Journal of Islamic Economics and Business
p-issn: 2798-8562| e-issn: 2798-4834
Vol.4. No.2 (2024)

Assessing the Determinants of Cashless Society Growth Among Muslims In Indonesia

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KEYWORD
cashless society, cashless payment, digital competency, digital literacy, Japelidi, post-pandemic

Article history:
Received
Okt 26, 2024
Revised
Nov 28, 2024
Accepted
Dec 19, 2024

Edition
Vol.4 No.2 (2024)
Journal of Islamic Economics and Business

ABSTRACT
The Covid-19 pandemic has increased cashless payment transactions among the Muslim community in Indonesia. Cashless payment turned into a post-pandemic lifestyle that can create a cashless society. This study aims to analyze the factors that can form a cashless society through digital literacy competencies compiled by Japelidi. Factor analysis with a quantitative approach was used as an analytical method by surveying 250 participants, characterized as Muslims who live in West Java. The research findings show that the Muslim community in West Java is classified as competent and has good digital literacy. The ability of Muslim communities living in West Java in analyzing instruments and digital implementation is the predominant factor for developing a cashless society. This research shows new factors that can influence the development of a cashless society and can be used as a reference for constructing policies for the development of a cashless society in West Java.

1. INTRODUCTION

The Covid-19 pandemic has significantly driven the increase in cashless payment transactions in Indonesia (Bella & Efendi, 2021; Haryati, 2021; Katon & Yuniati, 2020). Cashless payments were considered a safe and efficient solution during the pandemic (Nurohman et al., 2022), offering various advantages such as eliminating the need to carry cash, facilitating personal financial management, enabling efficient transactions, and minimizing the risks associated with using cash (Fitriani, 2021; Nurohman & Qurniawati, 2021; Ramadhani &

Trisnaningsih, 2022; Tarantang et al., 2019). These post-pandemic lifestyle changes have led to the emergence of a cashless society, commonly referred to as the Less Cash Society (LCS) (Ainur Hardianti et al., 2022; Ewa Abbas, 2017; Rahadi et al., 2020). In this society, the majority of transactions are conducted without using paper-based instruments but rather through electronic payments (Adiani et al., 2021).

However, despite numerous studies addressing the increase in cashless transactions , there remains a gap in the literature regarding the specific factors influencing the adoption of cashless payments within the Muslim community in Indonesia, particularly in West Java. As the province with the largest Muslim population in Indonesia and a relatively high internet penetration rate (Bella & Efendi, 2021, West Java is an ideal location to study the adoption of cashless transactions in accordance with Islamic principles (Solikhatun & Kurniawati, 2022). These principles include the avoidance of riba (usury), gharar (uncertainty), and maysir (gambling) in financial transactions (Zafani & Arifqi, 2020), which must be adhered to by the Muslim community. Although regulations regarding Sharia-compliant electronic money have been established, there is limited research that specifically examines how these regulations are understood and implemented in West Java (Bella & Efendi, 2021; Nurohman et al., 2022; Solihin & Raya, 2021).

The objective of this research is to analyze the factors that shape and develop a cashless society through the digital literacy competencies developed by Japelidi (2018) (Adiputra dkk., 2019; Kurnia dkk., 2020; Monggilo dkk., 2020; Nurhajati dkk., 2019; Rejeki dkk., 2019; Sukmawa dkk., 2019; Tarantang dkk., 2019; Wenerda & Sapanti, 2019; Wijayanto dkk., 2019; Yuwono dkk., 2018) and the latest series published for the first time related to economy and finance, specifically (Fitriyani dkk., 2021), which applies Japelidi's digital literacy competence to wise usage of electronic wallets which can be applied to optimize the roadmap towards a cashless society in West Java

