Digital Channel Distribution in Banking Services:

A Customer Perspective from Three Developing Countries

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ABSTRACT

Purpose: Digital or online banking in Africa and Asia has become not only a channel, but a crucial service of the industry for the past decade. The quality of online banking service is, therefore, an important aspect that might reflect the total service of a bank. The study aims to investigate whether there are differences in eight service quality dimensions between three countries: South Africa, Indonesia, and Vietnam. Research design, data and methodology: A quantitative method was employed to determine customers' perception of online banking in the three countries among a total sample of 460 respondents. The study measured eight dimensions, namely: efficiency, fulfilment, system, privacy, assurance and trust, site aesthetic, responsiveness, and contact. Results: The study found that South Africa scored the highest average score in all dimensions, while Indonesia and Vietnam each had differences in some of the dimensions. The results can provide a comparative perspective, as well as managerial implications for each country. Conclusions: From the research results, the authors propose several recommendations to enhance the online digital channel service of banking in the three countries.

Keywords: Service quality, Distribution channel, Banking, Africa, Asia

1.INTRODUCTION

Quality of online banking services is an important aspect that might reflect the total service quality of

a bank. The heightened competition in the business environment today has forced organisations to respond by implementing various channels to reach their customers. Financial organisations need to be innovative and take advantage of technologies in order to deliver their services (Yu Sheng and Ibrahim, 2019, 2020). Benchmarking and comparing service quality in various countries may enhance the total quality of services within in the banking sector in each country. Therefore, this study measures the quality of banking services within three developing countries, two in Asia and one in South Africa.

2. ONLINE BANKING SERVICES IN SELECTED ASIAN COUNTRIES AND SOUTH AFRICA

One of the most important channels utilising technology is e-business. In fact, e-channel is now considered an important part of business strategy (Chong, Ooi, Lin and Tan, 2010) and one way to co-create value to be delivered to customers (Carranza, Díaz, Sánchez-Camacho and Martín-Consuegra, 2021). Evidence in the banking industry found that enhancing the capabilities of e-business channel development, can significantly increase business performance by means of market share growth (Nazaritehrani and Mashali, 2020).

Realising the importance of e-channels, the banking industry invests heavily to improve the service quality offered by the banks through this channel (Alawneh and Younis, 2014). This makes the quality of the online banking service an important aspect that reflects the total service of a bank.

Although the first practice of online banking was found in developed countries, the development of the technology has caught up rapidly in the rest of the world, including in developing countries. According to Ammar and Ahmed (2016), online banking has become not only a channel, but a crucial service of the industry over the past decade and a tool to eliminate poverty through financial inclusion.

Today, emerging countries are the leaders of online banking innovations in terms of technology and services. Africa is currently the second fastest growing market of retail and wholesale banking in the world with an annual growth rate of 11% between year of 2012 to 2017 (Chironga, Cunha, De Grandis and Kuyoro, 2018), and South African banks received awards for best implementation of technology in the world by Global Banking and Finance Awards in 2020). Asia is second in the world for size of revenue pool, as recorded in 2017. In the meantime, the competition between financial services to deliver excellence in service quality experience has intensified, especially as young and affluent customers are entering the market on both continents. It has been recorded that across Asia countries digital transactions are 1.6 to 5 times as frequent as branch transactions (Chironga et al., 2018).

Asia and Africa have unique relationships that has led to the importance of banking activity to the regions. Asia is Africa's number one trade partner, since the region provides the largest percentage of African imports and receives the second-largest percentage of African exports. Asia has also been catching up with Europe as the top destination for African goods. As the relationship between the regions strengthens, the underlying challenge is to strengthen appropriate financing to support the activities. Banks, as financing institutions, have a crucial role in overcoming this challenge and determining the future business prospects of these countries and therefore providing service excellence through the right channel to the customers is an important strategy.

Despite the importance and growing attention, few studies have covered this specific topic by comparing Africa and Asia as the two regions with the fastest growth in online banking innovation. As Chigada and Hirschfelder (2017) point out, there is a lack of academic literature discussing mobile

banking in South Africa. Carranza et al. (2021) also suggested that future online banking studies should capture wider geographical area. Emerging countries bank's situation should be further investigated in this context (Arjun, Kuanr and Suprabha, 2021). This leaves a gap that needs to be addressed and potentially contribute to the literature. The study therefore aims to evaluate and compare online banking service quality in three countries: South Africa, Indonesia and Vietnam. Specifically, to investigate whether there are differences in eight service quality dimensions between these three countries.

