

## Quality Measurement of Online Single Submission (Oss) Information System with Mc Call Method (Case Study of Plut Kumkm)

**Lina Astika Dewi, Wafiah Muniarti, Sofiansyah Fadli, Hairul Fahmi**

STMIK Lombok, Praya, Indonesia

Email: [linaastika99@gmail.com](mailto:linaastika99@gmail.com), [wafiah.mr@gmail.com](mailto:wafiah.mr@gmail.com), [sofiansyah182@gmail.com](mailto:sofiansyah182@gmail.com),  
[iroel.ami@gmail.com](mailto:iroel.ami@gmail.com)

Correspondence: [linaastika99@gmail.com](mailto:linaastika99@gmail.com)\*

---

### KEYWORDS

Business Licensing; OSS; Mc  
Call; System Measurement

---

### ABSTRACT

The NTB Province Micro, Small and Medium Enterprise Cooperative Integrated Business Service Center (PLUT-KUMKM) under the West Nusa Tenggara Province Small and Medium Enterprise Cooperative Service, provides comprehensive assistance to KUMKM to increase production and competitiveness. With seven service areas, PLUT-KUMKM provides effective solutions for business actors. However, in issuing a Business Identification Number (NIB) via the OSS application. The thing is, like in the Business Licensing menu, there is a business development feature. Carrying out business development cannot be completed in one activity in one feature, users must return to the new application menu to continue the business development process and make updates. And user errors often occur such as entering information or not following the correct procedures when filling out forms. The licensing system seeks to be integrated electronically, aiming to cut bureaucracy and improve public services. This research measures the quality of the OSS system for issuing nibs based on the perceptions of 100 gardatransfumi assistants, using the McCall method . A comprehensive evaluation is carried out to identify weaknesses and necessary improvements. Measuring the quality of OSS systems using McCall's theory is important for understanding product quality attributes from the perspective of users and the software itself. The research results will provide in-depth insight into the condition of the website and recommendations for improvement. With the OSS system, the government is trying to make it easier to manage business legality. The NIB issued through OSS becomes the identity of business actors for import and export activities. Through quality measurements, systems, weaknesses and improvements to the NIB issuance process can be identified thereby ensuring better service for business actors.

---

Attribution-ShareAlike 4.0 International (CC BY-SA 4.0)



---

### 1. Introduction

The NTB Province PLUT KUMKM Micro, Small, and Medium Enterprise Cooperative Integrated Business Service Center is an institution under the auspices of the West Nusa Tenggara Province Small and Medium Enterprise Cooperative Service which provides assistance and other

empowerment to MSMEs in a comprehensive and integrated manner. ways to increase production, added value, and competitiveness. It has functioned as a companion institution to PLUT KUMKM which has seven areas of assistance services, including the institutional sector, production sector, marketing sector, financing sector, human resources sector, information and technology development sector, business cooperation network development sector (Nagy et al., 2018; Rana et al., 2021).

Plut Kukm is an institution that always provides services to cooperatives and micro, small and medium entrepreneurs under one roof, which is able to provide solutions for MSMEs in a comprehensive and effective manner so that they can develop regional superior potential into superior products and commodities. is the issuance of the NIB business registration number through the *OSS application*. In the issuance of the NIB there are several problems, such as in the Business Licensing menu there is a Business Development feature to carry out business development which cannot be completed in one activity in one feature. Users must return to the new application menu to continue the development and update process. business. User errors often occur, such as entering information without following the correct procedure when filling out a form.

