e-ISSN: 2614-8404
p-ISSN: 2776-3234

The Effect of Online Adminduk Service Applications on the Number of Population Administration Applications

Faidlul Ilahi[1], Saikin[2*)], Maulana Ashari[3], Sofiansyah Fadli[4]
[1,2,3]Department of Information Systems, STMIK Lombok, Lombok, Indonesia
[4]Department of Informatics engineering, STMIK Lombok, Lombok, Indonesia
Email: [1]faidlulilahi@gmail.com, [2]eken.apache@gmail.com, [3]aarydarkmaul@gmail.com, [4]sofiansyah182@gmail.com

Abstract – This study aims to investigate the effect of using the population and civil registration office Online Service Application (SEMAIK) on the number of population administration (Adminduk) applications at the Population and Civil Registration Office (Disdukcapil) of Central Lombok Regency. The direct impact of the implementation of this application on the number of civil registration applications has not been widely studied empirically. Therefore, this research is important to determine the extent to which the use of the SEMAIK application has an effect on increasing applications for population administration services. The SEMAIK application, as an innovation of the Central Lombok Disdukcapil, is designed to make it easier for citizens to apply for civil registration documents online without the need to visit the Disdukcapil office directly. This research method uses the System Usability Scale (SUS) to assess the level of acceptance and satisfaction of application users. The study involved 48 respondents, resulting in an average SUS score of 73.9, which indicates that the application is in the "Acceptable" satisfaction category with a grade of C and a qualitative assessment between 'Good' to "Excellent"."Data analysis shows that there is an increase in the number of Adminduk applications through the SEMAIK application during the 2021-2023 period, which is correlative with an increase in user satisfaction scores. This result confirms that the level of application acceptance is at a relatively good level. User satisfaction with the SEMAIK application has contributed to an increase in the number of Adminduk document submissions in Central Lombok Regency. This research provides important insights into the importance of usability in public service applications and its implications for the efficiency of population administration services.

Keywords – *Population Administration Service Application, User Satisfaction, System Usability Scale (SUS), Public Service Innovation, Public Service Efficiency.*

I. INTRODUCTION

Developments in the realm of information technology have a significant influence on our lives. The use of information technology can increase understanding and simplify all aspects of life [1]. The use of information technology in the context of government encourages the development of e-government, which is expected to provide benefits by increasing community empowerment through increased access to information, improving the quality of government services to the community, and increasing efficiency and transparency in government management [2]. In improving the quality of services in accordance with presidential instructions, the Central Lombok Population and Civil Registration Office seeks to make changes by utilizing information technology. In 2021, the Central Lombok Population and Civil Registration Office made changes to the Adminduk submission or application system. The use of digital technology is not only focused on the needs of the community but can also be optimized by government agencies [3].

Disdukcapil Central Lombok innovates by developing a service system that can be done online in the form of an application. Using the advances in information technology available today is the right action to support the implementation of the obligations and responsibilities of government parties [4]. The utilization of information technology in Disdukcapil Central Lombok is by creating a Service Information System in the form of a website and then developing it into an application for Android and ios devices called SEMAIK. This application is intended for the people of Central Lombok who want to take care of population administration without the need to queue at the Disdukcapil office. Utilization of the population administration information system can provide convenience in compiling population reports by referring to data that has been entered into the system [5]. SEMAIK continues to undergo improvements every year, from the appearance of the interface to the procedures for making applications. However, since the SEMAIK application was implemented to replace the old system, researchers have found few research journals that discuss the quality of public acceptance of the application using usability testing. Evaluation and testing of the level of community satisfaction with the application is mostly only carried out by the Central Lombok Population and Civil Registration Office. In measuring the level of satisfaction and acceptance of the community, especially the Central Lombok community and SEMAIK application service users, researchers will use usability testing analysis with the System Usability Scale (SUS) method.

Usability is a qualitative evaluation that measures the extent to which users can easily use the interface of an application [6]. Usability is a parameter to assess the extent to which users are able to access the functionality of a system effectively, efficiently, and satisfactorily when achieving certain goals [7]. Usability testing is a form of non-functional software testing that considers evaluation from the aspect of human interaction [8]. This research

e-ISSN: 2614-8404
p-ISSN: 2776-3234

chose the SUS method in testing because SUS is in the form of a questionnaire with ten statements, considered very simple and easy for respondents to understand. The result of this questionnaire is a single score scored using a 0-100 scale, making it easier for researchers to evaluate the quality and acceptance of the application. The testing approach with the SUS method focuses on the user's pperspective o that the results are in accordance with the experience experienced by the end user [9].

