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DEVELOPING AND VALIDATING A DIGITAL INCLUSION INSTRUMENT FOR SME ENTREPRENEURS

Sheikh Muhamad Hizam Sheikh Khairuddin, Norazirawati Ahmad, and Faradillah Iqmar Omar

ABSTRACT. Entrepreneurial digital inclusion is essential for the evolution of small and medium businesses today. However, instrument for measuring digital inclusion among these entrepreneurs is scarce. Therefore, this study purposes to develop and validate a digital inclusion instrument for SMEs. Structural Equation Modelling of EFA and CFA were conducted using survey data collected from Malaysian SMEs. Reliability and validity were tested for this measurement scale. Dimensions like 'social networking', 'information search', 'e-commerce', and 'e-marketing' were discovered to be the main dimensions for digital inclusion in SMEs and they were found to be valid and reliable. These dimensions are combined from the literature review which were previously separated. Result indicated that digital inclusion was a multidimensional construct. Extension of the digital inclusion's multidimensionality were observed in the SMEs. The implications of the finding are that entrepreneurs and researchers are able to assess digital inclusion by using these dimensions. Accordingly, policies and program are able to be developed by businesses and government agencies subsequently.

1. INTRODUCTION

Digital literacy has become important today due to the fact that ICT has been used in all sectors. The benefits include opportunities for community and organisation to expand services to public like commerce, employment, social interaction, and education. These are all available in the ICT or Internet platform. Digital inclusion is the ability of groups and individuals to use and access information, communication, and technologies (ICT). In order for the ICT to be applicable, the availability of software and hardware, relevant services and content, and digital skills training must be there [42]. Those who are left behind will be at a disadvantage whereby they are not able to capitalise of the benefits offered by it. Therefore, there are gaps exist in the society between those who have accessed to ICT and those who do not. This phenomenon is termed by digital divide. However, they are also those who have accessed but do not use the ICT (a type of digital exclusion). This might be the case of entrepreneurs in SMEs. They might have accessed to ICT but fail to used it due to lack of knowledge, trust, internet connection, personal motivations, proper internal IT infrastructures [1], skilled management, and skilled labour [36]. However, as internet has become widespread, research agenda and public debate had paved the way of the movement from digital divide to digital inclusion [27].

There are tremendous advantages for SMEs to embrace ICT in their activities. ICT can assist SMEs in creating business opportunities and thus, more profit. Costs are also eliminated through improving the internal operations. Thus, customers can be communicated quickly as well while distributing and promoting their products and services online. ICT therefore, is able to promote productivity and innovation in SMEs. According to Porter (1985), in the value chain concept, firms can also achieve competitive advantage through provisions of activities that are basic in nature that can value add to their products and services [33]. However, there is a lack of study on these SMEs pertaining to their digital inclusion. Therefore, first and foremost the instrument measuring their digital inclusion becomes important because we need to know how far these SMEs have access and use ICT in their business. By having this knowledge, we will be able to identify any weaknesses regarding digital inclusion of SME entrepreneurs so that policy can be developed in order to close the gaps within the society as well as within the organisations (big and small) in the form of digital

inclusion. Secondly, due to rapid technological change, therefore it is essential for us to evaluate digital inclusion frequently as it requires new dimensions of measurements each time it changes.

Therefore, the study's aim is to develop and validate SMEs digital inclusion instrument. These are conducted by developing the measurement scale of digital inclusion and validating the digital inclusion dimensions.

2. LITERATURE REVIEW

Conceptualising Digital Inclusion

The concept of digital inclusion might not be only consumed to access, motivation, and skills but also engagement. Digital engagement matters significantly since a person might have all the three elements but not necessarily be engaged in it. This is also synonym with the definition of digital inclusion earlier whereby it is defined as both access and use of ICT. The 'use' component can be divided into nature of engagement and extent of engagement. Nature of engagement involve in the way people are engaged in a technology. Most of the research today use Internet as the medium of engagement. Similarly, digital inclusion dimensions can be categorised as access, adoption, and application according to Digital Inclusion Survey (2014) [14]. This concept is different compared to digital divide. Digital divide focuses on individuals and accessibility, whereas digital inclusion is more on practicality and driven by policy-to address community needs as a whole.

