Jurnal Teknologi Informasi dan Pendidikan
Volume 16, No. 2, September 2023
https://doi.org/10.24036/jtip.v16i2.789

P.ISSN: 2086 – 4981
E.ISSN: 2620 – 6390
tip.ppj.unp.ac.id

Analysis of Livin' By Mandiri Application Quality with Iso 25010 Method

Bagas Pratama[1*]✉
[1]Universitas Gunadarma, Indonesia
Corresponding Author: m.bagas057@gmail.com

Article Information

Article history:

No. 789
Rec. September 15, 2023
Rev. December 18, 2023
Acc. December 18, 2023
Pub. December 22, 2023
Page. 244 – 254

Keywords:

- *Application Quality*
- *Livin' by Mandiri*
- *ISO2501*

ABSTRACT

In the increasingly advanced digital era, mobile applications have become one of the important tools in providing banking services to customers. The Livin' by Mandiri application is one of the mobile banking applications that Bank Mandiri offers its customers. This study aims to analyze the quality of the Livin' by Mandiri application. This research uses the ISO 25010 method. Data collection techniques in this study were carried out by observation and literature study. The data obtained was then systematically analyzed in accordance with the ISO 25010 framework. The results showed that the Livin' by Mandiri application has a high level of functional suitability, is reliable and stable, fast and responsive, easy to use and navigate, well maintained and portable and can be used on various devices, including smartphones, tablets and laptops.

How to Cite:

Pratama, B. (2023). Analysis of Livin' By Mandiri Application Quality with Iso 25010 Method. Jurnal Teknologi Informasi Dan Pendidikan, 16(2), 244-254. https://doi.org/10.24036/jtip.v16i2.789

1. INTRODUCTION

The digital era in the 21st century has changed a new paradigm, making technology inseparable from human life [1], [2]. The rapid development of this technology impacts various aspects of business that allow businesses to be more effective and efficient so that their implementation is increasingly widespread in various sectors, including the banking sector. Banking is leveraging technology by creating mobile banking services. Mobile banking application is a service that allows bank customers to conduct financial transactions

using their mobile devices or smartphones. In this case, the mobile banking application can be accessed by downloading and installing the application provided by the bank [3]. Mobile banking applications are designed to provide convenience and higher accessibility to customers managing transactions and banking information through mobile devices such as mobile phones or smartphones. Mobile banking services include fund transfers between banks and other banks, balance information, mutations, bill payments ranging from installments, insurance, electricity, water, telephone accounts, and others [2], [4].

Mobile banking applications offer a variety of complete and modern banking features and services, making it easier for customers to carry out various financial transactions. One of the popular mobile banking applications in Indonesia is Livin' by Mandiri. This application was developed by PT Bank Mandiri (Persero) Tbk., one of the largest banks in Indonesia. Livin' by Mandiri offers a complete range of banking features and services, from inter-account transfers, bill payments, and e-wallet top-ups to credit and data package purchases. Customers welcome the presence of the Livin' by Mandiri application. This innovative mobile banking application provides a good user experience [5].

Previous research was conducted by Anugrah Putra, 2019 analyzing the application of Artificial Intelligence Computers as a technique for determining the extent of damage to computers with the ISO 25010 method [6]. The test results reveal that the internal quality of this application meets the FURPS standards. A similar study was conducted by (Wilis et al, 2021) analyzing the quality of psychological test applications using the SO/IEC 25010 model. The outcomes demonstrated Performance Efficiency. The application's performance results yielded a value of 90% and a grade of B. It's just that the application structure, which has a rating of 79% since the files/images in the program are classified as huge, has to be improved. Usability, which measures user satisfaction with the system and is worth 0.82 Reliability, has met the criterion with a score of 99.95%. The factor of portability, or the system's capacity to adapt to different browsers, is assigned a value of 1. Maintainability, websites are developed with frameworks that already support ease of maintenance, testing and upgrades.