Usability evaluation on mobile device applications with the heuristic evaluation and UsabilityTestingMethod with 20 respondents was obtained in the satisfaction aspect, resulting in an SUS value of 45.62 with not acceptable acceptance [10]. Then, research with the title Analysis of Online Learning Systems Using the SUS Method resulted in an average SUS value of 65.67 with a marginal high acceptance level [11]. The next research is entitled Analysis of the Code Farmer Website Using SUS (System Usability Scale). From 20 red, the average SUS value is 72.25, with an acceptable level [12]. Research on the Riau Education website with the title Usability Evaluation of the Riau Provincial Education Office Website Using the System Usability Scale Method, totaling 96 respondents, the average SUS value is 7, with a marginal low acceptance level [13]. Research on the Shopee website with the title Shopee Website Usability Evaluation Using SUS obtained an SUS score of 67.08 with a marginally high acceptance level [14]. Finally, testing on the Sipinter e-learning website at SMK Nurul Islam Cianjur received an SUS score of 66.61 at an acceptable level [15].

The purpose of this study was to determine the effect of the new system implemented, namely the SEMAIK application at the Central Lombok Regency Population and Civil Registration Office, on the number of applications or submissions for population administration (Adminduk). By measuring the level of satisfaction and acceptance of the SEMAIK application using the SUS (System Usability Scale) method, researchers can determine the level of public acceptance of the SEMAIK application service. From the level of community acceptance, researchers will also compare it with Adminduk application data so that researchers can determine the effect and relationship of the SEMAIK application implementation on the number of Adminduk applications or submissions in the Central Lombok Regency area. The hope of this research is that the SEMAIK application can develop so that it continues to serve the people of Central Lombok to provide convenience in making submissions or applications in managing population administration. Disdukcapil Central Lombok continues to strive to listen to opinions and suggestions from the community in developing the SEMAIK application so that it can be accepted and useful for the community. With this research, hopefully it can be a reference and assessment material in developing the SEMAIK application so that the number of submissions and applications using this service can continue to increase.

II. RESEARCH METHODOLOGY

This study was designed to determine the effect of using the online population administration service application (SEMAIK) on the number of applications for population administration at the Population and Civil Registration Office of Central Lombok Regency. To achieve these objectives, a systematic methodological approach was used to obtain valid and reliable data and information.