The internet is not studied singularly since it offers new range of uses to the individuals (Anderson and Tracey (2001). Types of engagement is also distinctive in that some are more socially desirable such as information seeking compared to others such as pornographic by the educators and policy makers. This demonstrated that some engagements are inclusion indicators and can bring about social advantage. Meanwhile, the extent of engagement relates to different types of technology. Through the Internet, information and communication are possible via mobile phones, smart television, and computer. Therefore, it can be gauged through a number of activities and technologies.

Meanwhile, Green and Rossall, (2013) studied age old and digital inclusion [19]. Factors influencing digital inclusion discovered are household composition, age, self-perceived health status, income, sex, Asian ethnicity, mobility, and memory or ability to concentrate. Rural communities had also been associated with attitudes and engagement with technologies [8]. In deriving digital equality, the questions asked moved from "how many" to "why" or "for whom" [22]. In this way, policy initiatives can be implemented.

SME and Digital Inclusion Dimensions

Previous construct of digital inclusion covers the causal factors like access, motivation, and skill. In this study, four dimensions measuring digital inclusion are proposed for SMEs namely, Social Networking, Information Search, E-Commerce, and E-Marketing. These activities of using ICT are based on past literatures on ICT usage and SME. For example, digital capability in SMEs was constructed using Websites, Social Media, and E-Commerce [3]. Meanwhile, ICT usage was found to be positive and significantly related to Digital Inclusion empirically [16]. The study used individual dimensions such as Information Source from the Internet, Network of Communication, and Electronic Transactions as the Digital Inclusion construct. Meanwhile, the digital inclusion domains of E-Commerce, Social Networking, Business Information Search, Entertainment, Advertising, Business Website, and E-Marketing had been identified [35].

Social Networking

Social Networking involved the interaction with other users who have similar interest by using special websites. Social Networking is one of the dimensions of Digital Inclusion because it is one of the important ways in which SME entrepreneurs can market their brand of product or services as well as their own personality online. Examples of popular Social Networking sites are Facebook, Twitter, and WhatsApp. Findings from research suggested that Social Networking provides opportunity to SME entrepreneurs to achieve resilience competitive advantage and successfully compete at the marketplace [30]. SME entrepreneurs too, used the social networking sites as the medium for communication [31]. Business of all types and sizes today (for example, fast moving consumer goods, service provider, pharmaceutical, software and hardware seller,

hand phone producer, etc.) advertise their products and services at the social networking sites [25].

Information Search

Information Search here is the behaviour of seeking information through electronic means. This is another dimension for Digital Inclusion. SME entrepreneurs used the Information Search as a research tool. For example, they can research for competitor in the market, business opportunity, consumer preference, purchasing trend, etc. Competitors are researched by certain businesses by using the Internet [4]. Country-wide detailed business information is available from Hoovers.com. This will help owners to be alerted of any revision to the industry. Another way that businesses can use the Internet is to leverage on customer needs through purchasing trends. Feedback on specific product or services can be monitored from social networking sites and newsletters. Collecting these data, product can be improved. A car forum can be visited by the car accessory owner to find the interest of car enthusiasts. They can also communicate with the customers through this website.