Table 1

Banking Industry Data 2020

Year Data 2020	Countries Comparison		
	South Africa	Indonesia	Vietnam
Commercial Bank Branches (per 100,000 adult)	9.2	15.2	4.0
ATM (per 100,000 adult)	58.59	51.66	26.26
Interest Rate Spread	2.8	4.0	3.5
Capital to Asset Ratio	7.9	14.8	7.8
Non-Performing Loan to Total Gross Loan	5.2	2.8	1.5

Source: World Bank, worldbank.org accessed October 2020.

3.DIGITAL CHANNEL DISTRIBUTION IN ASIA - AFRICA BANKING INDUSTRY

Nowadays, there are various online banking services in Vietnam, Indonesia and South Africa, including: non-cash payment, tax payment, collection of public service bills via internet, mobile banking, POS channels, e-wallet, and payment of train tickets, air tickets, tuition fees, hospital fees amongst others. The rise in internet penetration is one of the major factors that contributes to the various online services. The countries differ in population size and characteristics of banking sector and technology. The data shows that in 2020 Indonesia had the most bank branches of the three countries, 15 branches per 100,000 adults, whereby South Africa on the other hand relies more on the automatic teller machine (ATM), 58 ATMs for every 100,000 adults. Vietnam has the lowest number of branches or ATMs between the three countries, but a healthy statistic on loans with only 1.5 non-performing loan ratio makes banking a promising industry. All in all, the banking sector is undoubtedly an important sector in all three the countries, as the data from the World Bank shows in table 1, and online banking penetration is rapidly growing in all three countries. Table 1 summarised the current banking situation in each country.

As the second biggest economy in Africa, South Africa and its banking network are providing innovative online services to household customers. According to Chigada and Hirschfelder (2017), South Africa exhibits a relatively high percentage of households with bank accounts. This should be viewed in conjunction with the general trend in many countries of a higher subscription rate to mobile phones than bank accounts. Mobile banking in South Africa serves as an important interface between banks and especially the lower-income population by providing useful transfer, saving and investment

opportunities. According to Chigada and Hirschfelder (2017), mobile money has become a popular banking instrument to introduce financial services to lower-income customers and the "unbanked" in South Africa. Although it is estimated that between 51% and 80% of households hold bank accounts, marketing practitioners recognised the trends and also cater for the unbanked by offering money transfer systems to the unbanked. Nel and Boshoff (2020) point out that in addition to the major four traditional banks in South Africa that are all offering digital marketing offerings, FinTech entered the market recently after the Reserve Bank issued a license to three digital-only banks. This implies that these banks' customers can only transact with them using digital banking channels, such as online banking and mobile banking. In corporate level, it is reported that these digital channels have a positive and significant effect to banking performance in African country (Odhiambo and Ngaba, 2019).

Asia is also showing exponential growth in the penetration of internet users, leading to the creation of online services in banking. Vietnam's market, with a population size of more than 90 million and consequently a high rate of users of telephone and internet, is a potential market for digital banking. The proportion of Vietnamese customers using digital banking services by commercial banks accounts for 44% of internet users. Furthermore, about 28.5 million people (equivalent to nearly 30% of the population) are using smartphones and the internet access rate is about 52% of the population. Compared to other countries in the region, the internet tends to be used more in Vietnam than in Thailand and Malaysia (42%), Indonesia (20%) and Philippines (43%). Moreover, it is expected to continue to increase in the upcoming years (Nguyen and Dang, 2018). According to Nguyen and Dang (2018), the number of banks in Vietnam that continued to adopt digital technology in their operations increased. However, most Vietnamese customers prefer cash payment (64%) to online shopping and online payments account for only 14% of transactions. Therefore, finding solutions for improving internet banking adoption and customer satisfaction is very important in Vietnam's banking context.