A. Research Stages

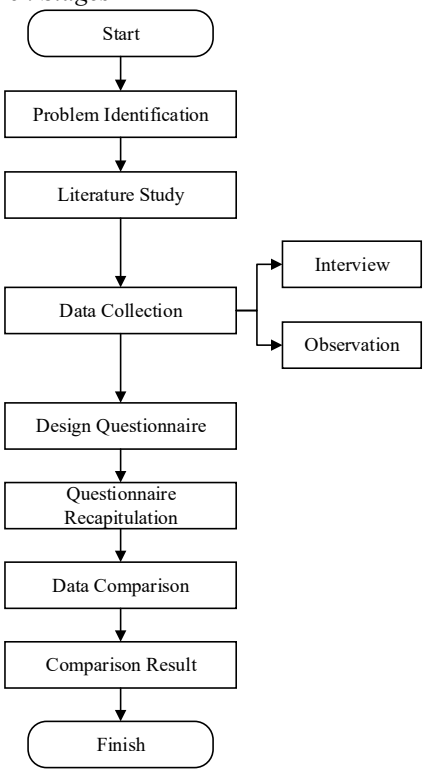

Fig 1. Research Stages

1. Problem Identification
   The purpose of this study is to assess the level of community acceptance of the SEMAIK application and identify the impact that the SEMAIK application has on the services provided by Disdukcapil Central Lombok. In particular, this study will evaluate how much the SEMAIK application contributes to the number of population administration applications.
2. Literature Study/Data Collection
   The literature study activity involved finding related research sources to support the ongoing research. The sources used in this research include scientific journals, books, and theses. To gain a deeper understanding of the research being carried out, researchers also conducted interviews and direct observations at the Central Lombok Disdukcapil office.
   a. An interview is an activity to collect data directly by asking or discussing with the resource person. The sources interviewed by the researcher included SEMAIK employees (admin) of the Central Lombok Disdukcapil, vendor owners of the SEMAIK application, and people who made submissions at the service and information counters.
   b. Observation is an action that is carried out directly, involving direct observation, study, and testing using the SEMAIK application using the admin computer at the Central Lombok Disdukcapil office. In addition, researchers also monitored the activities of people who submitted applications through the SEMAIK application at the service counter. From this stage, researchers obtained data on Adminduk

e-ISSN: 2614-8404
p-ISSN: 2776-3234

applications through the SEMAIK application for the 2021-2023 period. This data comes from the database managed by the vendor handling the SEMAIK application. The following data is in tabular form.

Table 1. SEMAIK Application Submission Data for the 2021-2023 Period (Data Source: Disdukcapil)

Type of Service	2021	2022	2023
Birth Certificate	437	588	472
Death Certificate	84	137	236
Identity card revision	742	647	518
Lost/damaged identity card	338	387	441
Child Identity Card	410	437	548
New family card for baby	533	477	624
New family card for marriage	360	283	436
New family card to add member	72	121	213
Family card lost/damaged and revision	176	297	348
SKP WNI	249	178	226
Total	**3401**	**3552**	**4062**

3. Developing a Questionnaire
   A questionnaire is the first form of a survey. In the questionnaire, each respondent is given a series of questions or statements that must be answered, and then the respondent's answers will be further analyzed [16]. The use of the SUS questionnaire is an effective way to collect statistically valid data while providing an assessment with a clear and accurate score [8]. The System Usability Scale (SUS) questionnaire consists of ten statements that are rated by respondents using a Likert scale of 1-5 as an indicator of the level of agreement with each statement. The SUS questionnaire, which has been translated into Indonesian by [17], has gone through a reliability measurement process. The evaluation resulted in an Alpha Cronbach coefficient of 0.841 [8]. The SUS questionnaire is then converted into a Google Form, which will be distributed to each respondent via a link from Google Form. Participants in SUS are individual end users of a software product to be evaluated or tested [18]. Respondents from this study totaled 48 people who were users of the SEMAIK application. The following will be presented SUS Questionnaire Instrument in Table 2 and the Likert Scale in Table 3.

Table 2. SUS Questionnaire Instrument

No	SUS Statement	Score
1	I think I will use this SEMAIK app again.	1-5
2	I feel this SEMAIK application is complicated to use.	1-5
3	I feel this SEMAIK application is easy to use.	1-5
4	I need help from other people or technicians in using this SEMAIK application.	1-5
5	I feel that the features of this SEMAIK application run properly.	1-5
6	I feel that there are many things that are inconsistent (mismatched) in this SEMAIK application.	1-5
7	I feel others will understand how to use this SEMAIK app quickly.	1-5
8	I feel this SEMAIK app is confusing.	1-5
9	I feel there are no obstacles in using the SEMAIK app.	1-5
10	I need to familiarize myself first before using this SEMAIK application.	1-5

Table 2 contains 10 statements from the SUS questionnaire instrument that have a choice of scores 1-5 to be selected by respondents. Respondents must choose one of 1-5.

Table 3. Likert Scale

Scale	Score
Strongly Disagree	1
Disagree	2
Neutral	3
Agree	4
Strongly Agree	5

Table 3 is a Likert scale that is commonly used in SUS questionnaires. It can be seen from each score that it shows the level of agreement with the statements in the SUS questionnaire. Respondents will choose one of these score options [8].

4. Questionnaire Recapitulation
   The results of the questionnaire will then be calculated using the following equation:

$$SUS = 2{,}5x\left[\sum_{n=1}^{5}(U_{2n-1}-1)^2+(5-U_{2n})\right] \quad (1)$$

From the amount obtained, it will then be totaled as a whole, and then the average value of the SUS score will be sought. The score range on the System Usability Scale (SUS) questionnaire is from 0 to 100, with an average value of 68 for websites. If the score exceeds 68, it indicates that the user is satisfied [8]. From the interval score obtained, the level of satisfaction will then be measured using Acceptabii, Gradgrade scale , d adjective rating.

