

## Conference Paper

# User Acceptance Test for Kaaba Buku Saku Application

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## Abstract

As one of the countries with a big Muslim population in the world, opportunity of growing an Islamic business in Indonesia has swiftly gained. It is proved by the growth of 95% market share in manufacture, service, and technology areas. This will give a chance for entrepreneurs to follow the wave. One of the entrepreneurs that utilized the opportunity is the developer of Kaaba Buku Saku application. They are releasing solutions for Muslims in a form of mobile application. Since the launching of this application, Kaaba Buku Saku generates only 30% active user from the total downloader. By using Binary Logistic Regression, it is known that Facilitating Conditions was the significant variable that means customer would prefer to adopt the application when they have a sufficient resources and knowledge to adopt it. From the customer journey map, it is known that the improvements that should be made by the developer are equipped the prayer time feature with automatically locate feature, adjust the highlight content to be more understandable, launch live location feature for Hajj and Umrah users, give a step by step guidance for the first use, give notification to calibrate the phone for Qibla feature, and the last is launch their iOS version application.

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## 1. Introduction

### 1.1. Background

Indonesia is one of the countries with a big Muslim population in the world. More than 87% or 209.120.000 people of Indonesia's population is a Muslim [1]. That becomes a factor of Islamic business growth in Indonesia. Based on Global Islamic Economic Indicator in 2017 data, Indonesia is on the 9th place of the country with the biggest Islamic economic asset in the world. As the impact, Islamic business in Indonesia has approximately gained 95% of market share either in manufacture, service, or technology. This will give a chance for entrepreneurs to open a new Islamic concept business. One of them is Muslim application.

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People nowadays surely familiar with any religion mobile application, including Muslims with Muslim-based mobile application. The existence of Muslim-based mobile application is helping Muslims to fulfill the requirements of their religion and fulfill their obligations as a Muslim [2]. It has brought spirituality to the fingertips of today's generation [3]. Since 2015, Muslim-based mobile application had already gained market share for about \$20 billion and at least there are 2000 Muslim-based mobile applications available on the internet and platforms all over the world. The market is projected to grow by 17% cumulative annual growth rate (CAGR) to reach \$277 billion by 2020 [4].

Most of the Muslim-based mobile application only provides basic features for Muslims general lifestyle needs. So far, there are no applications that provide features for supporting Muslims doing all their Islamic activities. This kind of situation could be seen as an opportunity, especially by the developer of the Kaaba Buku Saku application. Kaaba Buku Saku is a mobile application that launched on August 2018 by Kaaba Virtual Experience.

Features that provided by this application are sharia feature, halal restaurants nearby the user's location, general lifestyle needs as a Muslim, and hajj guidance. General lifestyle needs of Muslims that can be fulfilled by Kaaba Buku Saku is qibla direction and prayer times. Kaaba Buku Saku focusing their feature on guidance for those who went Hajj or Umrah. Kaaba Buku Saku brought this feature uniquely by creating Kaaba Experience. This feature is a virtual reality that gives the users a real guide on every activity regarding their Hajj or Umrah.

## 1.2. Research Objective

This research aim to obtain the customer preferences that influences the customers to download Kaaba Buku Saku application. Create customer journey map to analyze the behavior of the user and in the end, will generate insights to make some improvements for the application.

## 2. Literature Review

### 2.1. Technology Adoption and Diffusion Theory

Technology Adoption and Diffusion is a theory that explained more about how technology was adopted by their user and what kind of forces that may be affected the adaption process. It is also brought up how new ideas or technologies are communicated, evaluated, adopted, and reevaluated [5]. Technology adaption can be defined as steps

that was taken in the process through which a decision maker passes to reach a decision to accept or reject a new technology [6]. Moreover, technology diffusion is a dynamic consequence of adoption, it was coming up from individual adoption decisions [7].

Rogers (2003) divided adoption categorized the participants into five categories. That are innovators, early adopters, early majority, late majority, and laggards. According to Davis (1989), there are several factors that influence the adoption of new technology. The factors that influence the adoption of new technology are:

### 2.1.1. Perceived Usefulness

Based on Davis, et al. (1992) perceived usefulness refers to consumers' perceptions regarding the outcome of the experience. In the same way, perceived usefulness is consumer's perception of functional and utilitarian dimensions [8].

*H<sub>1</sub>: Perceived Usefulness has a positive effect on the adoption of Muslim-based mobile application*

### 2.1.2. Perceived Ease of Use

Rogers (1983) stated that perceived ease of use (PEOU) represents the degree to which an innovative technology is perceived not to be difficult to learn, understand, and operate.