Based on the literature review, it can be observed that no specific research has been found regarding the issue examined in this study. Additionally, the researcher emphasizes that Japelidi's digital literacy competencies have been widely applied to various cases and issues in Indonesia, including digital literacy in the use of electronic wallets. The novelty of this research lies in the use of Japelidi's digital literacy competencies to analyze factors that determine the level of digital literacy within the Muslim community in West Java, specifically in the context of a cashless society. This research argues that digital literacy competencies play a crucial role in the formation

of a cashless society. The proposed hypothesis is that the higher the level of digital literacy among the Muslim community in West Java, the greater the likelihood of adopting cashless transactions that align with Sharia principles. This research is expected to make a significant contribution to filling the gap in the literature and to offer data-driven policy recommendations o support the development of a cashless society in West Java.

2. METHODOLOGY

This research used a qualitative descriptive method employing factor analysis with primary data. Respondents were selected using a purposive sampling technique with the criteria of being Muslim and residing in West Java. In 2022, data collection was conducted, and perspectives from 250 respondents were obtained. The questionnaire was distributed electronically through social networks. The questionnaire consisted of questions that served as indicators of 10 digital literacy competencies in Japelidi, namely, the ability to access, select, comprehend, analyze, verify, evaluate, distribute, produce, participate, and collaborate, using the Likert scale as the measurement variable. Data processing was carried out using factor analysis with the following steps: conducting KMO and Bartlett's Test, Anti-image Matrices, Communities, Total Variance Explained, Component Matrix, Rotated Component Matrix, and calculating Component Score Coefficient Matrix. These steps were taken to identify the factors that shape the cashless society among Muslims in West Java.

3. RESULT AND DISCUSSIONS

Result

Based on the questionnaire distributed to 258 respondents, the respondent profile is shown in the explanation below. Figure 1 represents the demographic characteristics of the respondents based on their place of residence.

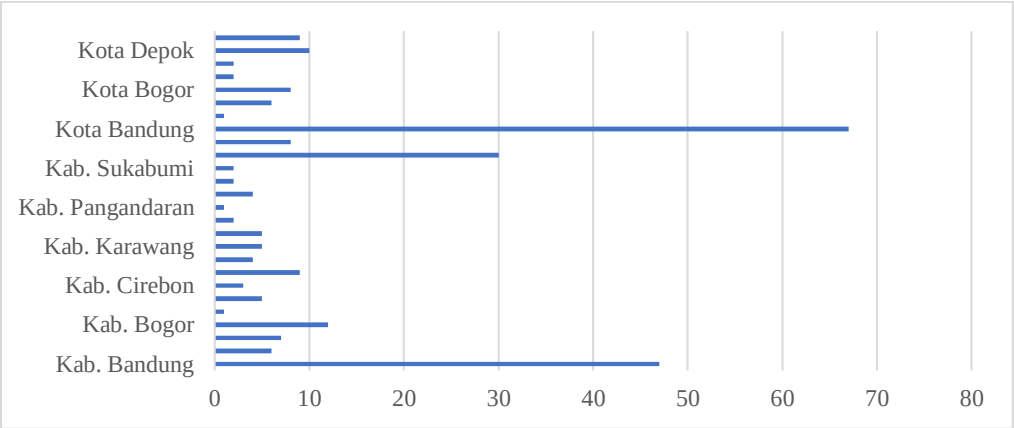

Figure 1. Demographic Characteristics Of The Respondents Based On Their Place Of Residence

Figure 1 shows the respondents in this study represent 26 cities and regencies in West Java. The highest number of respondents comes from Bandung City, Bandung Regency, and Sumedang Regency.

Moving on, Figure 2 represents the demographic characteristics of the respondents based on gender.

