



Usability Analysis of Digital-Based Agricultural Product Marketing Platform at Farmers Level in Region V, Bogor Regency

Evrina Budiastuti^{1*}, Hamzah Ritchi², Yosini Deliana³

¹Regional Innovation Graduate School, Universitas Padjadjaran, Bandung, Indonesia

²Departement of Accounting, Faculty of Economics and Business, Universitas Padjadjaran, Bandung, Indonesia

³Departement of Agricultural Socio-Economics, Faculty of Agriculture, Universitas Padjadjaran, Bandung, Indonesia

Abstract.

Purpose: This study examines the usability of a digital platform called Kiosagri.com. This study needs to carry out as one of the solutions to overcome the limited accessibility of agricultural product promotion through the use of a digital platform that is expected to have usability. Therefore, this study aims to analyze the usability of digital-based agricultural product marketing platforms at the farmer level in Region V of Bogor Regency.

Methods: This research employed a mixed method with an explanatory sequential design. The intended audience for the census of respondents was farmers who had utilized the Kiosagri.com platform. Data analysis was done on 32 respondents during the quantitative phase using descriptive statistics. Ten respondents were chosen purposefully for descriptive qualitative analysis during the qualitative phase.

Results: According to the results, the Kiosagri platform is very user-friendly. It is achieved as a result of several beneficial aspects connected to the benefits perceived by users, such as ease of use, suitability of design, and features offered by Kiosagri.

Novelty: In this study, a different way to measure the usability of digital platforms for agricultural products marketing is applied, namely by using the explanatory sequential design by conducting usability testing using descriptive statistics through the use of questionnaires and explaining the results further using descriptive qualitative through in-depth interviews which both methods are suitable for testing user experience and usability in the agricultural sector. The results of this study will be useful for the government in implementing digital marketing of agricultural products.

Keywords: Usability, Marketing, Farmer, Agricultural product, Digital platform

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INTRODUCTION

In Indonesia, agriculture is the most cultivated sector, especially in rural areas. During the COVID-pandemic, agriculture survived and positively contributed to economic growth [1]. One of these rural areas is Bogor Regency. Bogor Regency is a second-level administrative region of West Java Province, Indonesia, and is very important as one of the buffer zones for the capital city. According to the Statistical Agency of West Java Province, 6,088,233 people lived in Bogor Regency in 2020, representing 12.19% of the entire population of West Java Province [2]. Referring to the data above, the Government of Bogor Regency in developing the production and marketing of agricultural sector products implements a policy of dividing into 12 development areas as stipulated in Peraturan Bupati Bogor Nomor 34 Tahun 2022. With special characteristics in Region V, namely the demographics of the people in this area, they run agricultural businesses from production to processing process of agricultural products for various commodities.

Through the Agricultural Extension Center of Region V, the Government of Bogor Regency identified that limited accessibility for product promotion will be a major issue for selling of agricultural products in 2022 [3]. Facing this obstacle, Agricultural Extension Center has solved this problem by managing an offline regular Farmers' Market. However, there is a weakness of this Farmers Market program, because it is held seasonally while online promotion and marketing have not been carried out yet due to the inability of the agricultural community to do so [3].

*Corresponding author.

Email addresses: evrina21001@mail.unpad.ac.id (Budiastuti)

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Seeing these obstacles and with limited available resources, agricultural extension workers in Region V are trying to solve these problems by presenting digital marketing solutions through the Kiosagri.com platform. Kiosagri.com is a pilot project in the form of a marketplace in the Bogor Regency Government which is presented to support the growth of agricultural sector development [4]. This is because the agricultural sector is a sector that continues to grow positively during the COVID-19 pandemic [1]. The growth of the agricultural sector is necessary because it can encourage faster economic growth, alleviate poverty, support food security, and improve people's welfare [5].

Previous research mentions the benefits of agricultural products marketing through digital platforms such as helping to expand the distribution areas [6], opening up the market for fresh agricultural products and promoting the expansion of rural industrialization easier [7], increasing sales of agricultural products and encouraging agricultural production [8], and increasing the number of sold agricultural products and assisting farmers in marketing their agricultural products [9].

Studies on agricultural product marketing through digital platforms have been carried out, but have not seen how the usability of the digital platform is presented to suit user needs. Usability testing needs to be carried out to measure the ease of use of a new user interface design [10] because the user interface is one of the important factors that need to be considered before focusing on the technical aspects of the main application [11] and Kiosagri needs to adopt it considering that the platform has not been presented for a long time [4]. Agricultural platforms still lag in terms of usability and quality compared to other products [12], while a good platform focuses on user experience where usability is one of the main factors that can determine the value of a product for its users so the importance of the usability of a platform cannot be ignored [13].

Usability testing is an analysis of a platform interface test as formulated by Jakob Nielsen [14]. Nielsen defines usability as a quality attribute that evaluates the usability of a user interface [15] and as one method that not only improves ease of use during the design process but also assesses how easy the user interface is to use [16]. Usability according to Nielsen is also a general method based on examining design interfaces [17]. The Nielsen model is more acceptable for measuring usability because the structure of quality characteristics is described more systematically and the place of use is clearly defined [15]. Usability tests based on the Nielsen model consist of five quality components, namely learnability, efficiency, memorability, error, and satisfaction [18].