OSS is an electronically integrated Business Licensing system or Online Single Submission ( OSS ) is a Business Permit issued by the OSS Institution on behalf of the Minister, head of institution, Governor, or Regent/Mayor to business actors through an integrated electronic system (Fasyehhudin et al., 2022; P, 2023; Tomo et al., 2021). As for anyone who can use OSS to arrange business permits, namely business actors in the form of business entities or individuals; Micro, small, medium and large businesses, individuals/business entities, both new and established before OSS operationalization; Businesses whose capital comes entirely from within the country, or contain a composition of foreign capital. The aim of implementing Online Single Submission-based Business Licensing is to improve the quality of public services by cutting bureaucracy in the form of: cutting stages or procedures, cutting costs; reducing the number of requirements; reduction in the number of paragraphs and signatures; and reducing the time required to process permits. Improvement of public services such as transparency and accountability (Gunawan et al., 2023; Hyndman & Liguori, 2016). Measuring the quality of an information system is an evaluation process to assess the extent to which an information system meets certain standards and meets user needs. Measuring the quality of information systems is important to ensure that the system can provide added value and support business goals. Software measurements are important because the quality of the system will be known after measurements are taken, the quality of the system is included in the good or bad category.

Measuring the quality of an information system is very important to determine the current condition of the information system itself, whether it is still relevant or not with current conditions, if after measuring it turns out that the information system is no longer relevant then it can be used as a reference or point of reference for improvements to make it even better. .

McCall method is a method that measures software quality. McCall's main idea is to assess the relationship of quality factors and product quality criteria or improve software quality. Measuring the quality of an information system is very important to know the current condition of the information system. The McCall factors relating to the operational properties of software are: correctness, reliability, efficiency, integrity, and usability (Rahmawati et al., 2016; Saputera et al., 2020).

In order to increase business investment in this country, the government will provide the best solutions to manage business legality more easily. The *Online Single Submission (OSS)* System is a better solution for managing Business Identification Numbers (NIB). The Business Identification Number (NIB) is the identity of the business actor which is issued through *OSS* after registration is carried out by the business actor. Business Identification Number becomes TDP (Company Registration Certificate), Customs Access, API (Import Identification Number) in carrying out import and export activities (Khumaidi et al., 2022; Tyagi & Goyal, 2023). This research aims to measure the quality of websites at Nib publications based on user perceptions using the *McCall method* . The

website that is created and run has a very important function in the Nib Issuance process for the legality of the business in its use, it is necessary to measure several quality factors to find weaknesses and improve them in the future. Measuring websites is important because by measuring, the quality of an information system will be known. One measurement method is measurement based on McCall's quality theory . According to *McCall's rules* , the way to measure the quality of attributes is arranged hierarchically, where the top level ( *high level attributes* ) is called factors, and the bottom level ( *low level attributes* ) are called *criteria* . . Factors indicate product quality attributes seen from the user's perspective. Meanwhile, the criteria are product quality parameters seen from the perspective of the software itself. These factors and criteria have a cause and effect relationship (Andrianti, 2020).

## 2. Materials and Methods

McCall method is a method that measures or evaluates software quality which combines 11 factors from Product Operation (Correctness, Reliability, Efficiency, Integrity, Usability, ), Product Revision (Maintainability, Flexibility, Testability), and Product Transition (Portability, Reusability, Interoperability). McCall's main idea is to assess the relationship between quality factors and product quality criteria or improve software quality.



**Figure 1 Method McCall**

McCall's factors relating to the operational properties of the software are: (Sagar & Saha, 2017)

- a) Correctness: The degree to which the program meets its specifications and meets the customer's mission objectives, namely Completeness, Consistency, Traceability,
- b) Reliability: The degree to which a program can perform a particular function as expected with the level of precision requested. They are Accuracy, Error Tolerance, Simplicity,
- c) Efficiency: The amount of computing resources and code required for a program to perform its functions properly.
- d) Integrity: The degree to which access to software or data by unauthorized persons can be controlled, i.e., Execution Efficiency and interface protocol.
- e) Usability The amount of effort required to study, operate, provide inputs, and interpret outputs for a program, namely Communicativeness, Operability, and Training (Kasriah et al., 2022).

### Poulation and samples

Of the 74 respondents consisting of 40 men and 34 women with an age range of 21 to 52 years, and the majority with bachelor's and master's educational backgrounds, system measurements were carried out through questionnaires. Each respondent has a variety of experiences and knowledge that they bring to bear in answering the questions in the questionnaire.