Customer's accelerating use of digital banking is evident in Asia. This including e-channel such as mobile and online banking. Surveys showed that in emerging Asian countries 88% of the respondents used digital banking services in 2021 compared to 55% in 2017. Indonesia, as the largest population in South-East Asia, is becoming one of the driving forces of online banking adaptation. This is attributed to internet penetration in Indonesia that has reached 196 million or 72.5% of the total population, as reported in 2020. At the same time, traditional banks are closing branches, allowing for innovation, and online banking is taking the lead. However, it is also reported that by nature Indonesia customers are still requiring human assistance or "high touch", for service (de Jager, Wulandari and Wannenburg, 2020), making service quality a highly important aspect of online banking. Based on the current situation and the importance of digital channel in banking industry of the highlighted regions, it is crucial to evaluate the service quality aspect performance of online banking in both Asia and South Africa.

4. SERVICE QUALITY IN ONLINE BANKING

There are various terms used to refer to the internet services of banks. In this study online banking is used to refer to telephone banking and the websites used to interact with customers. It also includes mobile banking, which refers to the interaction in which a customer is connected to the bank by means of a mobile device, namely: a cellular phone, smartphone or tablet (Laukkanen, 2017). This wider scope encapsulates the increased adoption of online banking in various parts of the world. The literature review is presented to address service quality and its adoption to the technology channel in the banking sector.

Service quality in the banking sector is not an uncommon concept. Various researchers have investigated this topic in various contexts (Shayestehfar and Yazdami, 2019; Yaseen and Qirem, 2018, Ayo, 2018; Moghavvemi and Lee, 2018; Al-jazzazi and Sultan, 2017). Arcand, PromTep, Brun and Rajaobelina (2016) point out that the emphasis in banking service interaction has changed over the years to the current mainly e-approach. Measuring service quality of banking officials interacting with clients, by using techniques such as Servqual, Serfperf and Bankqual remains valid. This is confirmed by Yaseen and Oirem (2018) who claim that a significant number of commercial banking customers in Jordania are still using traditional channels and should as such also be satisfied and monitored. However, moving the emphasis to e-banking, which is actually replacing a lot of human interaction, necessitates a different approach (Arcand et al., 2016). Due to a flurry of new technologies, modern banking is accelerating rapidly allowing customers to conduct transactions at anytime from anywhere in a shorter period of time. Banks have adopted electronic service delivery channels, which has consequently led to a need to monitor the satisfaction levels of customers in order to benefit from these advancements (Ozretic-Dosen and Zizak, 2014).

5. RESEARCH METHODOLOGY

5.1 Research design and questionnaire
The study can be categorised as a quantitative descriptive research using a survey questionnaire that aims to show the relationships between variables (Churchill and Iobucci, 2006). The study can be further classified under single cross-sectional designs, where only one sample of respondents is drawn from the target population and information is obtained from this sample only once (Maholtra, 2010).

The questions comprised the eight dimensions of service quality as identified by Kenova and Jonasson (2006). The dimensions include: efficiency, fulfilment, system, privacy, assurance and trust, site aesthetic, responsiveness and contact. These dimensions were converted into 21 main questions, which were measured on a 7-point Likert scale. The unit analysis for this survey were young adults (18+) and online bank customers, assumed to be eligible to open a bank account in each country.

Table 1. Questionnaire

Dimension	Question Item	Original Source / Adapted from
Efficiency	I am able to get on the site quickly It is easy to find what I need on the website It is quick to complete a transaction through the bank's website Using the bank's website is easy It is easy to follow the instructions on the internet banking website	Kenova and Jonasson (2006)
Fulfilment	When the bank promises to solve a query by a certain time, it does so My online transactions with the bank are	Kenova and Jonasson (2006

	always accurate The service delivered through the bank's website is quick The bank's site makes accurate promises about the services being delivered	
System availability	The site is always (24 hours) available to conduct online transactions This website launches and runs right away without any problems	Kenova and Jonasson (2006
Privacy	The bank does not misuse or disclose my personal information I feel safe when conducting my online transactions	Kenova and Jonasson (2006
Assurance and trust	I have confidence in the bank's technological services The bank's name is well-known and has a good reputation	Kenova and Jonasson (2006
Site aesthetics	The website design is aesthetically attractive	Kenova and Jonasson (2006
Responsiveness	The bank gives prompt responses to my requests by e-mail or other means The bank quickly resolves problems I encounter with my online transactions	Kenova and Jonasson (2006
Contact	The bank is easily accessible by telephone The website has customer service representatives available online	Kenova and Jonasson (2006