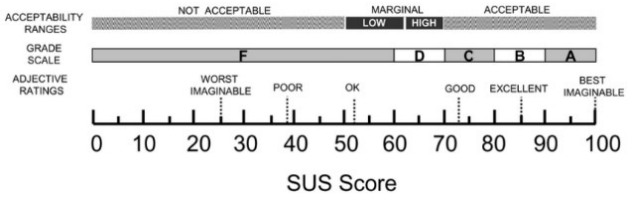

Fig 2. SUS Satisfaction Assessment Instrument published by A. Bangor, P.T. Kortum, and J.T. Miller, 2009

5. Data Comparison
   The results of the SUS assessment of the SEMAIK application will then be linked to data on the number of Adminduk applications to determine the relationship between the effect of the implementation of the SEMAIK application through the SUS method and the number of Adminduk applications at the Central Lombok Civil Registration Office.

e-ISSN: 2614-8404
p-ISSN: 2776-3234

6. Comparison Results
   Comparison results are the final stage of research in the form of conclusions.

III. RESULTS AND DISCUSSION

The SEMAIK application is a breakthrough in the provision of online public services by the Central Lombok Disdukcapil, in the form of a website-based application with the link https://semaik.lomboktengahkab.go.id/ and Android applications that can be downloaded on the Play Store by searching for "SEMAIK Disdukcapil Central Lombok." Launched in 2021, SEMAIK is the result of innovation by the Central Lombok Disdukcapil, which aims to facilitate population administration services for the people of Central Lombok without having to attend the physical Disdukcapil office. The process of applying for population administration through SEMAIK requires supporting documents in accordance with the specified requirements. The application provides 12 online services;, these include making birth and death certificates, printing new Electronic Identity Cards (KTP EL), applying for lost or damaged KTP EL, printing KTP recording certificates, printing new Family Cards (KK) for newborn babies, printing new KKs for new events such as marriage (Pecah KK), printing new KKs for additional family members, printing KKs for lost, damaged, or revised cases, printing Child Identity Cards (KIA), applying for Indonesian Citizen Recording Certificates (SKPWNI), and complaint or assistance services.

Fig 3. SEMAIK Home Screen

A. *SUS Questionnaire Recapitulation*

Based on the SUS questionnaire assessment conducted on the SEMAIK application involving 48 respondents who are end users or end users, the following results are obtained:

Table 4. SUS Questionnaire Results (Data Source: Results of research data processing)

Respondent	XI	X2	X3	X4	X5	X6
R1	3	4	4	2	3	2
R2	4	4	4	2	4	2
R3	3	4	4	4	4	2
R4	5	4	4	2	4	3
R5	3	3	2	3	2	3
R6	2	4	2	4	3	3
R7	4	2	4	1	4	3
R8	4	4	2	3	2	3
R9	5	1	4	1	4	3
R10	4	2	3	1	4	4
R11	3	1	5	3	4	3
R12	5	3	5	2	4	2
R13	3	4	1	3	3	3
R14	4	4	3	4	2	3
R15	4	1	4	2	4	2
R16	4	2	4	3	4	2
R17	3	2	4	4	4	2
R18	3	1	5	5	5	2
R19	5	3	3	4	3	2
R20	4	2	4	4	2	2
R21	5	2	3	5	5	3
R22	5	3	3	4	5	1
R23	4	2	3	2	4	2
R24	4	1	4	4	5	2
R25	3	1	5	1	4	1
R26	4	3	5	4	4	3
R27	4	3	5	3	3	3
R28	4	2	5	5	5	3
R29	5	3	3	4	3	2
R30	4	2	4	4	2	2
R31	3	2	3	5	5	3
R32	5	3	3	4	5	1
R33	4	2	3	2	4	2
R34	4	1	4	4	5	2
R35	3	3	2	3	2	3
R36	2	4	2	4	3	3
R37	4	2	4	1	4	3
R38	4	4	2	3	2	3
R39	5	1	4	1	4	3
R40	4	2	3	1	4	3
R41	4	1	5	3	4	3
R42	3	4	1	3	3	3
R43	5	4	3	4	2	3
R44	5	1	4	2	4	2
R45	4	2	4	3	3	2
R46	3	2	4	4	4	2
R47	5	1	4	1	4	3
R48	4	2	3	1	4	3