Previous research on usability analysis of digital platforms in agriculture analyzed website-shaped platforms using quantitative methods [19]–[22]. In this study, a different way of measuring the usability of digital platforms for marketing agricultural products is applied, namely by using the explanatory sequential design method by conducting usability testing using descriptive statistics through the use of questionnaires and explaining the results further using descriptive qualitative through in-depth interviews which according to [12] both methods are suitable for testing user experience and usability in the agricultural sector.

This study will examine the usability of a digital platform called Kiosagri.com which is being developed by adopting the Nielsen model. This study needs to be carried out as one of the solutions that can be facilitated by agricultural extension workers to overcome the limited accessibility of agricultural product promotion through the use of digital platforms that are expected to have usability and follow the needs of farmers as one of the users. Therefore, this study aims to analyze the usability of digital-based agricultural product marketing platforms at the farmer level in Region V of Bogor Regency.

The results of this study will be useful for the government in implementing digital marketing of agricultural products while supporting the growth of agricultural sector development in Bogor Regency. The results of this research will also be useful in presenting a digital platform that suits to user needs.

METHODS

Usability testing in this study was based on Jakob Nielsen's usability theory as a method to improve the ease of use during the design process and how easy and enjoyable a feature is to use by users [16]. This method is very suitable for measuring the usability of an application or information system [14]. This study will measure the usability of a platform e-marketplace called Kiosagri.com, a digital-based agricultural product marketing platform for farmers in Region V of Bogor Regency. E-marketplace is an innovation for interaction between buyers and sellers that can also encourage micro-enterprises including farmers to promote their businesses [23].

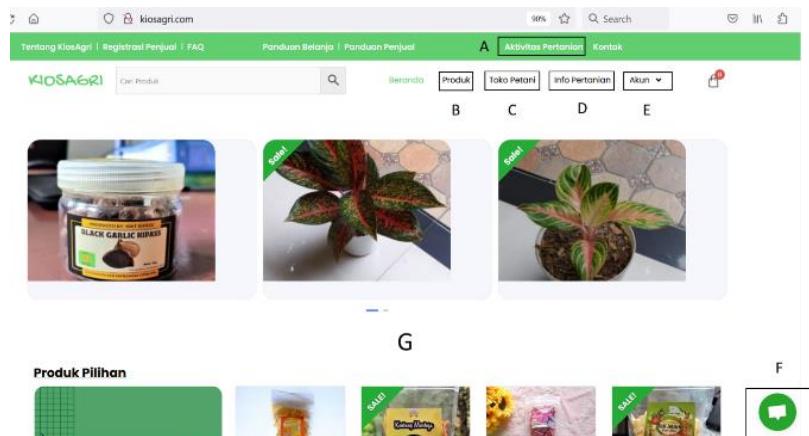


Figure 1. Definition of the areas of interest drawn across the main buttons of the menu of the home page.
The letters from A to G indicate areas of interest (AOI) of Kiosagri.com

Kiosagri.com

Kiosagri.com is a web page that markets agricultural products from all farmers in Region V of Bogor Regency. This website was developed at the Agricultural Extension Center of Region V of Bogor Regency. Kiosagri.com is a market data system to provide an effective, easy-to-use, and accessible system for customers to buy the products offered. Kiosagri.com consists of six features which are the areas of interest (AOI) of this study from the letters A to F as presented in Figure 1. The six features are Agricultural Activities (Aktivitas Pertanian), Products (Produk), Farmer Stores (Toko Petani), Agricultural Info (Info Pertanian), Accounts (Akun), and Chat Admin. While the area represented by the letter G is a front-page display that is still included in the AOI of this study.

The Kiosagri.com platform comes with the tagline Pasar Tani Go Online, which is a representation of the Pasar Tani program that is packaged digitally. The main function of Kiosagri is as a place for the promotion and marketing of agricultural products which is also equipped with additional agricultural information to increase the knowledge of users. This platform also has features that are useful for promoting farmer institutions to be better known by the wider community [4]. Kiosagri.com is a specific name that is only used for agricultural items, making it simple to remember.

Design

Usability is the quality of the interaction between the user and the technology [24]. Usability testing is often characterized as a qualitative activity that summarizes findings from observing participants in usability testing. In reality, usability testing is a mixed methods approach: qualitative and quantitative data [25]. Therefore, this study adopts a type of research with a mixed methods design. The mixed method used in this study is explanatory sequential, a method that begins with quantitative research and is further explained with a qualitative phase [26]. In the quantitative phase data was collected using questionnaires and in the qualitative phase, interviews were conducted according to [12] both methods are suitable for testing user experience and usability in the agricultural sector.

In the first phase of the research, namely the quantitative phase, researchers first explained the Kiosagri.com platform, followed by an interaction session conducted directly by respondents to try out the features contained in the platform. Then collect quantitative data using a questionnaire, analyse the results, and then use the results to plan (or create) the second phase [27]. The quantitative results inform the type of questions to be asked to respondents. The data in this phase are analysed using descriptive statistics [28] to determine the usability assessment of the Kiosagri.com website.