5.2. Population, Sample and Data collection

The population of the study is online banking customers. However, since the exact number is unknown, we derived the sample based on statistical "rules of thumb". Following Gorsuch (1983), as well as Hatcher, (1994) and Suhr (2006), the ratio should not be less than 5-to-1 for every indicator in the survey. A minimum of 145 is required, but we managed to collect data from 460 respondents, in South Africa (n=171), Indonesia (n=171) and Vietnam (n=118). Another rule of thumb that applies is that of a population of more than 1 million, which we believe is the approximate number of our population combined, whereby it is safe to use minimum sample of 384 (Krejcie and Morgan, 1970). Our sample therefore complied with both rules. The study followed the convenience sampling method. Before the main research questions were posed, the respondents were requested to answer questions related to their banking behaviour and demographics. The data gathered for this study were analysed by means of the SPSS software package version 24. The analysis was conducted on each country's dataset in order to determine each dimension of online banking service quality. The results are presented and discussed based on the study's objectives. First the basic descriptive statistics of the samples for the eight dimensions of online banking service quality are described. Secondly, the study conducted a homogeneity test of variance, followed by one-way ANOVA to compare the means between the three countries investigated: South Africa (SA), Indonesia (INA) and Vietnam (VIE).

6. FINDINGS

The aim of the analysis is to answer the research question: Is there a difference of perception in online banking service quality dimension for customers in South Africa, Indonesia and Vietnam? The unit of analysis consisted of bank customers samples from South Africa (n= 171 respondents), Indonesia (n=171 respondents) and Vietnam (n=118 respondents). In order answer the question, the study conducted one-way ANOVA to compare the means between the three countries investigated: South Africa (SA), Indonesia (INA) and Vietnam (VIE). The analysis was then followed by a post-hoc test to find out where these differences lie. The statistical tool for the analysis is SPSS Statistical Package version 24. Variables tested comprised of the countries and eight service quality dimensions, namely: efficiency, fulfilment, system, privacy, assurance and trust, site aesthetic, responsiveness and contact. The expected outcomes of the analysis were: descriptives, homogeneity test of variances, comparisons table of ANOVA and means plot graph analysis.

To give a general overview of the data at hand, researchers ran descriptive statistics (mean, standard deviation) for the eight dimensions in each country (Table 2).   However, the detail analysis focused on the reliability analysis, homogeneity of variance and ANOVA results.

6.1. Reliability Analysis

The dimensions were reliable as tested with Cronbach Alpha (Table 2). The acceptance value of more than 0.6 (>0.6) was used, in accordance with Griethuijsen, Eijck, Haste, Den Brok, Skinner, Mansour and Bou Jaoude (2015) and also Taber (2018). We then proceeded to distribute the survey on a large scale to ensure the reliability of the questionnaire as well as minimize errors for the analysis in the study.

Table 2. Reliability Test.

Dimension	Cronbach's alpha
Efficiency	0.807
Fulfilment	0.793
System	0.746
Privacy	0.736
Assurance and trust	0.625
Site aesthetic	0.625
Responsiveness	0.672
Contact	0.605

6.2. Homogeneity of Variance

The test works on the assumption of homogeneity. It requires the significant level of the Levene's test of homogeneity to be more than 0.05, otherwise the Welch or Brown-Forsythe test can be used. There are four dimensions that do not violate this assumption based on Levene's test result, namely: efficiency, privacy, assurance and trust and site. The dimension of system also does not violate the homogeneity assumption based on the Welch and Brown-Forsythe test. Thus, a total of five dimensions can be further analysed: efficiency, privacy, assurance and trust, site and system.

Table 3
Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
Efficiency	1.668	2	457	**0.19**
Fulfilment	3.939	2	457	0.02
System	5.19	2	457	0.006
Privacy	2.936	2	457	**0.054**
Assurance/Trust	0.293	2	457	**0.746**
Site	2.057	2	456	**0.129**
Responsiveness	15.745	2	457	0
Communication	15.594	2	457	0

Source: Authors' results.