*H<sub>2</sub>: Perceived Ease of Use has a positive effect on the adoption of Muslim-based mobile application*

### 2.1.3. Perceived Credibility

Jacoby and Kaplan (1972) said that perceived credibility refers to a customer's belief that the technology that they adopt makes them feel certain and have pleasant consequences. Such as free from financial risk, physical risk, functional risk, social risk, time-loss risk, opportunity cost risk, and information risk.

*H<sub>3</sub>: Perceived Credibility has a positive effect on the adoption of Muslim-based mobile application*

### 2.1.4. Facilitating Conditions

Facilitating conditions are an individual's belief that infrastructural facilities and technologies that support the use and acceptance of technology will help in the use of a

new technology [9]. It is also can be defined as degree to which the consumer believes that a technical infrastructure exists to support the use of a technology [10, 11].

*H<sub>4</sub>: Facilitating Conditions has a positive effect on the adoption of Muslim-based mobile application*

### 2.1.5. Perceived Complexity

According to Ozer, et. al. (2013), perceived complexity means the scale to which a new technology or innovation is perceived as easy to use and understandable. Any new technology or innovation might be classified on the complexity to simplicity continuum [12].

*H<sub>5</sub>: Perceived Complexity has a negative effect on the adoption of Muslim-based mobile application*

### 2.1.6. Perceived Trialability

According to Rogers (1995), Trialability means the degree to which an innovation or new technology may be experimented with on a limited basis.

*H<sub>6</sub>: Perceived Trialability has a positive effect on the adoption of Muslim-based mobile application*

### 2.1.7. Perceived Self-Efficacy

Self-efficacy is a judgment of one's ability to use a technology or innovation to accomplish a particular job or task [11, 13]. Recent empirical studies have reported self-efficacy as directly affecting actual use of new technologies [14].

*H<sub>7</sub>: Perceived Self-Efficacy has a positive effect on the adoption of Muslim-based mobile application*

### 2.1.8. Awareness

Ozer, et. al. (2013) once refer awareness as the extent to which users are conscious of the benefits and services provided by a new technology.

*H<sub>8</sub>: Awareness has a positive effect on the adoption of Muslim-based mobile application*

## 2.2. Customer Journey Map

Patricio *et al.* (2011) explains the customer journey as a series of touchpoints, involving all activities and events related to the delivery of the service from the customer's perspective. The touchpoints aimed to examine interactions from customers' point of view. Customer journeys are one of the most used visualization tools and have been used broadly in the past few years [15]. Customer journey mapping provides valuable insight in service provision "as is", and is by far the most disclosed customer journey approach [16].

Three essential things in customer journey maps are, first is contain a series of tasks or activities. It aims to signify what the customer is trying to accomplish. The next is including touchpoints to know where the customer do some interactions with the products or services provides by the company. Last, which is the most important is type of emotion the customer expresses or feels toward all stages [17].

A successful journey map helps company in so many ways. Not only helps to eliminate pain points and boosting the customer's experience, but also helps to identify differentiators and provides an avenue for customers to provide input on what they would like the journey to be going forward [18].

## 2.3. Conceptual Framework



Figure 2.7 above shown the conceptual framework for this research. The framework used in this study consists of some variables that related with adoption of Muslim-based Mobile Application. Variables generated from Davis (1989) that was written on literature by Moyo & Makanyeza (2015).

## 3. Methodology

### 3.1. Quantitative Method

Online survey will be conducted by using 'Likert Scale' questionnaire with scale from 1 to 5. The main questionnaire informants for this research method is young adults to adults age between 20-50, as referred to be the user of any Muslim-based mobile application. The informants must come from Bandung and should be a Muslim. To determine the sample size, Slovin formula is used in this research. Therefore, with 5% or 0.05 as the margin error, the sample size of respondents in this research is 385 respondents.

The data will be analyzed by using statistical methods in Statistical Package for Social (SPSS). Before processing the data, reliability and validity test should be done. Reliability is necessary to measure the internal consistency of the data. Reliability can be measured by using Cronbach's Alpha score. All the constructs should have an adequate alpha value to pass the reliability test. Griethuijsen et al. (2014) referred that the values between 0.6 to 0.7 is still conclude as the acceptable values of reliability.

According to Malhotra (2010), validity is the extent to which the differences found in scale scores show the right differences between objects on the characteristic that is being measured. Validity test for this research will be using Pearson Correlation. According to Malhotra (2010), the Pearson Correlation score should be more than 0.30. After pass the validity and reliability testing, the data will be analyzed by using Binary Logistic Regression. Logistic Regression can be used to model a relationship between a two-category or binary dependent variable and one or more independent or predictor variable [19].