The second phase of the study was a qualitative phase that was a follow-up to the quantitative phase with data collection through interviews with a small sample of respondents from the respondent population in the first phase. Interviews were conducted in a semi-structured manner (in-depth interviews) with a database of qualitative questions narrowing the scope of quantitative questions [27].

The following is a mixed method diagram used in the usability testing process for the Kiosagri.com application:

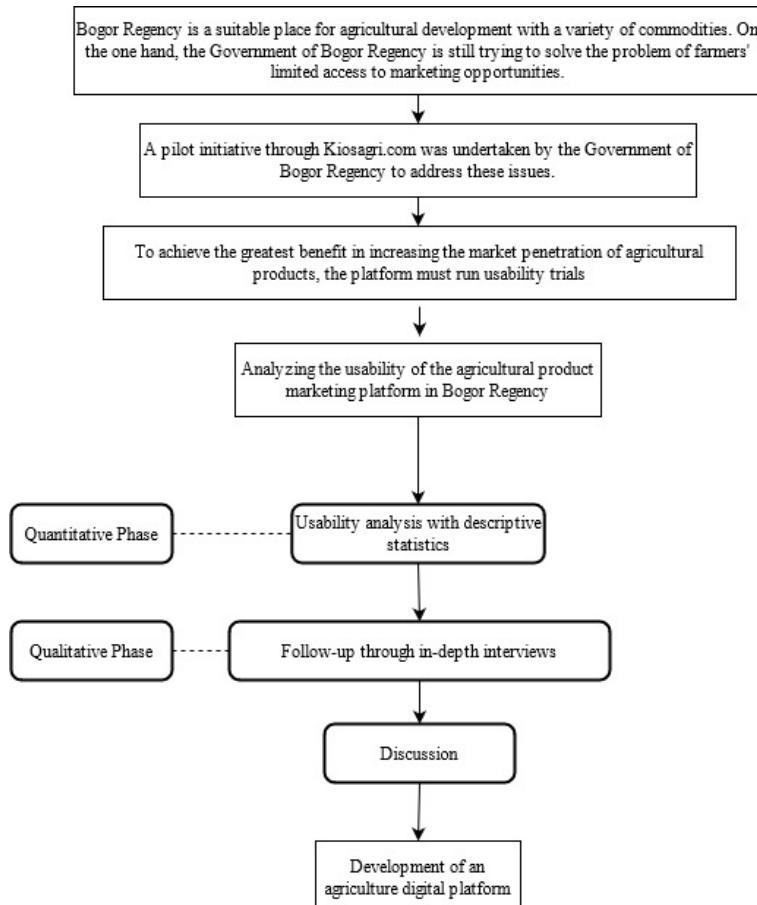


Figure 2. Mixed method diagram used in the usability testing process for the Kiosagri.com application

Respondent

This study was conducted in the working area of the Agricultural Extension Center of Region V, Bogor Regency, involving farmers who had been used of the Kiosagri.com platform with a population of 32 persons. A census was conducted on the population to participate in the quantitative phase of the research. In the quantitative phase, respondents interacted with Kiosagri and conducted usability assessments of it. Furthermore, in the qualitative phase, the respondents who participated in the in-depth interview were the same individuals in the quantitative phase, but with a smaller number and selected purposively, because the purpose of the explanatory sequential design was to follow up on the quantitative results and explore the results in more depth [26].

Data Collection Techniques

Data collection was conducted in two phases according to the explanatory sequential design. The first phase was quantitative data collection using questionnaires, analyzing the results, and then using the results to plan the qualitative phase [26].

Table 1. Description of the tasks

Task	Description
Task 1	Find the main page of the Kiosagri.com
Task 2	Find and explore the Aktivitas Pertanian feature
Task 3	Find and explore the Produk feature
Task 4	Find and explore the Toko Petani feature
Task 5	Find and explore the Info Pertanian feature
Task 6	Find and try the Akun feature to create an account
Task 7	Find and use the Admin Chat feature
Task 8	Observe the overall front-page of the platform

Source: compiled by author (2022)

Table 1 shows the tasks given to respondents to interact and try out the features on the website. Furthermore, respondents can fill out the questionnaire that has been provided to assess the usability of Kiosagri.com.

Furthermore, primary data was collected through a questionnaire that was answered directly by the respondent. The operational definitions used in the questionnaire are presented in Table 2 below:

Table 2. Operational definition of usability and five quality components

Variable	Operational Definition
Usability	Measuring the ease of use of the user interface and how enjoyable the features are
Learnability	Measuring user comfort to fulfill basic tasks when users first view/use the platform
Efficiency	Measuring the speed of specific tasks that can be accomplished after learning the platform
Memorability	Measuring user comfort when reusing the apps after not using them for some time
Error	Measuring errors made by users and how to fix or resolve them
Satisfaction	Measuring the level of user satisfaction in using the platform

Source: [14]

Various questionnaires were developed to be administered to users after they have interacted with the system or application to assess their perceived usability [27]. Table 2 shows the operational definitions of the usability and usability dimensions used in the study using a questionnaire to assess usability based on Jakob Nielsen's definition of usability [15], [18]. This questionnaire includes general usability questions and five quality components according to Nielsen standards. Five quality components approach namely learnability, efficiency, memorability, error, and satisfaction [15] are answered using a five-point Likert-type scale (1=strongly disagree, 2=disagree, 3=undecided, 4=agree, 5=strongly agree).