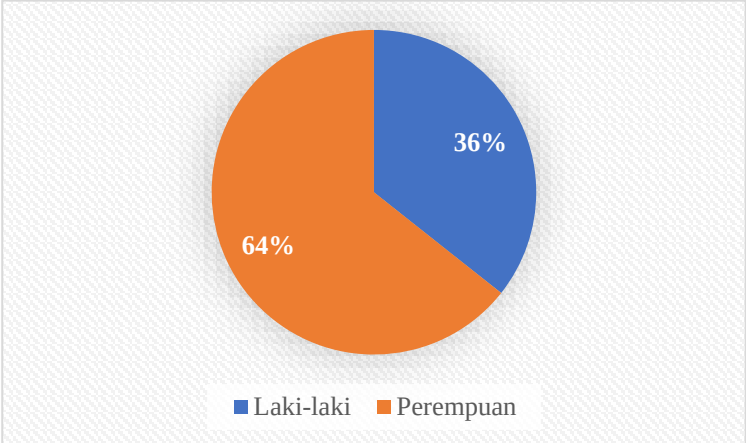

Figure 2. Demographic Characteristics of The Respondents Based on Gender

According to Figure 2, it is known that 166 respondents in this study are female, while 92 respondents are male. Therefore, it can be concluded that female Muslim respondents in West Java are prepared to face a cashless society. Another study (Trinugroho et al., 2017) has shown that in Indonesia, males are more prepared to embrace cashless transactions in financial transactions compared to females.

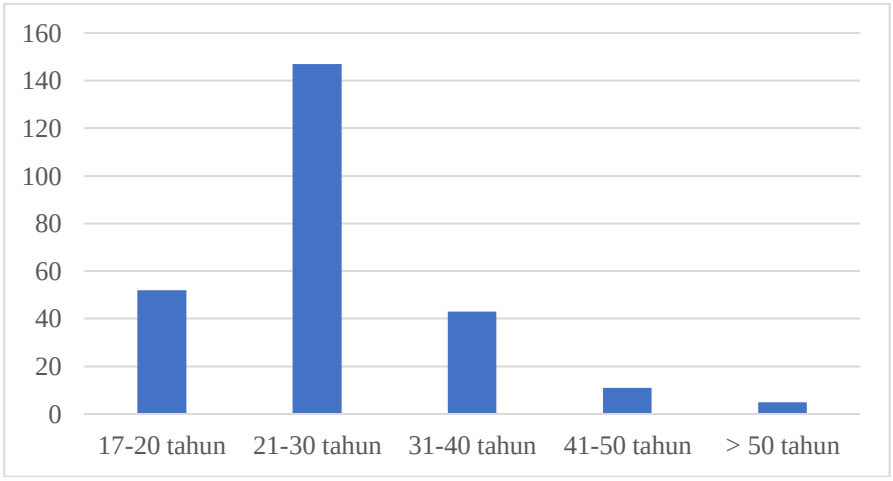

Figure 3. Demographic Characteristics of The Respondents Based on Age

Figure 3 shows that the respondents in this study are predominantly in the age range of 21-30 years. The youngest age group of respondents is 17-20 years. This research also involves respondents who are over 50 years old. The results of this study are consistent with previous research by Trinugroho et al. (2017) and Kraiwanit et al. (2019) which indicate that younger age groups are more prepared to embrace a cashless society.