E-Commerce

Electronic Commerce means transactions conducted electronically on the Internet commercially. It is also another important dimensions for SMEs digital inclusion. This is because E-Commerce provide opportunities for them to expand or add value to their business to online. There are 7 e-commerce types that can be exploited: consumer-to-business (C2B), consumer-to-administration (C2A), consumer-to-consumer (C2C), business-to-consumer (B2C), business-to-administration (B2A), business-to-business (B2B) [6], and the latest is the peer-to-peer (P2P) [24]. $1.0 trillion of global e-commerce sales was recorded in 2015 (growth of double digit)(Euromonitor, 2015) [15]. However, in Malaysia, the use of e-commerce/ICT remained low. In one study, most businesses used computers/laptops/tablets/smartphones (85.4% of 2,336 respondents) and Internet (78.8%) but still low in using other ICT tools such as social media (40.5%), business websites (27.3%), e-commerce and e-payments (11.8%), intranets (11%), customer relationship management (CRM) (3.1%), and extranets (2.9%). SME Corp. Malaysia Survey (2015) discovered that online business transactions for SMEs accumulated to only 19.6%.

E- Marketing

E-marketing is the achievement of goals of marketing by using digital technology [41]. This is the final dimension for the measurement of Digital Inclusion. SME entrepreneurs are able to capitalise on the online marketing techniques available. Strategies of e-marketing are marketing by search engine, optimisation of search engine, email, and social media [34].

3. RESEARCH METHODOLOGY

Research Approach

Research approach used in this study spanning around 5 steps, namely: [9] [28] [37]

(1) Construct definition
(2) Item generation
(3) Expert view of items
(4) Collection of data
(5) Reduction of items
(6) Confirmatory of items
(7) Reliability and validity of items

Sampling and Data Collection

SME entrepreneurs in Klang Valley, Malaysia were surveyed in the areas of Bangi, Shah Alam, Putrajaya, and Kuala Lumpur. Total population of SMEs in the Klang Valley is 134,246 (Department of Statistics Malaysia, 2016). 384 is the minimal sample size required for this type of population number [26]. As a lump sum, a total of 500 samples were collected. The type of sampling technique used here is stratified random sampling method based on these five geographic areas in Klang Valley. Each strata comprised of 100 SMEs whereby each SME is represented by 1 respondent that accumulated to 500 respondents. SMEs here are defined based on the definitions set upon by SME Corp website (2019) [38]. SMEs in Malaysia consisted of micro, small, and medium categories. Micro SMEs are defined as SMEs that have less than RM300,000 in turnover and employ less than 5 permanent employees in the manufacturing and service sector. Meanwhile, small size SMEs have RM300,000 to RM15 million in sales turnover and employ 5 to 75 permanent employees for the sector

of manufacturing. Small SMEs in the service sector, have RM300,000 to RM3 million turnovers with permanent staff employed between 5 to 30. Lastly, for medium SMEs, they are defined as having from RM15 million to RM50 million in sales turnover and employ permanent staff from 75 to 200 in the manufacturing sector. For medium SMEs operating in the service sector, their turnovers were defined between RM3 million to RM20 million with permanent employees employed from 30 to 75. Public listed companies in the main board, MNCs, GLCs, other incorporated companies from the Ministry of Finance, and State enterprises and their subsidiaries are all not considered as SMEs here.

4. DATA ANALYSIS

The dimensions and items of the digital inclusion were discovered through extensive literature survey conducted on ICT usage and SMEs. Subsequently, the dimensions and items generated content validity were established by using of five experts. Exploratory Factor Analysis (EFA) (using SPSS 25) was conducted first preceding Confirmatory Factor Analysis (CFA) (with AMOS 24). The items are reduced by using EFA meanwhile confirmation were done by using CFA. Measurement of adequacy of sampling was conducted using Kaiser-Meyer-OlKin (KMO) technique whereby value of more than 0.8 would indicate sampling adequacy. Items that had poor factor loadings were deleted (< 0.5) in EFA. Factor extraction used is the Principle Component Analysis (PCA) and factor rotated matrix is Promax. Total Variance Explained (TVE) was used to determine how many factors will be retained whereby eigenvalues of above 1 will be the threshold.