The qualitative phase follows on from the quantitative phase by collecting qualitative data through semi-structured interviews, audiotaping, and transcribing them. Qualitative database questions narrow the scope of quantitative questions [26], so the interview guidelines and guides were developed according to the results of the analysis in the quantitative phase.

Processing and Analysis of Data

In the quantitative phase, data were collected using a questionnaire. Once data was collected, then data processing was carried out with the following stages, namely: validity and reliability to test the questionnaire used.

The validity test was carried out using Pearson Correlation with a significance level of 0.05% using IBM SPSS software version 27. To analyze the result of the Pearson Correlation test, the R table value was first determined with degrees of freedom ($df = (n-2)$) where n is the number of respondents. Then the R-value of the table is compared with the R-value of the Pearson Correlation test of all indicators (question items) on the instrument. An indicator or question item is said to be valid if the value of $R_{count} > R_{table}$ [14]. Furthermore, the reliability test was carried out using Cronbach Alpha. An instrument is reliable if the Cronbach Alpha value of the variables is greater than 0.60 [28].

Valid and reliable data were then transformed from ordinal data to interval data using successive interval methods (MSI) [29] to be continued with descriptive statistical analysis to determine the usability assessment of Kiosagri.com.

Table 3. Usability category grouping

Value Range	Conclusion
4.01 - 5.00	Very Good
3.01 - 4.00	Good
2.01 – 3.00	Moderate
1.01 – 2.00	Less Good
0.01 – 1.00	Very Poor

Source: [14]

In the qualitative phase, validity was carried out through credibility/internal validity and transferability/external validity [30]. Credibility was carried out through the respondent's statement of willingness, while transferability was carried out by providing a detailed explanation about the reasons for researched community context, the requirements for being a research informant, the number of respondents, the reasons for using certain research methods, the time required for data collection, and time required for the entire research [30]. Reliability in the qualitative phase was achieved through researcher triangulation

using NVivo 12 Plus software through the Cohen's Kappa Coefficient test. During the implementation of the research triangulation, deliberations and consensus were held to equalize perceptions related to the themes formed during the coding process through NVivo. To interpret the Kappa value, Kappa Index can be used as proposed by Fleiss in 1981 as follows in Table 4 [31]:

Table 4. Kappa value and interpretation of agreement

Kappa Value	Interpretation
< 0.40	Poor
0.40 – 0.60	Moderate
0.60 – 0.75	Good
> 0.75	Very Good

Source: [31]

Furthermore, the data collected from semi-structured interviews were processed qualitatively using thematic analysis through NVivo 12 Plus software to facilitate and streamline the activity of grouping sentences into several themes through the coding process. This theme was adapted to the findings in the quantitative phase and adjusted to the findings from the field.

RESULTS AND DISCUSSIONS

Respondent Characteristics

Beginning with a census of 32 respondents who were farmers using the Kiosagri.com platform. Data collection was carried out from November 2022 to December 2022. All 32 respondents were able and willing to take part in the quantitative phase of the study. Using descriptive statistics that may explain or characterize a variety of data features, respondent characteristics are described [32]. The respondent characteristics are shown in Table 5.

Table 5. Respondents characteristics

Category	Sub Category	Frequency (person)	%
Age (years)	20-30	11	34.38
	31-40	7	21.88
	41-50	9	28.12
	51-60	3	9.37
	>61	2	6.25
Education (level)	Elementary school	4	12.50
	Junior high school	1	3.13
	Senior high school	21	65.62
	Diploma	2	6.25
	Bachelor	4	12.50
Experience of farming (years)	1-5	20	62.50
	6-10	8	25.00
	>10	4	12.50
Land Size (hectares)	<0.1 hectare	13	40.63
	0.1-1 hectare	14	43.75
	>1 hectare	5	15.62
Online using internet frequency (times)	Everyday	28	87.50
	2-3 times in a week	4	12.50
	Never	0	0

Source: compiled by author (2022)

Based on Table 5, 34.38 percent of farmers were in the range of 20–30 age years old. With a percentage of 65.62 percent, farmers typically had a senior high school education. A rate of 65.62 percent of the past year's non-formal education consisted of 1-3 training sessions. 62.50 percent of farmers had 1 to 5 years of experience, and 43.75 percent of them had rice fields with an area of 0.1 to 1 ha. A majority of farmers (46.88 percent) used Kiosagri.com for 1-3 months. With a proportion of 46.88 percent, they tend to use the internet to seek information daily. This is followed by their frequency of internet use, which generally reaches 87.50 percent.

Reliability and Validity

The first stage of data analysis in the quantitative phase is to test the validity and reliability of the instrument used. The validity test was conducted using Pearson Correlation with a significance level of 0.05% using SPSS software version 27. The R-value from the Pearson Correlation test is then compared with the R table which has a value of 0.361 for df = 30. Table 6 is the validity test results.