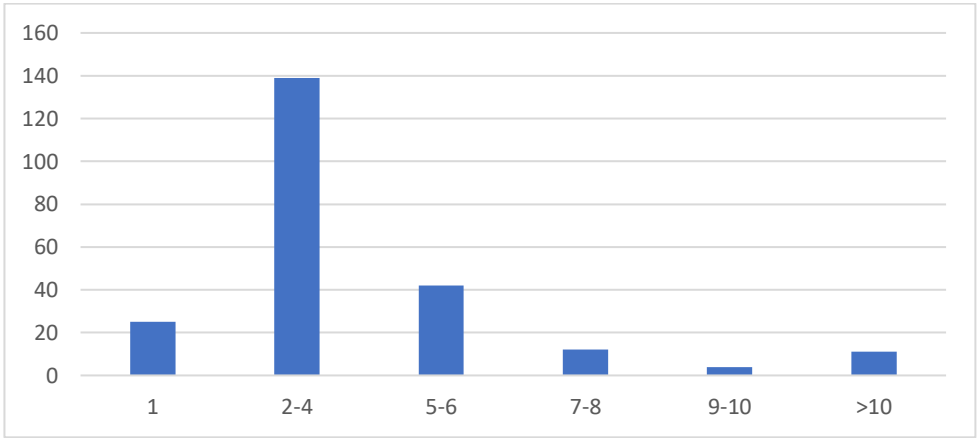

Figure 4. Demographic Characteristics of Respondents Based on Types of Non-Cash Transactions Owned and Frequently Used Post - Covid

Based on the demographic profile of the respondents, a factor analysis was performed on the questionnaire data. The types of non-cash transactions included in the study were E-Wallets (such as Gopay, Ovo, Shopeepay, Dana, LinkAja, etc.), Mbanking (such as M-BCA, Livin by

Mandiri, BriMo, BNI Mobile Banking, BJBS Mobile Maslahah, etc.), Interbank transaction applications (such as Flip, Jago, Jenius, BI Fast), Virtual Account, QRIS, Debit Cards/Credit Cards.

The results of this study are in line with the findings of a survey conducted by Danareksa Research Institute (DRI) in July 2022. Despite a significant increase during the Covid-19 pandemic, the utilization of digital transactions in Indonesia is still relatively low. About 44.01% of the respondents did not engage in digital transactions in the past 3 months. This means that more than half of the respondents conducted digital transactions but with low frequency. The digital transactions in the survey encompassed the use of ATM/debit cards, credit cards, e-money, digital wallets, phone banking, SMS/mobile banking, and Internet banking. After analyzing the questionnaire data, a factor analysis was conducted, and the results are as follows:

Table 1. Descriptive Statistics

	N Statistic	Minimum Statistic	Maximum Statistic	Sum Statistic	Mean Statistic	Result
Accessing	258	1	5	1183	4.59	Highly proficient
Selecting	258	1	5	1132	4.39	Highly proficient
Understanding	258	1	5	1093	4.24	Highly proficient
Analyzing	258	1	5	1123	4.35	Highly proficient
Verifying	258	1	5	1114	4.32	Highly proficient
Evaluating	258	1	5	1158	4.49	Highly proficient
Distributing	258	1	5	1030	3.99	Proficient
Producing	258	1	5	1069	4.14	Highly proficient
Participating	258	1	5	1015	3.93	Proficient
Collaborating	258	1	5	1008	3.91	Proficient

Source: SPSS computation (2023)

Table 1 displays the results of descriptive statistics for the 10 indicators. The minimum value for each indicator is 1, indicating a very low level of digital literacy competency. The maximum value for each indicator is 5, indicating a very high level of digital literacy competency. On average, respondents demonstrate a high level of proficiency in accessing, selecting, understanding, analyzing, verifying, evaluating, and producing digital literacy competencies. They also demonstrate proficiency in distributing, participating, and collaborating. Based on this description, it can be concluded that the respondents, who are Muslim individuals from West Java, have a good command of digital literacy competencies.

Table 2. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.885
Bartlett's Test of Sphericity	Approx. Chi-Square	1448.810
	Df	45
	Sig.	.000

Source: SPSS computation (2023)

Table 2 shows the results of the KMO and Bartlett's Test calculations. Kaiser Meyer Olkin Measure of Sampling (KMO), an index of the distance ratio between the correlation coefficient and the partial correlation coefficient, is the first-factor analytics assumption. The KMO value shall be deemed worthy if>0.5. The following calculation result is Bartlett's Test of Sphericity, which has a significance value <0.05, which is 0.00. Based on these results, the factor analysis's assumption test is completed and can be further analyzed. The following calculation result is Bartlett's Test of Sphericity, which has a significance value <0.05, which is 0.00. Based on these results, the factor analysis's assumption test is completed and can be further analyzed.