System measurement through this questionnaire aims to obtain a comprehensive understanding of user perceptions and experiences of the system being evaluated. The questionnaire may include questions about the system's usability, reliability, ease of use, performance and other relevant aspects.

The data collection process from the questionnaire will then be processed and analyzed to gain useful insights in understanding the extent to which the system meets user needs and expectations. The results of this analysis can be used to identify areas that require improvement or improvement in the system, as well as to make decisions based on data in developing or perfecting the system in question. The Slovin formula is a formula used to determine the sample size. Usually, this formula is found in research methodology books because it is a formula related to research activities, especially those that rely on populations and samples. The formula reads, "The Slovin formula is used to determine the size of the research sample with a significance level that can be chosen, whether using 0.05 (5%) or 0.01 (1%)". Here's Slovin's formula:

$$n = \frac{N}{1 + Ne}^2$$

Information:

n = Number of samples

N = Number of residents

e = The maximum error limit that can be tolerated in the sample aka significance level is 0.05 (5%) or 0.01 (Saputera et al., 2020)

Problem identification is the process of recognizing, determining, and describing the problems or obstacles faced in a particular situation or context. This is the first step in troubleshooting and planning corrective action. Problem identification involves gathering information to understand the root of the problem so that appropriate solutions can be implemented.

Literature study or often called a literature review in English is a form of comprehensive review or analysis of literature or a collection of writings that are relevant to a particular research or study topic. Literature studies include reviewing, synthesizing and understanding research results, theories, scientific articles, books and other existing literature sources.

Data collection through observation, interviews and distributing questionnaires to *OSS users*. in order to find out and measure the quality of a system, and the samples taken are MSME companions.

Data Processing *Likert Scale* or Likert Scale is a research scale used to measure attitudes and opinions. This scale is used to fill out questionnaires that require respondents to indicate their level of agreement with a series of questions. The instrument used in this research uses a Likert scale with scores on the Likert scale used between 1 and 4 with 4 alternative answers. The specified questionnaire measurement scale can be seen in Table 1 below:

**Table 1 Scale Likert**

Question	Score
Very Unimportant	1
Not important	2
Important	3
Very important	4

Data analysis is the process of turning raw data into meaningful information. Data analysis steps can vary depending on the analysis method used and research objectives, based on McCall's theory.

Data analysis was carried out by quantitative data analysis using measurement techniques based on the formula:

$$F_a = w_1c_1 + w_2c_2 + w_3c_3 + \dots + w_nc_n \dots\dots\dots(1)$$

Where:

F<sub>a</sub> = Software quality factors

w<sub>1</sub> = Weight depending on product and importance

c<sub>1</sub> = Metrics that affect software quality factors

The grading system uses the following stages:

- 1) Determine the criteria used to measure a factor,
- 2) Determine the weight (w) of each criterion (0.1 ≤ w ≤ 0.4), based on the importance of the agency to the system. Where:
  - 0.1 = very unimportant
  - 0.2 = not important
  - 0.3 = Important
  - 0.4 = very important
- 3) Determine the criterion value scale, where the scoring scale used between 1-5
- 4) Enter values on each criterion
- 5) Calculate the total value (Camara M et al., 2021).

### 3. Results and Discussions

The following is a table of indicators and weighted values for each question from the questionnaire.

**Table 2** Table of indicators and weighted values of each question from the questionnaire,

No	Indicator	Information	Weight	Criterion Value
1	Accuracy	a. Finished		
		1. This application is capable of carrying out this process	0,4	3,49
		2. The features contained in the OSS application already exist	0,3	3,50
		b. Consistency		
		1. The features and table design on each page are the same	0,3	3,31
		2. Data management on each form is the same	0,4	3,31
		3. The language used is consistent on each page	0,4	3,41
		4. The form and reporting structure for processing all data is the same	0,4	3,34
		5. The language used is easy to understand	0,3	3,57
		c. Traceability		
1. Users can get the required information on time	0,3	3,42		
2	Utility	d. Communicativeness		
		1. The text of each page can be read clearly	0,4	3,57
		2. The function of each button is clear	0,4	3,55