Table 6. Validity test result

Variable	Codes	R count	R table	Remark
Usability	Y1	0.635	0.361	Ok
	Y2	0.485	0.361	Ok
	Y3	0.588	0.361	Ok
Learnability	B1	0.763	0.361	Ok
	B2	0.733	0.361	Ok
	B3	0.683	0.361	Ok
	B4	0.635	0.361	Ok
	B5	0.684	0.361	Ok
Efficiency	C1	0.762	0.361	Ok
	C2	0.651	0.361	Ok
	C3	0.741	0.361	Ok
	C4	0.712	0.361	Ok
	C5	0.796	0.361	Ok
Memorability	D1	0.671	0.361	Ok
	D2	0.465	0.361	Ok
	D3	0.529	0.361	Ok
Error	E1	0.384	0.361	Ok
	E2	0.416	0.361	Ok
Satisfaction	F1	0.661	0.361	Ok
	F2	0.567	0.361	Ok
	F3	0.447	0.361	Ok
	F4	0.673	0.361	Ok

Source: compiled by author (2022)

Furthermore, the reliability test was carried out using Cronbach Alpha. Table 7 is the result of the instrument reliability test.

Table 7. Reliability test result

Variable	Cronbach's Alpha	Remark
Usability	0.872	Reliable
Learnability	0.869	Reliable
Efficiency	0.868	Reliable
Memorability	0.871	Reliable
Error	0.874	Reliable
Satisfaction	0.872	Reliable

Source: compiled by author (2022)

It can be inferred from Tables 6 and 7 of the validity and reliability tests that every item on the instrument used to assess the online usability of Kiosagri.com satisfies the requirements.

The qualitative phase was conducted in January 2023 with 10 respondents. They were selected based on the results of the quantitative phase [26]. The data-gathering process was conducted through a semi-structured interview and recorded using a recorder. The results of the recording were then transcribed into text form for further thematic analysis using NVivo 12 Plus software. Credibility and transferability were used to carry out validity in the qualitative phase. The respondent's willingness statement was used to establish credibility, and transferability was tested by including a thorough explanation of the research procedures. Reliability in this study was achieved through researcher triangulation with the help of NVivo 12 Plus software to find Cohen's Kappa Coefficients. The Kappa test was conducted on the code and created based on the results of the interviews in the qualitative phase.

Table 8. Kappa testing result

No.	Variables	Kappa	Agreement (%)	Disagreement (%)
1	Usability	0.86	94.76	5.24
2	Ability	1.00	99.95	0.05
3	Efficiency	0.80	96.74	3.26
4	Implementation	0.93	98.12	1.88

Source: compiled by author (2022)

The Kappa test findings indicate that all codes created during the qualitative phase fall into the Good Interpretation Agreement category, with a minimum value of 0.80 and a maximum value of 1 excellent (Table 8). Therefore, it can be concluded that the code, which was created based on the findings of the qualitative phase, is trustworthy.

Usability

Furthermore, the data is processed using descriptive statistics. The results of the calculation of the mean and standard deviation of usability and five quality components of Kiosagri.com are presented in Table 9.

Table 9. Usability assessment result of kiosagri

Variable	Mean	Standard Deviation	Interpretation
Usability	3.06	0.86	Good
Learnability	3.01	0.89	Good
Efficiency	3.20	0.89	Good
Memorability	2.89	0.88	Moderate
Error	2.57	0.89	Moderate
Satisfaction	2.49	0.83	Moderate

Source: compiled by author (2022)

Table 9 shows that the Kiosagri.com website has a good level of usability with a value of 3.06. As for the five quality components, they are in the moderate to good category range. Two quality components in the good category are learnability (3.01) and efficiency (3.20), while the other three quality components, namely memorability (2.89), error (2.57), and satisfaction (2.49) are in the moderate category. Of the six variables, both usability and quality components, the variable that has the highest value is efficiency at 3.20 and the variable with the lowest value is satisfaction at 2.49.

Interviews were conducted throughout the qualitative phase to learn how respondents reacted to the usability assessment's findings. The usability of the Kiosagri website was in the good category range based on respondents' replies to the results of the usability assessment of the Kiosagri website, which were usually in agreement with the results of the usability assessment and in the good category. Table 10 shows four main specific comments from respondents.

Table 10. Specific comments from respondents

No.	Comments of Respondents
1	<i>"Thank God, even though we are in the middle position. The first position is very good. We are in a good position, which is very beneficial. It means that better for us to improve it".</i>
2	<i>"It is generally good, but there are indeed many things that must be improved. For example, it is still a web. Hopefully, in the future, it can be completed with an application".</i>
3	<i>"In my opinion, the usability is generally good because farmers are very easy to access. It is also easy to understand so farmers feel helped to use this Kiosagri application in marketing their agricultural products. That is my opinion".</i>
4	<i>"Kiosagri gives benefit. We can sell the products online to increase our market level. Thank God, if the level gets better, the sales will also be increasing".</i>

Source: compiled by author (2022)

Based on Table 10 we get information that Respondents also conveyed that Kiosagri is generally good, but still needs some improvements for better quality in the future. Respondents expressed their thoughts regarding the approval of Kiosagri results in usability assessment, it is generally in the good category because it is easy to access, easy to use, easy to learn and understand, easy to remember, and there are not many errors found, and respondents also conveyed several other benefits of Kiosagri so that this platform can have good usability, namely that it can help marketing, help product promotion, design suitability, and completed with several useful additional features for sharing knowledge both from farmers to the public or from Kiosagri for farmers.