Table 3. Anti-image Matrices

		Accessing	Selecting	Understanding	Analyzing	Verifying	Evaluating	Distributing	Producing	Participating	Collaborating
Anti-image Correlation	**Accessing**	.901[a]	-.267	-.151	-.213	-.009	-.213	.169	.114	-.087	-.099
	Selecting	-.267	.913[a]	-.055	-.106	-.264	-.054	-.225	-.077	.028	.076
	Understanding	-.151	-.055	.882[a]	-.451	.147	-.089	-.006	-.080	-.139	.001
	Analyzing	-.213	-.106	-.451	.874[a]	-.267	-.121	.015	.070	-.086	.100
	Verifying	-.009	-.264	.147	-.267	.880[a]	-.369	-.019	-.165	-.009	-.012
	Evaluating	-.213	-.054	-.089	-.121	-.369	.918[a]	-.092	-.059	.058	-.101
	Distributing	.169	-.225	-.006	.015	-.019	-.092	.887[a]	-.043	-.238	-.281
	Producing	.114	-.077	-.080	.070	-.165	-.059	-.043	.923[a]	-.113	-.184
	Participating	-.087	.028	-.139	-.086	-.009	.058	-.238	-.113	.861[a]	-.510
	Collaborating	-.099	.076	.001	.100	-.012	-.101	-.281	-.184	-.510	.832[a]

Source: SPSS computation (2023)

Table 3 shows the results of the calculation of the anti-image correlation. The values produced for each variable in the study indicate the criteria for the Measure of Sampling Adequacy (MSA) number > 0.5. With MSA value for Personal "Accessing" at 0.901, "Selecting" at 0.913, "Understanding" at 0.882, "Analyzing" at 0.874, "Verifying" at 0.880, "Evaluating" at 0.918, "Distributing" at 0.887, "Producing" at 0.923, "Participating" at 0.861, and "Collaborating" at 0.832. The value of the anti-image correlation is intended to determine indicators suited for use in factor analysis. The ten indicators used in this study can be used for factor analysis as they have an MSA value > 0.5. Then the data in this study can be further analyzed.

Table 4. Communalities

	Initial	Extraction
Accessing	1.000	.683
Selecting	1.000	.636
Understanding	1.000	.592
Analyzing	1.000	.770
Verifying	1.000	.639
Evaluating	1.000	.684
Distributing	1.000	.667
Producing	1.000	.498
Participating	1.000	.747
Collaborating	1.000	.784

Extraction Method: Principal Component Analysis.

Source: SPSS computation (2023)

Table 4 shows the results of Communalities, which show how much the variable can explain the factors. The average indicator used in this study was able to explain digital literacy competence > 50%, but the producing indicator was only able to explain digital literacy competence by 49.8%. The highest indicator that is able to explain digital literacy competence is collaboration, which is 78.4%. These results are consistent with the results of other studies (Fitriyani dkk., 2021), that to deal with the problems of the digital society, collaboration between individuals with each other is needed.

Table 5. Total Variance Explained

Component		Initial Eigenvalues			Extraction Sums of Squared Loadings		
		Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
dimension	1	5.291	52.910	52.910	5.291	52.910	52.910
	2	1.410	14.098	67.008	1.410	14.098	67.008
	3	.729	7.292	74.300			
	4	.598	5.983	80.283			
	5	.468	4.676	84.959			
	6	.427	4.272	89.231			
	7	.338	3.376	92.608			
	8	.277	2.772	95.379			
	9	.236	2.356	97.736			
	10	.226	2.264	100.000			

Extraction Method: Principal Component Analysis.

Source: SPSS computation (2023)

Table 5, which is the Total Variance Explained, provides information on how many possible factors can be formed based on the indicators used. The number of components listed above indicates the number of indicators used, which is 10. The initial eigenvalues column should have a value of 1. Thus, if we sum the variance from Component 1 and Component 2, which is 52.910% + 14.098%, it equals 1. Therefore, the number of factors that can be formed based on the indicators in this study is 2.