		<b>e. Operation</b>	
		1. The menu options and buttons on the system are easy to use	0,4      3,51
		2. Users easily understand the existing coding system	0,3      3,50
		<b>f. Training</b>	
		1. New users can easily use the oss application	0,4      3,32
		2. There is a help service provided by the system to help new users in using the OSS application	0,4      3,53
3	Reliability	<b>g. Accuracy</b>	
		1. The application easily inputs the input required by the system	0,3      3,5
		2. This application displays exact data according to the keywords searched	0,4      3,41
		3. This application provides data and information that suits user needs precisely	0,4      3,27
		4. The information from this application is accurate and error-free	0,4      3,41
		5. The output of this application is presented in the correct form making it easier for users to understand	0,3      3,41
		<b>h. Fault tolerance</b>	
		1. What if application and data access is not commonly used by those who are entitled to use it	0,3      3,39
		<b>i. Simplicity</b>	
		1. The information in the application is easy to understand without any difficulty	0,3      3,47
		2. The menus in this application can be easily understood without any difficulty	0,4      3,34
4	Efficiency	<b>j. Excecution</b>	
		1. Are the service and data menu functions appropriate to your needs?	0,4      3,27
		2. The interface, protocols used to operate the OSS application are adequate	0,3      3,39
5	Integrity	<b>k. Security</b>	
		1. This application can control user access by limiting access rights	0,3      3,36
		2. The login process can be correct and in accordance with user expectations	0,4      3,42

a. Accuracy  
Completeness

$$\begin{aligned}
 &= w_1c_1 + w_2c_2 \\
 &= (0,4 \times 3,49) + (0,3 \times 3,50) \\
 &= 1,39 + 1,05 \\
 &= 2,44
 \end{aligned}$$

Consistency

$$\begin{aligned}
 &= w_1c_1 + w_2c_2 + w_3c_3 + w_4c_4 + w_5c_5 \\
 &= (0,3 \times 3,31) + (0,4 \times 3,31) + (0,4 \times 3,41) + (0,4 \times 3,34) + (0,3 \times 3,57)
 \end{aligned}$$

$$\begin{aligned}
 &=0,99+1,32+1,36+1,33+1,07 \\
 &=6,07 \\
 \text{Penetrability} &=w1c1 \\
 &=(0,3 \times 3,42) \\
 &=1,02 \\
 \text{Fa1} &= \frac{\text{Completeness} + \text{Consistency} + \text{Penetrability}}{3} \\
 &= \frac{2,44 + 6,07 + 1,02}{3} \\
 &= 9,53 \\
 \text{Persentase} &= \frac{\text{Value gained}}{\text{Maximum Value}} \times 100\% \\
 &= \frac{9,87}{4} \times 100\% \\
 &= 79,41\%
 \end{aligned}$$

b. Utility

$$\begin{aligned}
 \text{Communicative} &=w1c1+w2c2 \\
 &=(0,4 \times 3,57)+(0,4 \times 3,55) \\
 &=1,43+1,42 \\
 &=2,85 \\
 \text{Operation} &=w1c1+w2c2 \\
 &=(0,4 \times 3,51)+(0,3 \times 3,50) \\
 &=1,40+1,05 \\
 &=2,45 \\
 \text{Practice} &=w1c1+w2c2 \\
 &=(0,4 \times 3,32)+(0,4 \times 3,53) \\
 &=1,32+1,41 \\
 &=2,73 \\
 \text{Fa2} &= \frac{\text{Communicativeness} + \text{Operability} + \text{Practice}}{3} \\
 &= \frac{2,85 + 2,45 + 2,73}{3} \\
 &=8,03 \\
 \text{Persentase} &= \frac{\text{Value gained}}{\text{Maximum Value}} \times 100\% \\
 &= \frac{8,03}{4} \times 100\% \\
 &=66,9\%
 \end{aligned}$$