In CFA, unidimensionality was established first. Unidimensionality refers to how well the latent construct's items measured. The factor loadings of items of more than 0.5 will indicate that unidimensionality had been achieved [2]. Next, the test of goodness fit was conducted. At least one indicators from each category of the fitness index must be fulfilled [23]. Fitness index categories can be divided into Absolute, Incremental, and Parsimonious Fit. Indicators and their threshold levels for Absolute Fit are Discrepancy Chi Square (Chi-Square)(P-Value >0.05), Root Mean Square of Error Approximation (RMSEA < 0.08), and Goodness of Fitness Index (GFI > 0.9). Meanwhile, indicators and their thresholds for Incremental Fit are Comparative Fit Index (CFI > 0.90), Adjusted

Goodness of Fit (AGFI > 0.90), Normed Fit Index (NFI > 0.90), and Tucker-Lewis Index (TLI > 0.90). Finally, indicator and threshold of Parsimonious Fit is Chi Square/Degrees of Freedom (Chisq/df < 3.0). Evaluation of validity and reliability are conducted next. Validity of the construct is obtained when all the Fitness Indexes meet the acceptance levels. Meanwhile, when all the items' values of Average Variance Extraction (AVE) were 0.50 and above, convergent validity was achieved. Finally, when all redundant items are constrained as free parameters (or deleted), discriminant validity was obtained.

The construct's discriminant validity is also achieved when in the Index of Discriminant Validity, the square root of AVE is higher than the values among the constructs correlations. There are two conditions in which reliability are established: 1) AVE bigger than 0.50 and 2) Composite Reliability (CR) higher than 0.60. For the last analysis, the distribution of normality was established. This can be done by assessing each items skewness and kurtosis values. The cut-off points for skewness is < 1.5 and Kurtosis < 0.30.

5. Findings

Exploratory Factor Analysis (EFA) was conducted initially. The Digital Inclusion construct has 21 items. They were gauged using a 5-point interval scale ranging from 1 – Strongly Disagree to 5 – Strongly Agree. Mean of each items ranged from 3.130 (lowest) to 3.52 (highest) indicating they are at a moderate level. Meanwhile, standard deviation (SD) results for every items were below 1 demonstrated consistency in the score distribution.

Principal Component Analysis (PCA) and Promax rotation for the 21 items was carried out in the EFA. Bartlett's Sphericity Test was significant (value of 0.00). The data is sufficient to run for EFA when KMO > 0.6 (value = 0.886). Both results are enough to run EFA (Awang, 2012; Hoque et al., 2016; 2017). Table 1 summarizes these results.

TABLE 1. KMO Measure of Sampling Adequacy and Bartlett's Test of Sphericity

Sampling Adequacy Measure using KMO Bartlett's Sphericity Test	0.886
Approximate Chi-Square	10700.658
Degrees of Freedom	210
Significant level	0.000

Next, the Total Variance Explained (TVE) and 4 factors were extracted successfully from 21 items. This can be seen from their eigenvalues exceeding 1. If the 4 factors were extracted (also confirmed from the scree plot), 78.17 per cent of the variance would be explained. According to Hair et al. (2010), in social sciences, total variance explained (TVE) of bigger than 60 per cent is considered satisfactory. Component or factor 1 contributed 38.852 per cent, component 2 16.878, component 3 15.444, and component 4 7.086 (see Table 2).

TABLE 2. TVE Results

Factor	Eigenvalues (Initial)			Sum of Squared Rotation Loadings		
	Total	Variance %	Cumulative %	Total	Variance %	Cumulative %
1	8.159	38.852	38.852	8.159	38.852	38.852
2	3.525	16.787	55.639	3.525	16.787	55.639
3	3.243	15.444	71.083	3.243	15.444	71.083
4	1.488	7.086	78.17	1.488	7.086	78.17

Factor loading was assessed to measure the relative importance of each items to the construct. Item with a 0.6 and below factor loadings is removed and will not be included in the field study (Awang, 2012; Hoque et al., 2016; 2017). In this case, due to poor factor loadings of below 0.6, one item was eliminated. All other items are divided into 4 dimensions based on the pattern matrix. Now, Social Networking, Information Search, E-Commerce, and E-Marketing dimensions have 5, 5, 4, and 7 items, respectively. Table 3 summarizes the dimensions, item, and their factor loading.