Table 6. Component Matrix

	Component	
	1	2
Accessing	.738	-.373
Selecting	.760	-.242
Understanding	.731	-.240
Analyzing	.783	-.396
Verifying	.772	-.207
Evaluating	.801	-.204
Distributing	.655	.488
Producing	.577	.406
Participating	.739	.448
Collaborating	.688	.557
Extraction Method: Principal Component Analysis.		
a. 2 components extracted.		

Source: SPSS computation (2023).

Table 6 shows the extent to which the indicators used correlate with the factors to be formed. All variables used have a high correlation with Factor 1.

Table 7. Rotated Component Matrix

	Component	
	1	2
Accessing	.812	.155
Selecting	.750	.272
Understanding	.726	.255
Analyzing	.862	.163
Verifying	.738	.307
Evaluating	.760	.327
Distributing	.222	.786
Producing	.210	.674
Participating	.312	.806
Collaborating	.206	.861

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 3 iterations.
Source: SPSS computation (2023)

Table 7 displays the rotation matrix, which determines the indicators that contribute to Factor 1 and Factor 2. The determination of which variables belong to each factor is based on the highest correlation values. In Table 7, the variables are sorted in descending order for each factor. Therefore, it can be concluded that Factor 1 is formed by the indicators: accessing, selecting, understanding, analyzing, verifying, and evaluating. Factor 2 is formed by the indicators: distributing, producing, participating, and collaborating. The highest contribution value for Factor 1 is in the ability to analyze, while the highest contribution value for Factor 2 is in the ability to collaborate.

Discussion

The Covid-19 pandemic has changed people's habits, especially in terms of transactions that use non-cash through digital wallets now. The aim is to make transactions easier while reducing the risk of infection by the Covid 19 virus attached to cash, cards, or the hands of people holding cash. In addition, the World Health Organization (WHO) also urges the public to implement contactless payments (Katon &; Yuniati, 2020), (Helmiawan &; Nasution, 2023). Bank Indonesia recorded an increase in the value of electronic money transactions by 0.91% or about Rp 132.4 trillion in November 2022. This is the highest value recorded since the Covid-19 pandemic in early 2020. Not only that, in November 2021, the value of money transactions soared 82.55% (year on year / yoy) so the accumulated value throughout the January-November period last year grew 46.44% to IDR 1.03 quadrillion. This data is in line with the results of the research conducted, as in Figure 5. Figure 5 shows that after the COVID-19 pandemic, people carry out non-cash transactions, with the highest frequency of 2-5 uses every month. There are even respondents who use cashless transactions more than 30 times in one month.

Referring to Table 7, it was found that a cashless society in West Java's Muslim community can be formed through 2 factors derived from 10 indicators of digital literacy competence. Factor 1 is formed from indicators of accessing, selecting, understanding, analyzing, verifying, and evaluating. Factor 1 in this study is in line with other studies (Ewa Abbas, 2017). A cashless society will be realized if people have and can use cashless transaction applications via mobile phones. The public also needs to read and find information in advance on the type of cashless transaction application that will be used. Furthermore, people understand every feature contained in their cashless transaction application. The public can distinguish each function of the cashless transaction application used. People need to try the functions and benefits of cashless transaction applications before deciding to continue using them. Finally, the community can assess and decide whether the cashless transaction application used is useful enough for themselves. This factor 1 is an internal factor that must be owned by the community, this is in line with other researchers (Fitriyani et al., 2021).

Factor 2 is formed from distributing, producing, participating, and collaborating indicators. Factor 2 is in line with the results of other researchers(Marlina dkk., 2020). A cashless society through factor 2 will be realized if the community can tell and recommend to others if the cashless transaction application they use is useful and facilitates life. Furthermore, the public can archive transactions made on their cashless transaction applications (for example sending screenshots of proof of transfer via WhatsApp). The public must also have the ability to explain the usefulness of the cashless transaction application used to others and invite them to use it as well. The public needs to have the ability to share information, related to cashless transaction applications used by other people who use the application. This is in line with other researchers (Fitriyani et al., 2021), that the competencies that need to be possessed by the community in building a cashless society need to involve the ability to interact with individuals or other parties.