### 3.2. Qualitative Method

Interview will be used in this research that aimed to have in-depth information about the specific topics [20]. In detailed, this research is using semi-structured interviews that allows the interviewer to pursue a series of less structured questioning and also permits the exploration of spontaneous express their perception towards the topic [21].

This research will be using purposive sampling that choose informants that have already used the application. The main informants for this method is the user of Kaaba Buku Saku application, male or female with age range in 20 to 50 years old and live around Bandung, West Java. The respondents should be a Muslim and currently using Kaaba Buku Saku application.

Manual coding will be used to analyze data that have already generated from the interview. The interview results will be interpreted and will be processed by manual coding to know the behavior of Kaaba Buku Saku application. All data that have already coded will be verified by Triangulation that will gains knowledge from the data that is more reliable [22] and eliminate the risk of having wrong conclusion. Triangulation refers to a method that will be using cross-checking multiple data sources.

## 4. Discussion

### 4.1. Quantitative Data Analysis

After done a validity and reliability testing, the result is all variables are valid and reliable. The data will be analyzed by Binary Logistic Regression to know the influence of all independent variables to adoption of Muslim-based mobile application.

TABLE 1

Omnibus Tests of Model Coefficients				
		Chi-square	df	Sig.
Step 1	Step	23.829	8	.002
	Block	23.829	8	.002
	Model	23.829	8	.002

Omnibus Test of Model Coefficient usually being used to examined the new model with independent variable including the improvement [19]. Table above shows the Chi-square ( $\chi^2$ ) is 23.829 and 8 as the degree of freedom. The  $\rho$ -value ( $\rho = 0.002$ ) is smaller than the significant value ( $\alpha = 0.05$ ). Thus, do not reject  $H_0$ . It is implying that the independent variables give an influence to the dependent variable.

TABLE 2

Hosmer and Lemeshow Test			
Step	Chi-square	df	Sig.
1	10.057	8	.261

Hosmer and Lemeshow was aimed to test the goodness-of-fit the model to the data. Based on table above, the Chi-square ( $\chi^2$ ) is 10.057 and 8 as the degree of freedom. It also shows the  $\rho$ -value is 0.261, which is bigger than the significant value ( $\alpha = 0.05$ ). So, do not reject  $H_0$  because the model fits to the data.

Model summary was the table that give percentage explanation on how strong independent variable define the dependent variable. Model summary on the table above contains of the -2 Log Likelihood (-2LL) and R square. The -2 Log Likelihood

TABLE 3

Model Summary			
Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	171.732 <sup>a</sup>	.060	.151

(-2LL) is 171.732. The R Square represents by two columns, that are Cox & Snell and Nagelkerke. The Cox & Snell is 0.060 or 6.00% and the Nagelkerke is 0.151 or 15.10%, means that the independent variable can explain 15.10% of the dependent variable, the rest is explained by other factors out of the model.

TABLE 4

Variables in the Equation							
		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 <sup>a</sup>	FC	1.623	.413	15.474	1	.000	5.068
	PU	.008	.336	.001	1	.980	1.009
	PEOU	-.565	.430	1.731	1	.188	.568
	PC	.144	.252	.326	1	.568	1.155
	PCX	-.255	.242	1.108	1	.293	.775
	PT	-.269	.337	.636	1	.425	.765
	PSE	.152	.436	.122	1	.727	1.164
	AW	-.341	.391	.763	1	.382	.711
	Constant	.203	1.755	.013	1	.908	1.225

From the table, it is known that Facilitating Conditions was the factor that significantly influence the Adoption of Muslim-based mobile application because the  $p$ -value is lower than 0.05. Besides, the test result also generated a model as below.

$$\hat{g}(x) = 0.203 + 1.623X_1 + 0.008X_2 - 0.565X_3 + 0.144X_4 - 0.255X_5 - 0.269X_6 + 0.152X_7 - 0.341X_8$$

Where:

- $\hat{g}$  = Adoption of Muslim-based mobile application
- $X_1$  = Facilitating Conditions
- $X_2$  = Perceived Usefulness
- $X_3$  = Perceived Ease of Use
- $X_4$  = Perceived Credibility
- $X_6$  = Perceived Trialability
- $X_7$  = Perceived Self-Efficacy
- $X_8$  = Awareness