Discussion

The results of the usability assessment (Table 9) show that the Kiosagri.com website has a good level of usability with a value of 3.06. These results were achieved due to several positive things as stated by respondents related to perceived benefits such as various kinds of convenience during its use, including the suitability of the design and features offered by Kiosagri (Figure 2). The usability level with a good category shows that the Kiosagri platform has benefits and can be accepted by users because the usability level determines whether the system will be useful, accepted by users, and last long in its use [33]. A system with high usability will make the system popular for a long time and is widely used because many people will find it easy and useful [33]. Meanwhile, systems with a low level of usability will eventually be ignored by users [34].

The results of the usability assessment are also related to several things that must be improved, so that the usability category is still at the second level (good category). These results are in line with research in evaluating the usability of the Cotton Economics Research Institute (CERI) Website with an average usability score of 3.23 [35]. It indicates that participants agree that the site can be used but improvements must be made to the site [35].

To build a good system, one of the important parts is the usability aspect which is closely related to user experience [36], user performance, effectiveness, and efficiency [34]. User experience is very important in building a system, especially in a website system [36]. Discussion of several things that must be improved by Kiosagri to increase the usability value will be conducted in a separate discussion related to platform development.

Figure 3 shows the usability of Kiosagri which is summarized in one benefit code, including easy to access, easy to use, and enjoyable to use which meet the definition of usability, namely how easy and enjoyable a feature is used by users [37]. Respondents stated that the Kiosagri platform is easy to access and has not too many features both in terms of front-end and back-end users. According to respondents, this makes the Kiosagri platform quite easy to use like other e-commerce applications. By definition, usability refers to ease of use, easy navigation, and user-friendliness [38]. Thus, it can be answered that the digital-based agricultural product marketing platform at the farm level in Region V of Bogor Regency has met the usability criteria based on Jakob Nielsen's definition of usability.

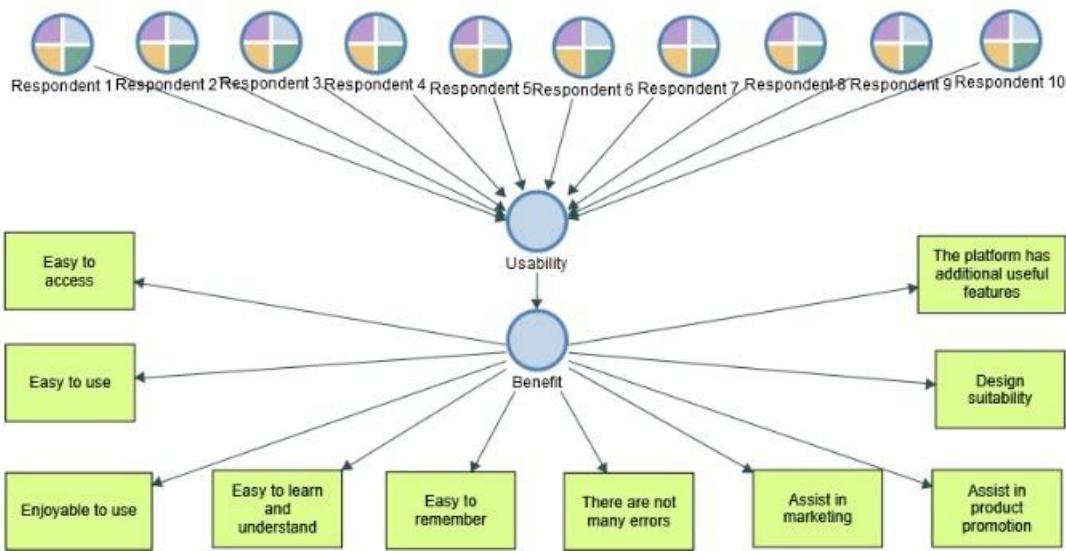


Figure 3. Usability of kiosagri.com

Respondents who rated Kiosagri's usability ratings in the good category also stated that Kiosagri was easy to learn and understand, easy to remember, and there were not many errors. These three benefits are in line with the quality components, namely learnability, memorability, and errors [37]. Respondents said that the usability of Kiosagri can be generally categorized as good because it is easy to understand and easy to learn so it helps farmers in marketing their agricultural products. An app that is easy-to-learn indicates that it has a high level of usability [39]. A system with usability is a system with easy to learn qualities, easy to use, and encourages users to use the system as a positive tool in completing their work [40].

The good usability category is also felt by respondents because it can help market agricultural products by selling them online and help promote products to the wider community. Respondents' assessment of Kiosagri's usability can occur because the use of internet media can be done to help marketing because of the high level of internet effectiveness [41].