These two digital literacy competency factors are the basis for the formation of a cashless society, which encourages the achievement of government policies in economic recovery. Research (Fatica dkk., 2023), supports the direction of this research that cashless society has an effect on economic recovery after the COVID-19 pandemic. The results are also in line with previous research (Balakrishnan & Shuib, 2021). According to Salman and Saleem (2017), digital competence represents a combination of knowledge, abilities, and behaviors related to everything digitized, including digital transactions. This makes the results of his research explain how digital competence can lead to the formation of a cashless society through non-cash transactions and a cashless economy (Salman & Saleem, 2017). Technological advances in the industrial revolution 4.0 have made an important contribution to the development of human civilization (Abidin, et al. 2023).

The post-pandemic policy designed by the government, namely the National Economic Recovery leads to the acceleration of Indonesia's economic recovery, one of which is by increasing domestic consumption and its adjustment to changes in consumer behavior after the pandemic and Indonesia's National Medium-Term Development Plan 2020-2024 which emphasizes the role of digital transformation in encouraging economic productivity and improving services to the community is relevant to this research. This post-pandemic policy is also in line with the vision of Accelerating Indonesia's Payment System Digitalization in 2025, namely supporting banking digitalization to the level of data utilization and digital technology. This is expected to be capital in the form of contribution to recovery as well as strong, balanced, inclusive, and sustainable economic growth.

The findings in this study can practically be a frame of reference in West Java's local government policy decision-making after the COVID-19 pandemic. The development of a cashless society in West Java can use the factors formed in this study and the development model can be in line with various post-pandemic government programs and policies as well as including the roadmap for the formation of a West Java cashless

society. Based on this study's results, West Java has a great opportunity to become a pilot project for developing a cashless society model. However, this research is not limited to its application to Muslim communities, more than that it can apply in general considering the sample in this study is the largest Muslim community in Indonesia. Based on the results of research that show that the Muslim community of West Java in general already has the capital to form a cashless society that is strengthened by its digital competence, every policy both at the national and regional levels is sought so that it can be implemented optimally not only during planning, but also during implementation to monitoring and evaluation.

The West Java regional government which is linked to the results of this study, a cashless society roadmap for the West Java Muslim community can be formulated, namely : (1) Government policies regarding the cashless society that are applied consistently and comprehensively; (2) regular assistance, socialization, and training from the government to the community; (3) infrastructure development that supports the realization of a cashless society; (4) supervision of the implementation of a cashless society regulated in government regulations; (5) build cooperation, or collaboration between stakeholders, various local government agencies, the private sector, academia, and the community to encourage holistic adoption of digital technology.

4. CONCLUSION

This study aims to examine factors that can optimize the roadmap of a cashless society in West Java. This goal is obtained by evaluating the factors that can form and develop a cashless society through digital literacy competencies compiled by Japelidi (2018). The results showed that from 10 indicators of digital literacy competence, formed two dominant factors and had the potential to increase the development of a cashless society in West Java. Factor 1 that is formed is a combination of the ability to access, the ability to select, the ability to understand, the ability to analyze, the ability to verify, and the ability to evaluate.

The novelty in the research that distinguishes this study is clear in the use of Japelidi's digital literacy competence in factor analysis to see the extent to which the competence of the

West Java Muslim community is related to its digital literacy about a cashless society. Research on a cashless society as measured by 10 digital literacy competencies is still limited. Thus, this study seeks to fill the gap, and more specifically focuses research on West Java. Then, factor 2 is a combination of the ability to collaborate, the ability to participate, the ability to distribute, and the ability to produce.

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