Table 4: Robust Tests of Equality of Means

		Statistic	df1	df2	Sig.
Efficiency	Welch	5.6	2	295.207	0.004
	Brown-Forsythe	5.993	2	453.729	0.003
Fulfilment	Welch	5.699	2	287.97	0.004
	Brown-Forsythe	5.864	2	437.683	0.003
System	Welch	2.086	2	271.732	**0.126**
	Brown-Forsythe	2.149	2	365.339	**0.118**
Privacy	Welch	10.331	2	272.286	0
	Brown-Forsythe	11.798	2	370.516	0
Assurance/Trust	Welch	13.611	2	283.242	0
	Brown-Forsythe	13.982	2	421.857	0
Site	Welch	16.387	2	276.794	0
	Brown-Forsythe	17.405	2	394.096	0
Responsiveness	Welch	12.917	2	261.708	0
	Brown-Forsythe	10.871	2	376.371	0
Communication	Welch	16.421	2	260.849	0
	Brown-Forsythe	12.657	2	372.636	0

Source: Authors' results.
a. Asymptotically F distributed.

6.3 ANOVA

The table of ANOVA shows whether there are differences between the three groups investigated (SA, INA and VIET). There is a difference if the significance is less than or equal to 0.05.

The result shows that there are differences between the three countries within the following dimensions: efficiency, privacy, assurance and trust and site. While the system dimension does not show any difference between the three countries (Table 5). To provide detail about the mean difference between the four dimensions, the study conducted a means plot analysis.

6.4. Means Plot Analysis

The study provides the means plot analysis to show the mean and standard deviation of data. This section analyses the way in which the mean varies across different groups of data or between samples. In this analysis, the study focused on dimensions that show evidence of statistical difference between countries, namely: efficiency, privacy, assurance and trust and site.

Efficiency
It was found that there was a significant difference in efficiency scores for the three groups: $F_{(2, 460)}$ 5.762, p = .003. Despite reaching statistical significance, the actual difference in mean scores between the groups was quite small (0.03). Post-hoc comparisons were conducted to further examine and compare the three groups. The result of the Tukey HSD test in the multiple comparison table indicated that efficiency of online banking was statistically significantly higher for South Africa compared to

Indonesia (p = .010) and Vietnam (p = .012), whilst there was no statistically significant difference between Indonesia and Vietnam (p = .107).
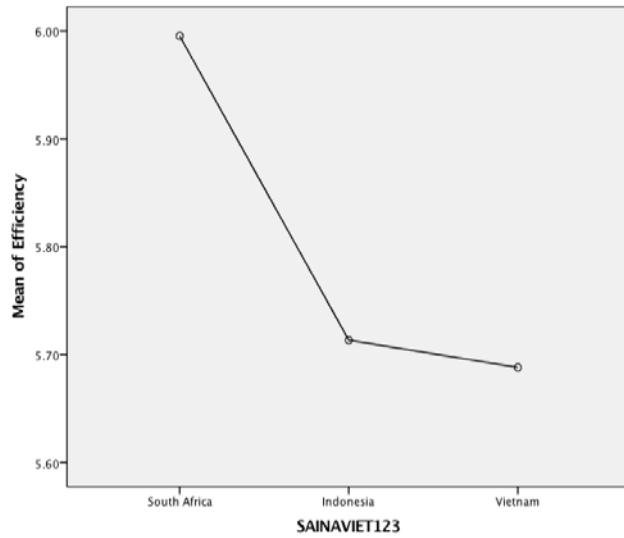