Respondents also gave a good category assessment of the usability of Kiosagri in terms of design suitability for agricultural products and have additional useful features for sharing knowledge both from farmers to users or from Kiosagri for users. User interface design makes a significant contribution to the prevention of usage errors [42] and in the marketing of this digital era, the internet is indeed a medium for channeling

marketing communications that can encourage marketers to provide service and quality, and more experience to consumers [43].

User satisfaction is based on the usability of the system [44]. In the field of services, customer satisfaction is a very important factor and determines the success of an enterprise [45]. To increase the usability value of the Kiosagri platform, it is necessary to increase the quality components variables that still have a moderate category, namely memorability (easy to remember), error (few errors during use), and satisfaction (fun) based on suggestions from respondents. Respondents have given their responses to the ranking of the three quality components that must be improved. Therefore, Kiosagri can determine the priority scale in improving the platform according to the available resources. To find out which quality components must be improved first, the WordCloud feature on NVivo 12 Plus is used to identify the most often words spoken by farmers related to the ranking of quality components variables in the sufficient category (Figure 4).

Figure 4 shows respondents' views on the three quality components variables in the sufficient category that must be improved first. Most respondents gave the opinion that the variable that must be improved first is easy to remember/memorability dimension. Kiosagri can place the memorability variable as the priority to improve platform usability.



Figure 4. Frequent words stated by respondents regarding quality components in the sufficient category that should be improved first

Based on suggestions from respondents, increasing the memorability variable needs to pay attention to the diverse characteristics of users, especially farmers because not all farmers can understand technology easily. Table 1 shows that 56.26 percent of farmer respondents are 20-40 years. These age can be categorized as millennial farmers according to the Ministry of Agriculture, namely, farmers aged around 19 to 39 years and adaptive to various forms of communication, media, as well as digital technology [46]. Therefore, farmers with these characteristics are easy to understand the technology. However, there are still farmers outside the characteristics of millennial farmers. In this study, as many as 43.74 percent of respondents are non-millennial farmers (40 years to more than 60 years old). The characteristics of users among these farmers need to be considered because achieving high usability also need to refer how well users can learn and use the system, as well as how much they are satisfied with the process [47].

Respondents also stated that if the platform is easy to remember, it will be fewer error, and more fun in using it. This is possible because usability allows users to navigate intuitively, easily, and comfortably [48] to achieve effective and efficient goals [49] for user satisfaction.

Other opinions are also stated by respondents regarding the increasing memorability variable such as the need to develop a website in the form of a smartphone application to make it easier for users to access the

platform without having to write down the website URL address in the browser. Suggestions from these respondents need to be considered because the architectural design of mobile apps for agricultural marketing in the pandemic era/application-shaped platform can be used for digital marketing [50]. Utilizing this platform has kept the economy relatively productive during the pandemic and this model of economic activity can be the future world economy as part of the industrial revolution 4.0 [50].

Respondents also stated that making the platform easy to remember can be done by carrying out continuous counseling to farmers and can be done by improving the front-end design. Relating to the purpose of easily remembered front-end design by users, it is necessary to pay attention to the quality of web design [51]. The quality of web design includes the ability of the web to provide interesting views or interfaces such as the arrangement of the information displayed, the clarity of the information, the appearance of the menu, the selection of web colors, and the clarity of the fonts on the website itself [51]. The selection of graphics, layout, color, shape, and typography that visually attracts visitors to explore the site page is one of the criteria that determines a site page including a good site page or not [52].

Poor system quality can lead to a negative user experience, decreased user satisfaction, and ultimately, reduced usage and adoption of the app [53]. High levels of overall satisfaction may be due to positive experiences with the new system [54], the higher the level of satisfaction among users, the higher the degree of usability [55]. Related to this, respondents have provided a lot of input for the development of the Kiosagri platform in the future so that its presence can be accepted by the community and the objectives of creating this platform can be achieved. These platform development efforts are then grouped into development categories from the internal scope and the external scope involving outsiders (Figure 5). Table 2's calculation results show that each latent variable's value of Cronbach's Alpha, Composite Reliability, and AVE is greater than 0.060. Thus, each latent variable has good composite reliability, and reliability meets the measurement criteria.

The next measurement is the evaluation of the inner model or hypothesis testing. Evaluation Inner model has a function to predict the relationship between latent variables. The most basic effect can be explained by changes in the R square value, as presented in Figure 3.