Table 5. SUS Questionnaire Results continued

Respondent	X7	X8	X9	X10	Jumlah	Jumlah dikali 2,5
R1	3	2	2	2	27	67.5
R2	4	2	3	2	31	77.5
R3	5	2	4	3	35	87.5
R4	3	3	4	2	34	85
R5	3	3	4	4	30	75
R6	2	4	3	4	31	77.5
R7	3	2	4	2	29	72.5
R8	3	4	2	4	31	77.5
R9	5	1	3	1	28	70
R10	4	2	4	2	30	75
R11	4	1	4	1	29	72.5
R12	3	2	4	2	32	80
R13	1	4	4	3	29	72.5
R14	3	3	4	2	32	80
R15	4	2	2	1	26	65
R16	4	1	3	4	31	77.5
R17	3	2	5	5	34	85
R18	2	3	4	4	34	85

e-ISSN: 2614-8404
p-ISSN: 2776-3234

R19	3	2	4	5	34	85
R20	2	3	3	3	29	72.5
R21	3	2	3	3	34	85
R22	3	2	4	5	35	87.5
R23	1	2	4	4	28	70
R24	4	2	4	3	33	82.5
R25	4	1	5	2	27	67.5
R26	3	2	3	4	35	87.5
R27	3	2	3	4	33	82.5
R28	3	2	4	4	37	92.5
R29	3	2	4	5	34	85
R30	2	3	3	3	29	72.5
R31	3	2	3	3	32	80
R32	3	2	4	5	35	87.5
R33	1	2	4	4	28	70
R34	4	2	4	3	33	82.5
R35	3	3	4	4	30	75
R36	2	4	3	5	32	80
R37	3	2	4	2	29	72.5
R38	3	4	2	4	31	77.5
R39	3	1	5	1	28	70
R40	4	2	3	2	28	70
R41	3	1	4	1	29	72.5
R42	1	4	3	3	28	70
R43	3	3	4	2	33	82.5
R44	4	2	2	1	27	67.5
R45	4	1	4	3	30	75
R46	3	2	3	3	30	75
R47	3	1	3	1	26	65
R48	4	2	3	2	28	70
					Jumlah	3695
					Rata rata	73.9

Based on table 4 and table 5, the average SUS value is 73.9, which means that the SEMAIK application is quite good in terms of satisfaction and acceptance. By using the SUS satisfaction assessment instrument as in Figure 1, four acceptability ranges are at Marginal High, having Grade C, and radjective ratings in the Good to Excellent category range can be seen in Figure 4.

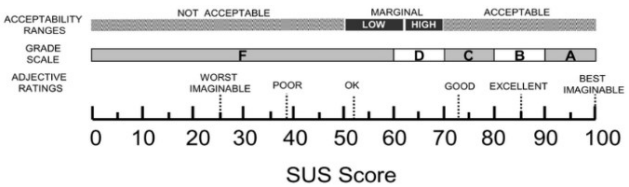

Fig 4. Assessment of SUS results of SEMAIK application on SUS Satisfaction Assessment Instrument

IV. CONCLUSION

In this study using the SUS method, the SEMAIK application received an average SUS score of 73.9, with acceptability ranges being at Marginal High, having Grade C, and for adjective ratings in the Good to Excellent category range, the level of user satisfaction and acceptance is good. This research is very limited, given the small number of respondents. The hope of the researcher is that in future studies the number of respondents involved in similar research can be increased in order to get much better SUS score results.

REFERENCES

[1] M. D. Wicayani, "Evaluasi Kualitas Sistem Informasi Pelayanan Dinas Kependudukan dan Pencatatan Sipil Kabupaten Jember Menggunakan Metode Webqual 4.0 dan Importance Performance Analysis (IPA)," 2019.

[2] N. A. Prastiwi, S. Kholil, and S. T. Sumanti, "Pengelolaan Website Dinas Komunikasi Dan Informatika Kabupaten Asahan Sebagai Akses Informasi Publik," *SIBATIK JOURNAL: Jurnal Ilmiah Bidang Sosial, Ekonomi, Budaya, Teknologi, Dan Pendidikan,* vol. 1, no. 11, pp. 2605-2614, 2022.