The novelty of this research is the absence of research examining the quality of the Livin' By Mandiri application with the ISO 25010 method. The limitation of this research is the Livin' by Mandiri application on the IOS operating system. The purpose of this research is to assess the quality of the Livin' by Mandiri application using the ISO 25010 technique. The implications of this research can be used for better and more functional product development and improved user experience that will strengthen the application's attractiveness to customers.

2. RESEARCH METHOD

This research uses the ISO 25010 method. ISO 25010 method is one method to support the software quality evaluation process [7]. This method can evaluate the quality of the device system in a very specific way, based on two main dimensions: quality in use and product quality. In the dimension of quality of use, a number of characteristics are relative to the user's perspective, including effectiveness, satisfaction, context coverage, and efficiency. Meanwhile, in the product quality dimension, which includes the intrinsic characteristics of software products, elements such as functional suitability, performance efficiency, ease of use, reliability, and portability are the focus of analysis [8].

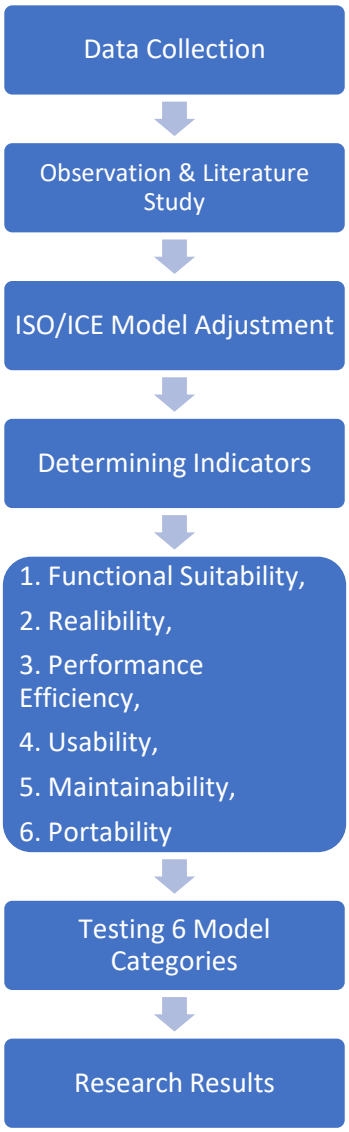

Figure 1. Research Framework

P.ISSN: 2086 – 4981
E.ISSN: 2620 – 6390
tip.ppj.unp.ac.id

In this study, data was collected by observation on the Livin' by Mandiri application and literature searches using Google Schoolar. The data obtained are then systematically analyzed according to the ISO 25010 framework.

3. RESULTS AND DISCUSSION

3.1. Datasets

One of Indonesia's state-owned banks, PT Bank Mandiri, is also actively utilizing artificial intelligence (AI) and information technology (IT) applications. Initially, PT Bank Mandiri conducted conventional transactions through direct transaction services and e-channels (Branches, ATMs, EDC, Prepaid, debit and credit cards) by prioritizing employee activities in the office/room and using paper-based documents, data access security in the building and each branch. Transactions rely on digital-based services [9]. PT Bank Mandiri continues to improvise, one of which is with the Livin application which is used for digital services.

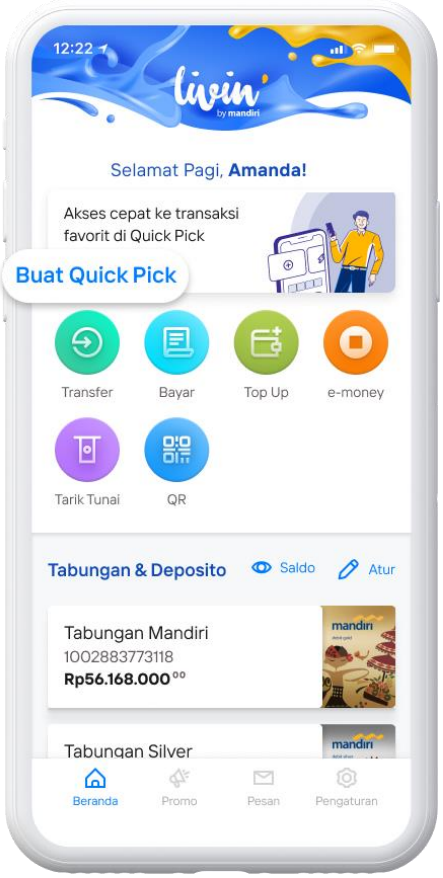

Figure 2. Livin' by Mandiri Application Dashboard

Jurnal Teknologi Informasi dan Pendidikan
Volume 16 No. 2, September 2023
https://doi.org/10.24036/jtip.v16i2.789

