the total by 2.5 to get a final score out of 100

Descriptive Statistics

- **Mean SUS Score**: The average usability score of Convogenius AI, indicating ooverall usability.
- **Standard Deviation**: A measure of variability in the scores, reflecting consistency among user experiences.

Key Findings

- **Strengths**: High scores on questions related to ease of use (e.g., q1, q3, q7)
- **Weaknesses**: Lower scores on questions related to complexity (q2) and the need for technical support (q4).

3.4. Discussion on Usability

The results of the SUS analysis reveal key insights into the usability of Convogenius AI:

1. **Ease of Use**: Users found the platform intuitive and user-friendly, as reflected in the high scores for ease-of-use-related questions.
2. **Complexity**: Some respondents felt the system was overly complex, suggesting the need for simplification of certain features.
3. **Technical Support**: The reliance on external support indicates a need for better documentation and self-help tools.
4. **Potential for Adoption**: High scores for repeated use indicate that Convogenius AI has strong potential for sustained adoption by MSMEs.

4. Conclusion

Based on the descriptive analysis of the Convogenius AI platform using the System Usability Scale (SUS) method, several important conclusions can be drawn. The overall usability level is satisfactory, with the average scores for ease-of-use-related questions being relatively high. For example, question q1 ("I enjoy using this system") has an average score of 3.05, followed by q3 and q7 with average scores of 3.04 each. These results indicate that users find the platform comfortable and intuitive to use.

However, there are some areas requiring improvement, particularly regarding system complexity and the need for technical support. Question q2 ("I find the system unnecessarily complex") received an average score of 2.96, indicating that some users perceive the system as overly complicated. Additionally, question q4, related to the need for technical assistance, scored an average of 2.95, highlighting the necessity for the platform to be more intuitive and user-friendly without relying heavily on external support.
The analysis also revealed that users are inclined to use the platform repeatedly. This is evident from the average score of 3.05 for q1, reflecting user satisfaction with the overall platform experience. This potential can be leveraged to support the sustainability of the Convogenius AI platform in MSME operations, particularly in branding activities and business efficiency.

Overall, Convogenius AI has demonstrated a good level of usability and is generally well-received by MSME users. However, to achieve an optimal user experience, improvements are needed in the user interface and system simplicity. With these enhancements, Convogenius

AI has the potential to become a more effective solution with significant impact in helping MSMEs achieve operational efficiency and optimization.

References

[1] M. Afifah Sari and K. Ditha Tania, "Evaluasi Usability Pada Knowledge Management System (KMS) Menggunakan Metode System Usability Scale (SUS) (PT. Telekomunikasi Indonesia Witel Sumatera Selatan)," vol. 3, issue 3, 2022.

[2] F. Alfiyan and S. P. Budiarto, "Analisa Tingkat Kelayakan Usability Marketplace Rumah Digital Berbasis System Usability Scale," *Journal Cerita*, vol. 10, no. 1, pp. 1–8, 2024. doi: 10.33050/cerita.v10i1.2975.

[3] N. Asnawi, R. Pamungkas, and D. G. Prasetyo, "Analisis Usability Website Program Studi Sistem Informasi Unipma Menggunakan Metode System Usability Scale," *Fountain of Informatics Journal*, vol. 8, no. 1, pp. 21–25, 2023. doi: 10.21111/fij.v8i1.9408.

[4] A. R. Bahtiar and M. A. Gustalika, "Penerapan Metode System Usability Scale dalam Pengujian Rancangan Mobile Apps Gamification Tari Rakyat di Indonesia," *JURNAL MEDIA INFORMATIKA BUDIDARMA*, vol. 6, no. 1, pp. 491, 2022. doi: 10.30865/mib.v6i1.3510.

[5] I. M. Herawati and D. Azahra, "EVALUASI USABILITY WEBSITE JASUDA.NET MENGGUNAKAN SYSTEM USABILITY SCALE (SUS)," *JIPI (Jurnal Ilmiah Penelitian Dan Pembelajaran Informatika)*, vol. 9, no. 2, pp. 994–1000, 2024. doi: 10.29100/jipi.v9i2.4328.

[6] I. F. Ashari and R. R. Muharram, "PENGEMBANGAN ANTARMUKA PENGGUNA KOLEPA MOBILE APP MENGGUNAKAN METODE DESIGN THINKING DAN SYSTEM USABILITY SCALE," *JSiI (Jurnal Sistem Informasi)*, vol. 9, no. 2, pp. 168–176, 2022. doi: 10.30656/jsii.v9i2.4993.

[7] S. Kacung, K. Umam, and L. P. Sumirat, "MODEL SYSTEM USABILITY SCALE UNTUK EVALUASI KEPUASAN LAYANAN PROGRAM STUDI," vol. 16, pp. 246–254, 2024.