6. RELIABILITY AND VALIDITY

The construct's dimensions' internal consistency is measured using reliability statistics. 0.7 and above Cronbach's Alpha value is acceptable [17]. Cronbach's Alpha values for dimensions of Social Networking, Information Search, and E-Marketing are 0.965, 0.945, and 0.925, respectively. This goes to show that these dimensions have very good reliabilities, while and E-Commerce Cronbach's Alpha value of 0.874 showed that this dimension has a good reliability. Therefore, all of these dimensions have acceptable reliabilities. The overall model is at 0.911 Cronbach's Alpha value demonstrating very good reliability.

TABLE 3. Dimension, Item, and Factor Loading

Dimension and Item	Factor Loading
Social Networking	
I use ICT to ...	
connect with customers	0.911
connect to connect with supplier	0.948
connect to get a feedback from customers	0.939
look for new customers	0.970
get ”like” from potential customers	0.912
Information Search	
I use ICT to get information about ...	
entrepreneurship training	0.912
latest and new products in the market	0.873
business event that I can join	0.947
same products / services as with my product / service	0.906
business policies set by the government	0.892
E-Commerce	
Conduct online financial transactions with customers/suppliers	0.751
Buying and ordering essentials goods through online	0.970
Conduct online financial transactions with the government for tax payments and others	0.983
Conduct online financial transactions with stakeholders (GLC, SMIDEC, etc.)	0.617
E-Marketing	
Advertise business products / services on the internet / web / social media	0.644
Subscribe paid ads on the internet	0.887
Advertise "live" for products / services on social media	0.970
Use social media space by celebrity to advertise products / services	0.739
Use celebrity as testimonials on social media to sell products / services	0.824
Use online quizzes to market products / services	0.788
Provides online membership cards to attract customers	0.870

Next, Confirmatory Factor Analysis (CFA) was conducted to confirm the results of EFA. The pooled measurement model of CFA is used here whereby all the measurement models were run at once. This is more preferable compared to running these models separately since it is more efficient and highly recommended [2]. This is depicted in Figure 1. At first, the fit was not found in the model. This is also indicated by high modification indexes. Therefore, e1 and e5, e3 and e5, e6 and e9, e7 and e9, and e19 and e20 were all correlated one by one until the model fit was achieved. Goodness of fit can be achieved if one

indicator from each categories of indexes i.e. Absolute, Incremental, and Parsimonious Fit was fulfilled [20] [21] [23]. For the category of Absolute, RMSEA Index was used [7]. The RMSEA's acceptance level is < 0.08. This was achieved when the CFA model for the Digital Inclusion construct was 0.061. Meanwhile, for the Incremental category, CFI was selected [5]. The acceptance level of CFI is > 0.90. CFI was achieved when the CFA Model reached 0.969. Finally, Parsimonious Fit category was represented by Chisquare/Degrees of Freedom index (Chisq/df) [29]. Chisq/df must be < 3.0 and above if it is to be accepted. The CFA model was deemed fit when the CFA model achieved the value of 2.870. Table 4.0 depicted these results.
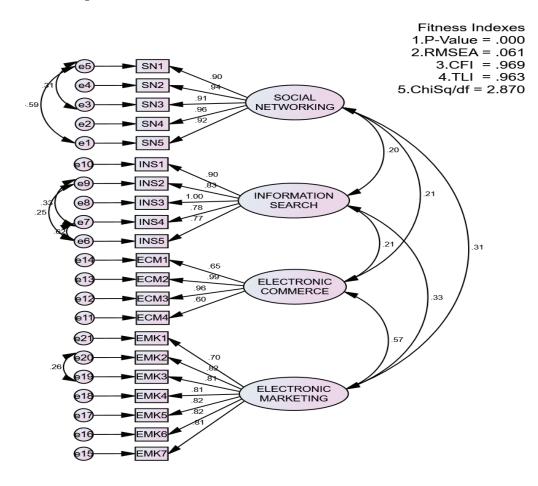