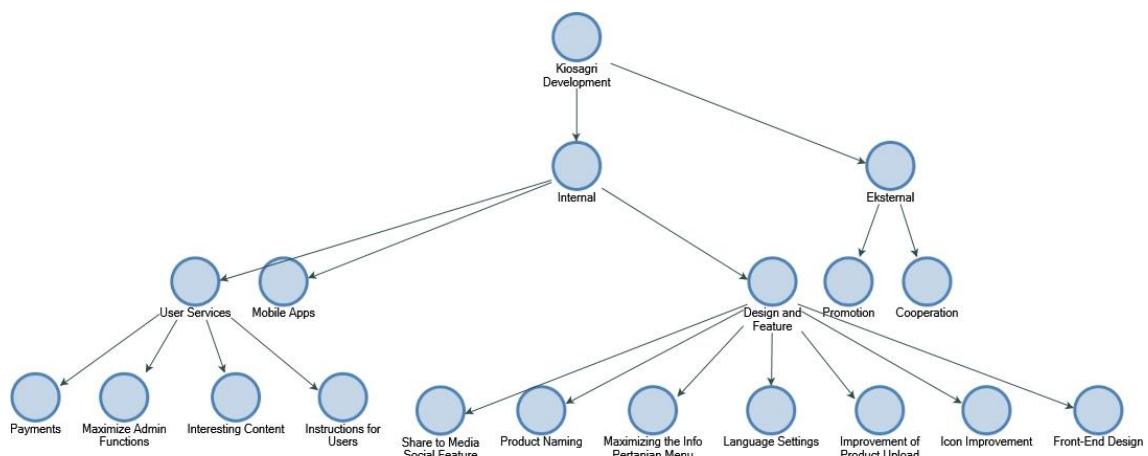


Figure 5. Respondents' responses regarding kiosagri development

Kiosagri development internal scope can be grouped into three categories, namely:

- 1) Improving user services such as improving payment services by using virtual money in e-wallets and transacting with financial technology (FinTech) [56], maximizing admin functions, presenting interesting content, as well as adding and maximizing instructions for users. Improving user services is necessary because based on the effectiveness and efficiency aspect, the internet makes people find information easily so several digital marketing channels such as websites must be optimized to achieve profitable results [57]. Such improvements are also necessary because e-commerce will not only increase traffic and profits but also make it easier for customers to shop anytime and from anywhere, saving them time and energy [58].

- 2) Building a mobile application. The development of this application needs to be considered because e-commerce which has been present earlier, also makes a mobile app version in addition to the desktop version (website). The need for mobile-based applications is currently increasing along with the widespread use of smartphones in various circles with various needs because people find it easy to access the internet using smartphones [59]. Meanwhile, the future model of economic activity will rely on the use of applications and will be influenced by technological trends that could become the future of the world economy as part of the industrial revolution 4.0 [50].
- 3) Design and feature improvements such as fixing icons that don't work yet, improving the product upload feature, maximizing the Farm Info menu, adding share features to social media, making product naming simple, setting the language from English to Indonesian, and improving the design front-end. Regarding language settings for platform development, previous research has shown the importance of using local languages on a website platform called Smart Agro for farmers in India [60]. The use of local languages is done so farmers can easily understand as a way to make applications user-friendly [60]. Building a user-friendly application also needs to pay attention to the quality of website design such as front-end design perspective [51]. The quality of website design should show the website's ability to provide an attractive appearance or interface such as information structuring, menu display, information clarity, web color selection, and website fonts [51].

Furthermore, Kiosagri development in external scope can be conducted by involving external parties and it can be grouped into two categories, namely:

- 1) Collaboration with stakeholders. Collaboration between stakeholders is very important in facing various challenges including successful implementation [61]. Based on the respondents' responses to developing the Kiosagri platform, it is better to be able to collaborate with stakeholders. Cooperation can be done such as collaborating with certain agencies to invite employees to shop for farmer products on the Kiosagri platform. This collaboration also indirectly helps promote the platform from one place to another. In addition to increasing understanding of use at the farmer level, Kiosagri needs to collaborate with relevant agencies to carry out regular assistance with agricultural extension workers by involving local farmer groups.
- 2) Online and offline promotion. Promotions are seen as a driving force in creating benefits for everyone involved in the economic process [62], therefore promotion for the development of Kiosagri can be carried out. Based on suggestions from respondents, online promotions can be carried out by utilizing the Internet because it is one of the latest trends in IT that forms the backbone of many modern businesses. With the Internet, many transactions can be made in paperless, electronic-based, and real-time modes [63]. While offline promotions can be carried out by promoting it to relevant agencies and certain groups.

This research has several limitations at the user level which are only aimed at farmers as users on the seller's side, so further research is needed to do this usability assessment of Kiosagri to other users such as consumers and agricultural extension practitioners who assist farmers in using digital platforms. In addition, increasing the number of respondents participating in the study is also necessary because an app's poor performance or usability scores can be attributed to the lack of user participation in the app's development [64] although for the initial usability evaluation, five participants have been considered sufficient to identify usability issues [65]. Another limitation of this study is that no information yet on how the level of digital platform adoption is at the farmer level and farmer's accessibility level to the use of technology, so future research can consider these two things related to the usability of digital platforms. The next limitation of this research is that it has not measured the impact of digital platforms to measure usability, so future research can also consider this measurement related to the usability of digital platforms.

CONCLUSION

This report gives a usability analysis of the Kiosagri.com website to support agricultural digital marketing operations in Bogor Regency. The Kiosagri.com platform scored good in the usability assessment, according to the results. Learnability (3.01) and efficiency (3.20) are two usability factors that fall into the good group, whereas satisfaction (2.49), error (2.57), and memorability (2.89) go into the moderate category. As Kiosgari.com develops, this website can be made better by creating a mobile application version, promoting it to users, and socializing in additional places. Future work should keep in mind that the management tool may be used with other development methodologies that are included in the iterative and incremental development methodology, even if it is designed to be used with agile-based development

approaches. Therefore, implementing digital marketing will be a fascinating research opportunity, particularly in Region V, Bogor Regency.

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