Figure 1. Means Plot Diagram – Efficiency

Privacy

It was found that there was a significant difference in privacy scores for the three groups: $F_{(2, 460)}$ 12.374, p = .000. The mean score of the privacy dimension for a total of three countries is 5.6261 on the 7-point Likert scale. Post-hoc comparisons were conducted to further examine and compare the three groups. The result of the Tukey HSD test in the multiple comparison table indicated that for the privacy dimension of online banking Vietnam's result was statistically significantly higher compared to Indonesia (p = .001) and South Africa (p = .000), whilst there was no statistically significant difference between Indonesia and South Africa (p = .304).
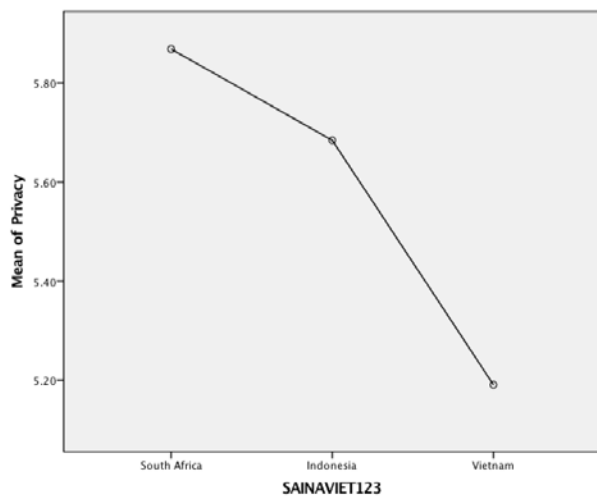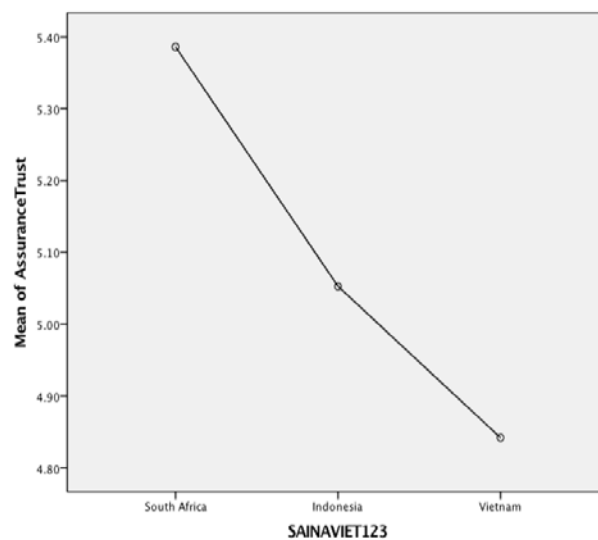

Figure 2. Means Plot Diagram - Privacy

Assurance and Trust

The results revealed that there was a significant difference in assurance and trust scores for the three groups: $F_{(2, 460)}$ 14.048, p = .000. The highest mean score is South Africa (M=5.38) and lowest is Vietnam (M= 4.84). Post-hoc comparisons were conducted to further examine and compare the three groups. The result of the Tukey HSD test in the multiple comparison table indicated that assurance and trust of online banking was statistically significantly higher for South Africa compared to Indonesia (p = .002) and Vietnam (p = .000), whilst there was no statistically significant difference between Indonesia and Vietnam (p = .116).

Figure 3. Means Plot Diagram - Assurance and Trust

Site

It was found that there was a significant difference in site mean scores for the three groups: $F_{(2, 460)}$ 17.911, p = .000. The actual difference in mean scores between the highest and lowest average score groups was 0.8. Post-hoc comparisons were conducted to further examine and compare the three groups. The result of the Tukey HSD test in the multiple comparison table indicated that the site dimension of online banking was statistically significantly different between Vietnam compared to Indonesia (p = .000) and South Africa (p = .000), whilst there was no statistically significant difference between Indonesia and South Africa (p = .197).
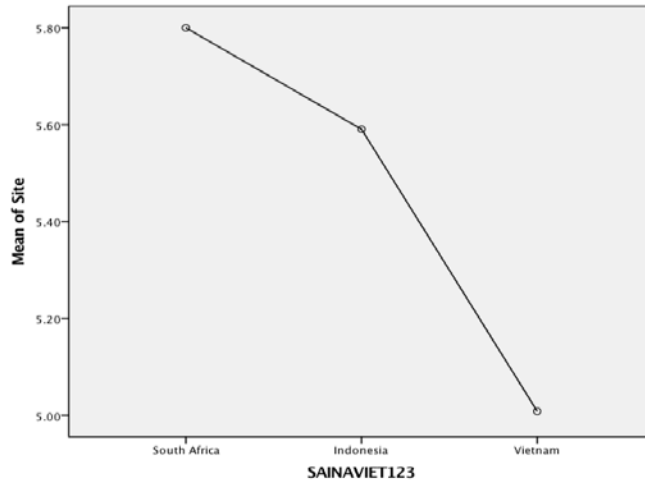
Figure 4. Means Plot Diagram - Site