FIGURE 1. The Pooled Measurement Model of CFA

All of the items' factor loadings showed > 0.60 indicating unidimensionality was achieved (see Table 5). Thus, indicating no items are to be deleted from this

TABLE 4. Fitness Index

Fit Category	Index	Value	Remark
Absolute	RMSEA	0.061	Level is obtained
Incremental	CFI	0.969	Level is obtained
Parsimonious	Chisq/df	2.870	Level is obtained

model. Validity means measuring what the instrument is supposed to measure. When all of the fitness indexes were achieved, indicating also that the construct validity was achieved. Meanwhile, an AVE of > 0.5 would indicate a convergent validity. The AVE of all of the items are found to be above 0.5 (Table 5). CR of > 0.6 and AVE of > 0.5 will indicate the measurement model's reliability. From the result, CR values were bigger than 0.6 and AVE were higher than 0.5 (see Table 5.0).

When redundant items are no longer existed in the measurement model, discriminant validity is established. This is determined by deleting or constraining pair of items that are redundant. Discriminant validity is also required to be established by developing the discriminant index. when the construct's square root of AVE is bigger than the respective constructs of correlations, the discriminant validity is achieved. Result showed that all diagonal values (the AVE's square root of the constructs) are higher compared to constructs correlations (see Table 6). Therefore, the constructs are discriminant of each other.

Lastly, is the assessment of normality. Measures of kurtosis and skewness are used to assess normality. Skewness value of 1.0 and lower and kurtosis figure of less than 3.0 would indicate a normal distribution. From the results of this study, all of the items were discovered to have skewness of less than 1.0 and kurtosis of low than 3.0, respectively.

7. DISCUSSION AND CONCLUSION

The study's purpose is to develop a digital inclusion instrument within the context of SME. Although, other studies had developed these instrument for example Digital Inclusion Survey (2014) which are quantifiable however [14], none measure SME entrepreneur's digital inclusion in terms of Social Networking, Information Search, E-Commerce, and E- Marketing. Therefore, the scale is the first of its kind. A survey was conducted on 500 SME entrepreneurs based

TABLE 5. Unidimensionality, Reliability, and Convergent Validity

Construct	Item	Factor Loading	CR	AVE
Social Networking	SN1	0.898		
	SN2	0.942		
	SN3	0.906	0.967	0.855
	SN4	0.96		
	SN5	0.917		
Information Search	INS1	0.904		
	INS2	0.827		
	INS3	0.996	0.934	0.74
	INS4	0.781		
	INS5	0.771		
Electronic Commerce	ECM1	0.646		
	ECM2	0.993	0.886	0.67
	ECM3	0.96		
	ECM4	0.597		
Electronic Marketing	EMK1	0.7		
	EMK2	0.816		
	EMK3	0.813		
	EMK4	0.813	0.926	0.64
	EMK5	0.82		
	EMK6	0.819		
	EMK7	0.813		

TABLE 6. Discriminant Validity Index

Construct	Social Networking	Information Search	Electronic Commerce	Electronic Marketing
Social Networking	**0.925**			
Information Search	0.199	**0.860**		
Electronic Commerce	0.207	0.206	**0.819**	
Electronic Marketing	0.312	0.330	0.566	**0.800**

on a Likert scale. The items were drawn from extensive literature review which was carried out earlier. As normality and correlation between variables are significant, EFA was conducted. From the EFA results, one item was deleted due to poor factor loadings while others are grouped into four dimensions. Items that are related to SME entrepreneurs using ICT who are connected to customers and

suppliers in the social networking sites in the Internet are grouped and labelled as 'Social Networking'. Items that are tied to SME entrepreneur's using ICT for information search in the Internet are grouped and labelled as 'Information Search'. Items that related to SME entrepreneurs having financial transactions in the Internet are grouped and labelled as 'E-Commerce'. Items that are involved in advertising in the Internet are grouped and labelled as 'E-Marketing'. The items are all having a sufficient factor loading with variance explained of about 78 per cent.