[8] I. Maryati, E. I. Nugroho, and Z. O. Indrasanti, "Analisis Usability pada Situs Perpustakaan UC dengan Menggunakan System Usability Scale," *JURNAL MEDIA INFORMATIKA BUDIDARMA*, vol. 6, no. 1, pp. 362, 2022. doi: 10.30865/mib.v6i1.3472.

[9] A. I. Maulia, S. P. Kristanto, and L. Hakim, "System Usability Scale dalam Evaluasi Pengembangan Aplikasi Prospect menggunakan Metode Activity Oriented Design," *Infomatek*, vol. 26, no. 1, pp. 135–142, 2024. doi: 10.23969/infomatek.v26i1.14094.

[10] A. Muhammad Nur Fauzi, A. Triayudi, I. Diana Sholihati, and F. Teknologi Komunikasi dan Informatika Universitas Nasional Ps Minggu, "MENGUKUR TINGKAT KEPUASAN PENGGUNA APLIKASI KEARSIPAN MENGGUNAKAN SYSTEM USABILITY SCALE DAN PIECES FRAMEWORK," *n.d.*

[11] M. Mu'min Azis and U. Hayati, "ANALISIS USABILITY TESTING MENGGUNAKAN METODE SYSTEM USABILITY SCALE PADA APLIKASI OPEN DATA KABUPATEN CIREBON," *Jurnal Mahasiswa Teknik Informatika*, vol. 7, no. 6, 2023.

[12] N. A. Ningtyas and A. Meiriza, "Penerapan Metode System Usability Scale Dalam Mengevaluasi User Experience Aplikasi DANA," *JURIKOM (Jurnal Riset Komputer)*, vol. 10, no. 2, pp. 667, 2023. doi: 10.30865/jurikom.v10i2.6083.

[13] K. T. Nugroho, B. Julianto, and D. F. Nur MS, "Usability Testing pada Sistem Informasi Manajemen AKN Pacitan Menggunakan Metode System Usability Scale," *Jurnal Nasional Pendidikan Teknik Informatika (JANAPATI)*, vol. 11, no. 1, pp. 74, 2022. doi: 10.23887/janapati.v11i1.43209.

[14] M. Prabowo and A. Suprapto, "Usability Testing pada Sistem Informasi Akademik IAIN Salatiga Mengunakan Metode System Usability Scale," *JANUARI*, vol. 6, no. 1, 2021.

[15] I. Purwandani, N. O. Syamsiah, and S. Nurwahyuni, "Perceived Usability Evaluation of TikTok Shop Platform Using the System Usability Scale," *Sinkron*, vol. 8, no. 3, pp. 1389–1399, 2023. doi: 10.33395/sinkron.v8i3.12473.

[16] I. Rachmawati and R. Setyadi, "Evaluasi Usability Pada Sistem Website Absensi Menggunakan Metode SUS," *Journal of Information System Research (JOSH)*, vol. 4, no. 2, pp. 551–561, 2023. doi: 10.47065/josh.v4i2.2868.

[17] W. Riyadi, "EVALUASI KEGUNAAN PAYO KEPASAR DENGAN METODE SISTEM USABILITY SCALE (SUS) DAN UMUX-LITE," *Jurnal Ilmiah Media Sisfo*, vol. 17, no. 1, pp. 51–60, 2023. doi: 10.33998/mediasisfo.2023.17.1.90.

[18] N. L. P. L. S. Setiawati, D. A. S. Dewi, and N. M. C. Utami, "EVALUASI USABILITY APLIKASI WEBEX MEETINGS MENGGUNAKAN SYSTEM USABILITY SCALE (SUS)," *JSiI (Jurnal Sistem Informasi)*, vol. 10, no. 2, pp. 157–163, 2023. doi: 10.30656/jsii.v10i2.8227.

[19] A. Sucipto, A. Dwirangga, and R. M. J. Priyono, "EVALUASI ANTARMUKA PERMAINAN 3D BALAP KARUNG MENGGUNAKAN METODE SYSTEM USABILITY SCALE (SUS)," *Jurnal Komputer Dan Informatika*, vol. 11, no. 1, pp. 21–28, 2023. doi: 10.35508/jicon.v11i1.9012.

[20] M. S. Tuloli, R. Patalangi, and R. Takdir, "Pengukuran Tingkat Usability Sistem Aplikasi e-Rapor Menggunakan Metode Usability Testing dan SUS," *Jambura Journal of Informatics*, vol. 4, no. 1, pp. 13–26, 2022. doi: 10.37905/jji.v4i1.13411.

[21] H. Yohnes Madawara and D. Manongga, "EVALUASI KETERGUNAAN WEBSITE PERPUSTAKAAN UNIVERSITAS KRISTEN SATYA WACANA DENGAN MENGGUNAKAN METODE SYSTEM USABILITY SCALE," *Jurnal Pendidikan Teknologi Informasi (JUKANTI)*, vol. 6, pp. 2023–2621, *n.d.*