Dashboard in an application is a tool used to present data or information visually on one screen. Dashboards can be used for a variety of purposes, such as performance monitoring, decision making, and communication. The dashboard in the application usually consists of several components, including:

1. Data
   Data is the most important element in a dashboard. Data can be numbers, text, or graphics.
2. Visualization
   Data is presented in visual form, such as graphs, tables, or diagrams.
3. Filtration
   Dashboards are usually equipped with filtering features so that users can customize the dashboard appearance according to their needs.
4. Interactivity
   Dashboards are user-interactable, so users can perform various actions, such as analyzing data, creating reports, or sharing data.

Reported on the official website of Bank Mandiri in https://bankmandiri.co.id/livin elaborated various features of Livin by Mandiri, including:

Figure 3. Features of Livin by Mandiri

The Livin by Mandiri application as illustrated in figure 3, has various features including transfer, pay, top-up, e-money, withdrawal, QR pay, Investment, branch services, Sukha and Remittance, which are then described as follows:

1. Transfer
   This feature allows users to transfer money between Mandiri bank accounts or to other bank accounts easily. Users can make transfers between accounts themselves or to other people's accounts.
2. Pay
   The payment feature allows users to make various payments online through the application, such as electricity, water, telephone, credit, TV subscription, and more.

P.ISSN: 2086 – 4981
E.ISSN: 2620 – 6390
tip.ppj.unp.ac.id

3. Top-up
   Users can top up credit or e-money balance quickly and easily using the top-up feature.
4. E-Money
   The app also supports the use of e-money, which allows users to pay for various services, including public transportation or in-store shopping using their e-money balance.
5. Cash Withdrawal
   The cash withdrawal feature allows users to withdraw cash from their accounts through ATMs connected to the Mandiri bank network.
6. QR Pay
   Users can make payments by using QR codes received from merchants or payees. This facilitates cashless transactions in various places.
7. Investment
   The app also provides investment services, which allow users to access information and make investments in financial products such as mutual funds, stocks, or bonds.
8. Branch Services
   This feature allows users to find and access information about the nearest Mandiri bank branches as well as the services available at each branch.
9. Sukha
   Sukha is a service for purchasing flight tickets, train tickets, tourist tickets, until all shopping needs can be done at Livin' by Mandiri without moving applications
10. Remittance
    This feature allows users to make foreign currency or forex transfers easily and safely.

With various features offered, the Livin by Mandiri application can help users manage their finances more efficiently, make non-cash transactions, and even invest for a better financial future. This application reflects the development of the digital banking world that makes it easier to access and use banking services. An attempt to find out the quality of this Livin application is used ISO 25010.

ISO 25010 is an extensively utilized international standard for analyzing, testing, and measuring the quality of a software system. This research uses version 25010 or uses an advanced version of ISO/IEC 9126 with additional structure to the quality model standard [10]. ISO/IEC 25010 consists of portability, performance efficiency, reliability, usability, maintainability, compatibility, and functional suitability [11]. Each model shows that ISO/IEC 25010 has all the characteristics needed in determining the quality of a system compared to other models so that the use of the ISO/IEC 25010 quality model is widely suggested as a standard in software design [12].

Volume 16 No. 2, September 2023
https://doi.org/10.24036/jtip.v16i2.789

3.2. Functional Suitability

Functional Suitability is important because when users cannot use the product properly or cannot achieve what they want, then they will look for something else as a solution [13]. Functional suitability testing using Black Box testing is carried out to obtain results from the functional side of the Livin Mandiri application, whether the functions that run are appropriate or not using IOS 17.2 from an iPhone 12 Pro Max device. This test uses 3 people who are competent in their fields, namely 3 customer service people at Bank Mandiri by filling out a questionnaire.