[3] S. M. Gucci, "Evaluasi User Experience dan Rekomendasi Perbaikan pada Sistem Informasi Pelayanan Dispendukcapil Jember dengan Menggunakan Metode User Experience Questionnaire," Fakultas Ilmu Komputer, 2022.

[4] A. C. D. Susilo, "Analisis Model Penerimaan Teknologi (Technology Acceptance Model) Aplikasi Sistem Informasi Pelayanan (SIP) DISPENDUK Jember," 2019.

[5] D. Kristianto and Y. Findawati, "Perancangan dan Analisis Sistem Informasi Pelayanan Administrasi Kependudukan Sebagai Pengembangan E-government Di Kecamatan Krembung," *JATISI (Jurnal Teknik Informatika dan Sistem Informasi),* vol. 9, no. 2, pp. 1693-1704, 2022.

[6] M. Prabowo, *Metodologi pengembangan sistem informasi*. LP2M Press IAIN Salatiga, 2020.

[7] R. A. Putri, "Monograf Evaluasi Usability Microsoft Teams Menggunakan System Usability Scale," 2021.

[8] T. Wahyuningrum, *Buku Referensi Mengukur Usability Perangkat Lunak*. Deepublish, 2021.

[9] V. Y. P. Ardhana, "Analisis Usability Testing pada SITIDES Menggunakan System Usability Scale dan PIECES Framework," *Bulletin of Informatics and Data Science,* vol. 1, no. 2, pp. 89-97, 2022.

[10] A. R. Millah, S. H. Wijoyo, and R. I. Rokhmawati, "Evaluasi Usability pada Aplikasi Perangkat Bergerak SIP Dispendukcapil Jember dengan Metode Heuristic Evaluation dan Usability Testing," *Jurnal Pengembangan Teknologi Informasi dan Ilmu Komputer,* vol. 4, no. 4, pp. 1213-1220, 2020.

[11] Z. Miftah and I. P. Sari, "Analisis Sistem Pembelajaran Daring Menggunakan Metode Sus," *Research and Development Journal of Education,* vol. 1, no. 1, pp. 40-48, 2020.

[12] M. A. Kusumadya, F. Hidayat, and D. Chandra, "Analisis Website Petani Kode Menggunakan SUS (System Usabilty Scale)," *Jurnal Informatika Polinema,* vol. 8, no. 4, pp. 41-46, 2022.

[13] S. Aisyah, E. Saputra, N. E. Rozanda, and T. K. Ahsyar, "Evaluasi Usability Website Dinas Pendidikan Provinsi Riau Menggunakan Metode System Usability Scale," *Jurnal Ilmiah Rekayasa dan Manajemen Sistem Informasi,* vol. 7, no. 2, pp. 125-132, 2021.

e-ISSN: 2614-8404
p-ISSN: 2776-3234

[14] F. G. Sembodo, G. F. Fitriana, and N. A. Prasetyo, "Evaluasi Usability Website Shopee Menggunakan System Usability Scale (SUS)," *Journal of Applied Informatics and Computing,* vol. 5, no. 2, pp. 146-150, 2021.

[15] S. Budi, A. Fatkharrofiqi, M. Abduillah, and E. S. Laela, "Pengujian Kegunaan Website E-learning Pada SMK Nurul Islam Cianjur Dengan Menggunakan Skala Sistem Usabilitas," *SITEKIN: Jurnal Sains, Teknologi dan Industri,* vol. 19, no. 1, pp. 35-39, 2021.

[16] A. Mulyana *et al.*, *Metode penelitian kuantitatif*. Tohar Media, 2024.

[17] R. Nurlistiani and N. Purwati, "Interpretasi Pengujian Usabilitas E-Learning di Masa Pandemi COVID-19 Menggunakan System Usability Scale," in *Prosiding Seminar Nasional Darmajaya*, 2021, vol. 1, pp. 164-171.

[18] U. Ependi, T. B. Kurniawan, and F. Panjaitan, "System usability scale vs heuristic evaluation: a review," *Simetris: Jurnal Teknik Mesin, Elektro dan Ilmu Komputer,* vol. 10, no. 1, pp. 65-74, 2019.