c. Readiness

$$\begin{aligned}
 \text{Accuancy} &=w1c1+w2c2+w3c3+w4c4+w5c5 \\
 &=(0,3 \times 3,35)+(0,4 \times 3,41)+(0,4 \times 3,27)+(0,4 \times 3,42)+(0,3 \times 3,41) \\
 &=1,05+1,36+1,30+1,37+1,03 \\
 &=6,11 \\
 \text{Fault Tolerance} &=w1c1 \\
 &=(0,3 \times 3,39)
 \end{aligned}$$

Simplicity

$$\begin{aligned}
 &=1,01 \\
 &=w_1c_1+w_2c_2 \\
 &=(0,3 \times 3,47)+(0,4 \times 3,34) \\
 &=1,04+1,33 \\
 &=2,37 \\
 Fa_3 &= \frac{\text{Accuancy} + \text{Faul Tolerance} + \text{Simplicity}}{3} \\
 Fa_3 &= \frac{6,11 + 1,01 + 2,37}{4} \\
 &=9,49 \\
 \text{Persentase} &= \frac{\text{Value gained}}{\text{Maximum Value}} \times 100\% \\
 \text{Persentase} &= \frac{9,49}{4} \times 100\% \\
 &=79,08\%
 \end{aligned}$$

d. efficiency

Exucution Efficiency

$$\begin{aligned}
 &=w_1c_1+w_2+c_2 \\
 &=(0,4 \times 3,27)+(0,3 \times 3,39) \\
 &=1,30+1,01 \\
 &=2,31 \\
 \text{Persentase} &= \frac{\text{Value gained}}{\text{Maximum Value}} \times 100\% \\
 \text{Persentase} &= \frac{2,31}{4} \times 100\% \\
 &=57,7\%
 \end{aligned}$$

e. Integrity

Security

$$\begin{aligned}
 &=w_1c_1+w_2c_2 \\
 &=(0,4 \times 3,36)+(0,4 \times 3,42) \\
 &=1,34+1,36 \\
 &=2,70 \\
 \text{Persentase} &= \frac{\text{Value gained}}{\text{Maximum Value}} \times 100\% \\
 \text{Persentase} &= \frac{2,70}{4} \times 100\% \\
 &=67,5\%
 \end{aligned}$$

**Table 3 System Credential Category**

Category	Score in percentage
Very Valuable	81%-100%
Worth it	61%-80%
Not feasible	41%-60%



---

Totally Not Worth It <20%

---

From the results of the calculations above, the values for each component of the criteria are obtained, namely: *correctness* 79.41%, *usability* 66.9%, *reliability* 79.08%, *efficiency* 57.7% and *integrity* 67.5%. Based on existing provisions, the measurement results quality in the *correctness* section got the highest score and is included in the very suitable for use category, while *the Efficiency* section received the lowest score and is included in the quite suitable for use category, so that development efforts can be increased on the *efficiency* side of OSS applications. In terms of reliability, this application is very suitable for use, but there needs to be socialization in the form of training on the use of the application to users so that users can understand the various features available in the application.

#### 4. Conclusion

OSS applications have a high level of correctness but there is still room for improvement in terms of efficiency of use. Therefore, the suggestion that can be given is to improve training for users to utilize application features more efficiently. In addition, application updates can also be carried out to correct efficiency deficiencies and ensure the application remains relevant and can properly meet user needs. With these steps, it is hoped that the use of OSS applications can be more optimal and provide greater benefits for users.