Table 1. Recap of *Functional Suitability Test Results*

Testers	Functional Completeness		Functional Corectness		Functional Apropriateness		Total	
	Already	No	Already	No	Already	No	Already	No
1	18	0	5	0	2	0	25	0
2	18	0	5	0	2	0	25	0
3	18	0	5	0	2	0	25	0

The formula will calculate the values obtained:

$$X = \frac{I}{P}$$

Information:
I = Number of correctly running functions X Number of testers.
P = Number of functions used X Number of Testers.
So:

$$X = \frac{I \; x \; 3}{P \; x \; 3} = \frac{25x3}{25x3} = \frac{75}{75} = 1$$

From the results obtained from these calculations, it can be concluded that the Livin Mandiri application has good quality, as evidenced by the X value equal to 1. This means that the application is in accordance with the Functional Suitability standard.

3.3. Reliability

Reliability is measurement consistency and score stability [14]. The frequency and severity of failures, the accuracy of output data, mean-time-to-failure (MTTF), ability to recover from failures, and program predictability are all used to assess reliability. ISO/IEC 25010:2011 divides reliability into four sub-characteristics, namely (1) maturity, (2) availability, (3) fault tolerance, and (4) recoverability [15], [16]. In reliability testing using WAPT 10.0 tools and stress testing scenarios with 20 Livin users and 1 hour time. After

P.ISSN: 2086 – 4981
E.ISSN: 2620 – 6390
tip.ppj.unp.ac.id

testing, it resulted in a total test case of 6781 and 1326 failures detected. The results show a reliability value of 82.72%, with these results, if referring to Telcordia standards, the Livin application still meets the reliability characteristics.

3.4. Performance Efficiency

Processing speed, response time, resource consumption, throughput, and efficiency are all factors in determining performance [17], [18]. ISO/IEC 25010:2011 divides into three sub-characteristics are (1) time behavior, (2) resource utilization, and (3) capacity. This attribute indicates performance in relation to the resources consumed under specified conditions. Performance efficiency tests were carried out using the GTMetrix site with performance results in applications resulting in a value of 89% with grade B. It's merely that the application structure has a rating of 76% because the program's files and graphics are classified as huge.

3.5. Usability

Usability is evaluated by taking into account the human factor, general aesthetics, consistency, and documentation. This is an analysis of the practicality of the application. This instrument has four indicators, namely Usefullness, Ease of Use, Ease of Learning, and Satisfaction. The four indicators in ISO / IEC 25010: 2011 have different terms, namely Usefullness with the term appropriateness recognizability, Ease of Learning with the term Learnability, Ease of Use with the term Operability and Accessibility, and Satisfaction with the term user error protection and user interface aesthetics [4], [5], [14]. The analysis results were taken from 30 Livin' by Mandiri users. The results obtained from the questionnaire are recapitulated to be interpreted into predetermined categories. As a result, the findings of the analysis are shown in table 2 below:

Table 2. Results of Usability Recapitulation from Livin' by Mandiri Application

No	Use Scale	Mean	Practicality	Category
1	Usefulness	4.121	0,823	Very Practical
2	Ease of Use	3.865	0,766	Quite Practical
3	Ease of Learning	3.958	0,772	Quite Practical
4	Satisfaction	4.111	0,886	Very Practical
The Value of Practility		4.013	0,811	Very Practical

3.6. Maintainability

Maintainability is the probability of success of a system or component that will operate again in its original state within a certain period [17]. These characteristics describe the extent to which a product or system can be updated to improve, modify, or adapt to

changing circumstances and requirements [16]. Based on interviews with managers and developers that the Livin by Mandiri application uses the Payment Application Programming Interface (API) from Wise Platform, as a white-labelled infrastructure to make money transfers abroad.