## 4.2. Qualitative Data Analysis



TABLE 5

Stages	Research	Selection	Download	Using	Post-Using
Doing	<ul style="list-style-type: none"> <li>Research about Muslim-based mobile application</li> </ul>	<ul style="list-style-type: none"> <li>Go to Muslim travel fair</li> </ul>	<ul style="list-style-type: none"> <li>Download Kaaba Buku Saku application</li> </ul>	<ul style="list-style-type: none"> <li>Registered using Gmail</li> </ul>	<ul style="list-style-type: none"> <li>Recommend the application</li> </ul>
Thinking	<ul style="list-style-type: none"> <li>“The name wasn’t ear-catching at all.”</li> <li>“Is this application only available in Android?”</li> <li>“I haven’t seen any mainstream application like this on the market.”</li> <li>At first I thought this was an easy-using and Indonesian-friendly application.”</li> <li>“At first, I thought this was an Islamic fin-tech application.”</li> </ul>	<ul style="list-style-type: none"> <li>Receive recommendations</li> <li>“I haven’t seen an application that is so complete like this one, so I choose this one.”</li> <li>“I expect this app would have the same or more function compared to Muslim Pro.”</li> <li>“I expect this app would need a small memory size.”</li> </ul>	<ul style="list-style-type: none"> <li>“This app would help me to enhance my worship.”</li> <li>“It will always remind me to do my prayer.”</li> <li>This app might help me in my Umrah, but I’m not sure what is inside it.”</li> </ul>	<ul style="list-style-type: none"> <li>Use the application’s features</li> <li>“I like the prayer time feature, because it’s highlighted here.”</li> <li>“This app is so useful!”</li> <li>“It has unique layout and design, different from other applications.”</li> <li>“Dzikir feature is the coolest invention and it is indeed their value added!”</li> <li>“I wonder where is the home button of this application?”</li> <li>“Why do we need to login to use this app?”</li> </ul>	<ul style="list-style-type: none"> <li>Continue using the application</li> <li>“For the function I think it’s enough, because it’s a compact application.”</li> <li>“The application is already stable, but it needs some improvements for the features.”</li> <li>“The application is quite good, but not fully functioned.”</li> <li>“Now I know their design and layout makes the application size’s too big.”</li> </ul>

Stages	Research	Selection	Download	Using	Post-Using
Feeling	<ul style="list-style-type: none"> <li>• "After I discover this application, I am curious about it."</li> <li>• "I felt a little bit strange that they launch their app in Android first, not in iOS."</li> </ul>	<ul style="list-style-type: none"> <li>• "I am curious about this application, so I choose this one."</li> </ul>	<ul style="list-style-type: none"> <li>• "Unfortunately, there is a minimum requirement for OS Android, so not all Muslim in Indonesia can use it."</li> <li>• "Actually, I'm not into it because the memory size that it takes."</li> <li>• "At first, I feel difficult because it is a new technology and I should adapt to it."</li> </ul>	<ul style="list-style-type: none"> <li>• "After I update the app, I feel easier to use it."</li> <li>• "I trust this app even when I haven't heard about it before."</li> <li>• "I feel secure when I register for this application."</li> <li>• "I feel happy because I was helped by this application."</li> <li>• "I was confused when I see their highlight."</li> <li>• "I feel like learning to use this app is easy."</li> <li>• "I really like the dzikr feature!! I swear."</li> </ul>	<ul style="list-style-type: none"> <li>• "I want to recommend this app to my relatives."</li> <li>• "As a Muslim, I feel easiness after using the app."</li> <li>• "I think I might not recommend this app, because it is hard to use and there wasn't any explanation on how to use it."</li> <li>• "This application design is aesthetically pleasing."</li> <li>• "I think it isn't necessary to login with Gmail."</li> </ul>
Opportunities	<ul style="list-style-type: none"> <li>• Automatically locate the current location for prayer time feature</li> <li>• Switch the highlight content to their features content</li> <li>• Launch live location feature for Hajj and Umrah</li> <li>• Give step by step guidance on how to use the application in the first use</li> <li>• Give notification to calibrate the phone for Qibla feature</li> <li>• Launch their iOS version application</li> </ul>				

## 5. Conclusion

According to the research objective and the result of the research that has been conducted, it can be concluded that the potential users would prefer to use the Muslim-based mobile application when the facilitating conditions is fulfilled. Facilitating conditions means they would prefer to adopt the application when they have a sufficient resources and knowledge to adopt it. Facilitating conditions would give a positive influence for 1.623 times over the other variables. All the independent variables explain the dependent variable for 15.10% and the rest is explained by other factors out of the independent variables.

From the customer journey map, it is known that there are 6 stages in using the Kaaba Buku Saku application, from research to post-using stages. It also generates the opportunities for developer to develop the application by doing several things, such as equipped the prayer time feature with automatically locate feature, adjust the highlight content to be more understandable, launch live location feature for Hajj and Umrah users, give a step by step guidance for the first use, give notification to calibrate the phone for Qibla feature, and the last is launch their iOS version application.

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