The EFA was further validated through CFA. No further items were deleted since all of them have met 0.6 criteria of factor loadings. This gives the total remaining items of 21. However, in the beginning the model was not fit and full of high modification indexes. As redundant items were correlated subsequently, the model became fit eventually.

The last process involved the assessment of the instrument's validity and reliability. Instrument was reliable since CR of all items reached 0.6 and above and AVE were 0.5 and above. Furthermore, all the four dimensions recorded 0.7 (Cronbach's Alpha) and above with dimensions Social Networking, Information Search, and E-Marketing reached 0.9 and above (very good reliability) while E-Commerce stated at 0.8 and above (good reliability). The overall model also recorded a very good reliability with 0.911. Good model fit with convergent and discriminant validity establishes construct validity [18] [32]. Model fit was achieved using fitness index such as RMSEA ($0.061 < 0.080$ threshold level), CFI ($0.969 > 0.90$), and Chisq/df ($2.870 < 3.0$). Convergent validity was achieved through AVE for all items whereby they were above 0.50. Construct's square root of AVE were all above correlation of constructs establishes discriminant validity among the dimensions.

8. Conclusion, Limitation, and Future Research

The digital inclusion instrument was developed from the integration of past theoretical perspectives generally, and within the context of entrepreneurship particularly. An instrument measuring digital inclusion was developed and tested empirically in SMEs of Malaysia. The application for digital inclusion has been extended.

These measurements are stronger than previous ones since they are constructed based on previous theoretical perspectives and tested empirically. Previous measures (e.g. Digital Inclusion Survey, 2014 [14]; Digital Landscape Research, 2012) had measured digital inclusion in terms of access, adoption, and application which was limited to library or government service users or used limited dimensions to measure digital inclusion. This study uses a multidimensional construct consisting of Social Networking, Information Search, Electronic Commerce, and Electronic Marketing taken from previous literatures. These covers all the variables above. These new measurements are rich in nature compared to previous ones. It is also updated. The measurement gives a more complete picture of digital inclusion within the context of entrepreneurship which makes it worth for researchers to use it as their research framework when examining entrepreneurship in the future. These dimensions can also be used in relation to entrepreneurial strategy in comparison with other strategy.

Implications

Some contributions are able to be made from this study to SMEs and ICT. Not only business owners of small and medium size enterprises could benefit but also researchers who are interested in knowing the subject of digital inclusion in SMEs. The practitioners will be able to evaluate parts of digital inclusion in SMEs. These assessments will assist in developing strategies pertaining to digital inclusion and accelerate digital adoption process in SMEs. This can be used as a tool to analyse the impact of digital inclusion policy adopted in SMEs. Priorities can be set and programmes can be developed within the context of SMEs in relation to the specific dimensions of digital inclusion in the firm. Finally, the researchers within the field of digital inclusion, ICT, and SME research can use these multidimensional construct to further their investigation.

Limitations and Future Research

Firstly, data were collected in Malaysian SMEs even though the dimensions were obtained from global literature reviews. Therefore, this will open up the opportunity to study the model in other countries. Secondly, these measurements can be further improved with more variables and dimensions as the technology changes. Even though this study has all of these limitations, a measurement scale was developed which advances SME entrepreneurship in general, and SMEs digital inclusion, and digital capability in particular.

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Universiti Kuala Lumpur Business School, Universiti Kuala Lumpur, Kuala Lumpur, Malaysia.

Email address: sheikhmhizam@unikl.edu.my

Selangor International Islamic University College, Selangor, Malaysia.

Selangor International Islamic University College, Selangor, Malaysia.