3.7. Portability

The ease with which a system, product, or component can be transferred from one hardware, software, or other operational or usage environment to another. The portability test is carried out by accessing the application through several popular browsers based on references from W3counter [18].

Table 3. Portability Test Results

Browser	Status
Chrome	Ok
Safari	Ok
Internet Explorer & Edge	Ok
Opera	Ok

According to the study's findings, the Livin Mandiri application is of high quality and meets the standards of functional suitability, dependability, performance efficiency, usability, maintainability, and portability.

4. CONCLUSION

The Livin' by Mandiri application has achieved a very encouraging level of quality. These results show that the app has significant advantages in several key aspects, such as functionality, reliability, speed, usability, as well as the ability to adapt to various devices. First of all, the application shows a high degree of functional suitability. This means that the features and functions in the application can run as expected, providing a consistent and satisfying experience for users. The reliability and stability of the app were also a positive highlight in the study, confirming that the app can reliably carry out banking tasks without serious disruption or damage. Furthermore, the ability of the application to respond quickly and responsively is also one of the strong points. In an era where speed is highly valued, the fast response of the app provides a streamlined experience and doesn't make users wait longer than they should. In addition, the results showed that the interface of this application is easy to use and navigate, providing convenience for users in accessing and utilizing banking services. It is also important to note that this app has been found to be in a well-maintained condition and can be updated as needed. In the ever-evolving world of

P.ISSN: 2086 – 4981
E.ISSN: 2620 – 6390
tip.ppj.unp.ac.id

technology, good maintenance is key to ensuring applications keep running properly and are safe from problems that may arise over time. Finally, the app's flexibility to operate on a variety of devices, such as smartphones, tablets, and laptops, is a valuable feature. This allows users to conveniently access banking services from any device they own, according to their individual preferences and needs.

REFERENCES

[1] E. Efriani, J. A. Dewantara, and A. Afandi, "Pemanfaatan aplikasi Discord sebagai media pembelajaran online," *J. Teknol. Inf. dan Pendidik.*, vol. 13, no. 1, pp. 61–65, 2020.
[2] M. Amri and Y. A. Shobri, "Persepsi mahasiswa terhadap penggunaan quizizz dalam pembelajaran akuntansi konsolidasi Bank Syariah di IAIN Ponorogo," *J. Teknol. Inf. Dan Pendidik.*, vol. 13, no. 1, pp. 128–136, 2020.
[3] R. Ningrum, S. Bacmid, and A. Jalil, "Pengaruh Manfaat, Kepercayaan dan Kemudahan Penggunaan Terhadap Minat Nasabah Menggunakan Mobile Banking di Bank Mega Syariah Cabang Palu," *J. Ilmu Perbank. Dan Keuang. Syariah*, vol. 3, no. 1, pp. 30–45, 2021.
[4] A. Hernandez and F. David, "Pengaruh Mobile Banking Terhadap Kepuasan Nasabah Bank Dalam Transaksi Sehari-Hari," *IT-Explore J. Penerapan Teknol. Inf. dan Komun.*, vol. 1, no. 1, pp. 17–32, 2022.
[5] T. P. Jaya, R. Daga, and A. Samad, "Analisis Strategi Bersaing PT. Bank Mandiri (Persero) Tbk Selama Masa Pandemi Covid 19 dan Pengaruhnya terhadap Laba dengan Menggunakan Analisis Rantai Nilai," *SEIKO J. Manag. Bus.*, vol. 6, no. 1, pp. 247–261, 2023.
[6] S. Anugrah and A. E. Putra, "Analisis Kualitas ISO 25010 Aplikasi Artificial Intelligence Troubleshooting Komputer dengan FURPS," *E-Tech J. Ilm. Teknol. Pendidik.*, vol. 6, no. 2, 2019.
[7] R. Maliki, K. Wiharja, and K. A. Laksitowening, "Implementasi Iso 25010: 2010 Untuk Evaluasi Kualitas Perangkat Lunak (Studi Kasus: I-Gracias Universitas Telkom)," *Univ. Telkom*, 2014.
[8] W. Dinasari, A. Budiman, and D. A. Megawaty, "Sistem Informasi Manajemen Absensi Guru Berbasis Mobile (Studi Kasus: Sd Negeri 3 Tangkit Serdang)," *J. Teknol. Dan Sist. Inf.*, vol. 1, no. 2, pp. 50–57, 2020.
[9] O. Januarti and S. Suyatno, "Pengaruh Kualitas Layanan Livin By Mandiri Terhadap Kepuasan dan Loyalitas Nasabah PT Bank Mandiri Di Banjarmasin Pada Masa Pandemi Covid-19," *J. Bisnis dan Pembang.*, vol. 11, no. 2, pp. 1–13, 2022.
[10] G. Tyas, D. Purnamasari, and A. Suroso, "Analisis Kualitas Aplikasi E-Exam Menggunakan Standar ISO 25010," *J. Inform. J. Pengemb. IT*, vol. 20, pp. 126–132, 2018.
[11] M. S. Lamada, "Pengujian Aplikasi Sistem Monitoring Perkuliahan Menggunakan Standar ISO 25010," *J. Mediat.*, vol. 3, no. 3, pp. 1–7, 2020.
[12] M. D. Mulyawan, I. B. A. Swamardika, and K. O. Saputra, "Analisis Kesesuaian Fungsional Dan Usability Pada Sistem Informasi Karma Simanis Berdasarkan Iso/Iec 25010," *JURTEKSI (Jurnal Teknol. dan Sist. Informasi)*, vol. 7, no. 3, pp. 293–302, 2021.
[13] A. F. Yogananti and D. I. Ihya'Ulumuddin, "College Student's Perception toward" Peduli Lindungi" Application through the Usability Scale Method," *J. Teknol. Inf. dan Pendidik.*, vol. 15, no. 2, pp. 73–83, 2022.
[14] T. J. Setiyorini, Z. R. Jaelani, and A. Ngafif, "Analisis Faktor-Faktor Yang Mempengaruhi