#### 5. References

- Andrianti, A. (2020). Pengukuran Kualitas Aplikasi Rekap Indikator Mutu Harian RS Bhayangkara Jambi Menggunakan Metode McCall. *Jurnal Ilmiah Media Sisfo*, 14(1), 24–34. <https://doi.org/10.33998/mediasisfo.2020.14.1.716>
- Camara M, A. S., Aelani, K., & Juniar S, F. D. (2021). Pengujian Kualitas Website menggunakan Metode McCALL Software Quality (studi kasus smkn4bdg.sch.id). *Joint: Journal of Information Technology*, 3(1), 25–32.
- Fasyehhudin, M., Jaya, B. P. M., & Rahman, Y. M. (2022). Deregulation and Debureaucratization of Business Licensing Services Through The Online Single Submission (OSS) System in Local Governments Post Government Regulation Number 24 of 2018 Concerning Electronically Integrated Business Licensing Services. *Jurnal Dinamika Hukum*, 22(1), 57–71.
- Gunawan, C. Y. F., Purnamaningsih, P. E., & Winaya, I. K. (2023). Efektivitas Penerapan Pelayanan Program Perizinan Berusaha Berbasis Online Single Submission (OSS) di Dinas Penanaman Modal dan Pelayanan Terpadu Satu Pintu (DPMPTSP). *Business and Investment Review*, 1(4), 9–14. <https://doi.org/10.61292/birev.v1i4.34>
- Hyndman, N., & Liguori, M. (2016). Public Sector Reforms: Changing Contours on an NPM Landscape. *Financial Accountability & Management*, 32(1), 5–32. <https://doi.org/10.1111/faam.12078>
- Kasriah, K., Profita, A., & Widada, D. (2022). Analisis Pengaruh Kualitas Sistem Online Single Submission (OSS) dan Kepuasan Kerja terhadap Kinerja Pegawai. *Arika*, 16(2), 97–110. <https://doi.org/10.30598/arika.2022.16.2.97>
- Khumaidi, A., Suyono, S., Puspita, D., & Anggraeni, L. (2022). Pemanfaatan Web Online Single Submission (OSS) Untuk Pembuatan Nomor Induk Berusaha (NIB) Pada UMKM Tanggamus.

- NEAR: *Jurnal Pengabdian Kepada Masyarakat*, 2(1), 24–28.  
<https://doi.org/10.32877/nr.v2i1.568>
- Nagy, J., Oláh, J., Erdei, E., Máté, D., & Popp, J. (2018). The Role and Impact of Industry 4.0 and the Internet of Things on the Business Strategy of the Value Chain—The Case of Hungary. *Sustainability*, 10(10), 3491. <https://doi.org/10.3390/su10103491>
- P, A. (2023, August). *Pemerintah Kota Surakarta*. Diskomimfo SP. <https://surakarta.go.id/?P=26104>
- Rahmawati, F., Musyafa, M. A., Fauzi, M. D., & Mulyanto, A. (2016). Quality Testing of Order Management Information System Based on Mccall's Quality Factors. *IJID (International Journal on Informatics for Development)*, 5(2), 12. <https://doi.org/10.14421/ijid.2016.05203>
- Rana, G., Khang, A., Sharma, R., Goel, A. K., & Dubey, A. K. (2021). *Reinventing manufacturing and business processes through artificial intelligence*. CRC Press.
- Sagar, K., & Saha, A. (2017). A systematic review of software usability studies. *International Journal of Information Technology*. <https://doi.org/10.1007/s41870-017-0048-1>
- Saputera, S. A., Sunardi, D., Syafrizal, A., & Samsidi, P. (2020). Evaluasi Sistem Informasi Akademik Menggunakan Metode Mccall. *Journal of Technopreneurship and Information System (JTIS)*, 3(2), 9–16. <https://doi.org/10.36085/jtis.v3i2.878>
- Tomo, H. S., Sipahutar, H., & Sutrisno, J. (2021). Evaluation of Readiness of Local Government in the Implementation of Online Single Submission (OSS). *Pt. 2 J. Legal Ethical & Regul. Issues*, 24, 1.
- Tyagi, N. K., & Goyal, M. (2023). Blockchain-based smart contract for issuance of country of origin certificate for Indian Customs Exports Clearance. *Concurrency and Computation: Practice and Experience*, 35(16). <https://doi.org/10.1002/cpe.6249>