Table 5

Results of ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Efficiency	Between Groups	9.218	2	4.609	5.762	0.003
	Within Groups	365.559	457	0.800		
	Total	374.777	459			
Fulfilment	Between Groups	9.957	2	4.978	5.768	0.003
	Within Groups	394.442	457	0.863		
	Total	404.399	459			
System	Between Groups	5.942	2	2.971	2.264	0.105
	Within Groups	599.632	457	1.312		
	Total	605.574	459			
Privacy	Between Groups	32.990	2	16.495	12.374	0.000
	Within Groups	609.197	457	1.333		
	Total	642.187	459			
Assurance/Trust	Between Groups	22.001	2	11.001	14.048	0.000
	Within Groups	357.877	457	0.783		
	Total	379.879	459			
Site	Between Groups	45.056	2	22.528	17.911	0.000
	Within Groups	573.537	456	1.258		
	Total	618.593	458			
Responsiveness	Between Groups	26.631	2	13.316	10.981	0.000
	Within Groups	554.144	457	1.213		
	Total	580.776	459			
Communication	Between Groups	34.685	2	17.342	12.894	0.000
	Within Groups	614.661	457	1.345		
	Total	649.346	459			

Source: Authors' results

7. DISCUSSION

The study found that there are differences between the efficiency, privacy, assurance and trust and site dimensions. For all the dimensions, South Africa customer perceptions scored higher in average than the Indonesia and Vietnam customers' perceptions. The tendency of positive perceptions might explain why online banking has high growth and profitability in South Africa (Chironga et al., 2018).

Regarding the dimension of *efficiency* of online banking, the South African customer's perception differs from that of Indonesia and Vietnam. It shows that in terms of efficiency of online banking, the emerging Asia banking industry needs to catch up to South Africa in order to meet the expectations of customers. A similar result was seen for the *assurance and trust* dimension. It seemed that customers in South Africa have more confidence in their digital banking activities, compared to their Asian counterparts. The *site* dimension results in South Africa and Indonesia were higher than that of Vietnam. This provides room for improvement to better understand site experience and user interface on each country's site.

The *privacy* dimension showed a noticeable gap between Vietnam and the other countries (Indonesia & South Africa), which implies that customers in Vietnam have a higher perception of privacy at risk, compared to Indonesia and South Africa. The finding is supported by the study of Nguyen and Nguyen (2017) on risk perceptions of online banking in Vietnam that confirmed that one form of risk, namely privacy risk contributes the highest (in loadings) to the overall risk perceptions. This showed that in the sample, privacy is indeed the most important risk in online banking, compared to security, financial, social and time risk. Related to the privacy measure is cyber-security issues. Interestingly, although SA customers seem to be more confident with its privacy measures, they are also faced with cyber-security challenges, measured by the National Cyber Security Index (NCSI, 2021). The index measures the preparedness of a country against cyber-security threats. In 2021 South Africa (27.27) had the lowest score, with Vietnam (36.36) and Indonesia not far behind (38.96). This implies that all three countries need to have cyber-security as their main concern.

8. CONCLUSION

The online distribution channel in the banking industry has become not only a channel, but a crucial service of the industry for the past decade. The service quality of this channel is an important aspect that will reflect the total service of a bank. Thus, a comparative study between regions that represents the fastest growth of the digital

channel in the banking industry is crucial to map the state of play of this new development. The study is uniquely positioned to reveal differences between South Africa, Indonesia and Vietnam when it comes to the service quality dimensions: efficiency, privacy, assurance and trust and site.

The implication of this study is different for each country. South Africa's positive customer perception is an opportunity to develop the online banking distribution channel even more. However, South Africa needs to increase its preparedness in terms of cyber-security risks. Indonesia can still improve the efficiency of its digital channels and promote trust and assurance on privacy issues, while tightening its cyber-security measures. Vietnam customer are starting to trust their digital banking channel, but lessons can still be learned from other countries to ensure this channel thrives in the near future.

The study sought to provide a comparative analysis, which is crucial for practical strategy guidance and also for future research in this area. However, limitations of this study exist in terms of the different situations in each country that have been generalised for research purposes, for example, different levels of online banking technology and availability or lack of internet banking infrastructure that can perhaps provide different implementation suggestions for each country.

Thus, it is also advised to take the study further by investigating the relationship between each dimension to other variables such as satisfaction or customer experience. A further study by Wang and Pho (2009) on Vietnam respondents demonstrated that customer intentions pertaining to online banking websites were affected by information system quality, information quality, and service quality. Future study can also explore these variables to provide a richer understanding of the field.

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