Reliabilitas Tes Tata Bahasa Inggris Di Universitas Di Indonesia," *Didakt. J. Pendidik. dan Ilmu Pengetah.*, vol. 22, no. 3, pp. 367–383, 2022.

[15] M. Harun, "Evaluasi Kualitas Perangkat Lunak Pada Aplikasi Pcpmobile," *Akrab Juara J. Ilmu-ilmu Sos.*, vol. 6, no. 3, pp. 220–229, 2021.

[16] N. Wilis, A. A. Zulfahmi, S. Budi, and R. Prasasti, "Analisis Kualitas Aplikasi Psikotes Menggunakan Model ISO/IEC 25010," *SITEKIN J. Sains, Teknol. dan Ind.*, vol. 19, no. 1, pp. 55–60, 2021.

[17] T. T. Nugraha, F. T. D. Atmaji, and S. A. Salma, "Reliability, Availability, Maintainability, and Safety Analysis of Finger Joint Fu-King Furnimate Machine in Wood Manufacturing Industry," *J. Ilm. Tek. Ind.*, vol. 20, no. 2, pp. 247–255, 2021.

[18] A. Yulianty and A. Kurniawati, "Quality analysis of bios portal website at banking companies using iso/iec 25010: 2011 method," *Int. Res. J. Adv. Eng. Sci*, vol. 6, no. 2, pp. 11–16, 2021.

[19] Melmambessy, T. (2023). Analysis of the Opinion Students about The Online Learning System During the Pandemic Using The K-NN and Naïve Bayes Methods. Jurnal Teknologi Informasi Dan Pendidikan, 16(1), 75-85. https://doi.org/10.24036/jtip.v16i1.702.

[20] Ananda, T. (2023). Analysis of the Use of the University of Medan Area (UMA) Library Repository Using the iSystem Usability Scale (SUS) Method. Jurnal Teknologi Informasi Dan Pendidikan, 16(1), 206-217. https://doi.org/10.24036/jtip.v16i1.782.

P.ISSN: 2086 – 4981
E.ISSN: 2620 – 6390
tip.ppj.unp.ac.id