Expansion of Brick-and-Mortar Retailers to Online Retailing: A Strategic Application of the Technology Acceptance Model in the Philippines

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Abstract

The online retailing industry activity has been steadily increasing in the past couple of years, due to the wide product offerings and provides customer convenience. The Philippines is part of the Asian population with steadily increasing online retailing activity, making the country one of the fastest-growing e-commerce markets in Asia. With the increased number of online retailers, different factors can now be determined, as well as an implementation framework for brick-and-mortar retailers' consideration to expand into online retailing. A survey was conducted to measure the perception of Philippine-based brick-and-mortar retailers with regard to key factors to expand into online retailing. The research study used the Technology Acceptance Model (TAM) framework and Structural Equation Modeling (SEM) in determining the significant factors that retailers consider in their expansion into online retailing. Cybersecurity, IT Infrastructure, Capital Cost, Reach, and Online Retailing Industry Attractiveness were all found to have a significant effect on Retailer's Decision to Expand into Online Retailing. A readiness index was formulated from the results of the SEM, which in turn aided in developing an implementation framework catered to different levels of readiness.

Keywords

Brick-and-Mortar, Online Retailing, Technology Acceptance Model (TAM), Structural Equation Model (SEM), Readiness Index

1. Introduction

Brick-and-mortar retailing usually requires businesses to sell an array of products, and have customers personally go inside the store with the intention of purchasing an item (Rhodes, 2014). According to Ganesha, et.al. (2020), the brick-and-mortar experience would need a huge amount of physical effort, as well as, more time in fulfilling shopping tasks. These retailers in downstream supply chain were once regarded as the most powerful members in distributing finished goods to customers (Adivar, et. al., 2019) until the so-called "retail apocalypse" gained traction in many countries including USA, resulting in the start of physical stores dwindling in size and numbers, ushering in a steady growth of the online retailing industry (Helm, Kim, & Riper, 2020). The retail apocalypse, as suggested by Morgan (2018) was just a result of the rapidly evolving retailing landscape brought about by technology, and those who cannot adapt soon obsolesce.

Online retailing has seen a recent rise in activity because it is able to provide a large array of products to the customers, all in relative convenience (Saroj, 2018). Also, a study in Japan shows that both retailers and customers incur lower costs through online retailing (Miyatake, Nemoto, Nakaharai, & Hayashi, 2015). Brick-and-mortar stores experience limitations in scalability due to the cost of putting up and maintaining a physical store (Enders, & Jelassi, 2000), while Miyatake et al. (2015) found customers may also be subject to lower costs since they will not be traveling to and from the physical store to purchase the product.

To enhance value proposition and/or the reduction of costs, brick-and-mortar retailers are now studying the appropriate strategies to integrate online channels into their existing operations (Gallino & Moreno, 2014). The online payment

platforms of retailing outlets, eBay and Amazon, led to an increase in the popularity of online retailing (Dorman, 2013). Transition to online retailing was influenced by the flexibility factor on product offering and product quality that unlike in brick-and-mortar, certain product criteria or standards don't have to be cumpolsory (Lao & Sun, 2016). With the advent of technological advancements, threats to traditional brick-and-mortar retailers increased, particularly to those retailers who have not yet ventured into online retail platform applications (Özdemir & Çam, 2016), that will enable existing retail businesses to be more competitive in exploiting opportunities brought about by the increase in demand and emergence of niche markets that most brick-and-mortar retailers cannot reach (Varela et al., 2017).

Online retailing is not without its own share of challenges and barriers that include: providing a good customer shopping experience at par with what the brick-and-mortar shopping experience (Insley & Nunan, 2014); maintaining customer relationships, affected by the vast item offerings online and consumer-related factors such as trust and loyalty (Verma, Sharma, & Sheth, 2015); and facilitating customer engagement via smartphones, websites and mobile applications ensuring ease of use and a more accessible means for product returns and/or refunds (Li, Zhao, Xu, & Pu, 2019). Its popularity among consumers led most research on online retailing focus on service quality factors, namely, perceived usefulness, enjoyment, information quality, website design, comfort, utilitarian and hedonistic values, and situational factors (Brusch, et al., 2019).

A study done by Vize, Coughlan, Kennedy, and Ellis-Chadwick (2013) found that Technology Readiness plays a big part in the service quality and satisfaction that a retailing firm can provide. Information Technology (IT) has boosted and promoted the movement of society towards entrepreneurship (Mivehchi, 2019), and resulted in the addition of economic value through increased productivity and the competitiveness (Lorente-Martínez, Navío-Marco, & Rodrigo-Moya, 2020).

The Philippines, according to a study of Euromonitor International (2019), saw a trend shift in many retailers setting up their online channels by conducting a direct selling approach with customers through Facebook as well as the newly launched Facebook Marketplace, or subscribing to other third-party channels such as Lazada, Shopee, etc. Whether it be through a third-party channel or a proprietary one, cost has been proven to be a major consideration when expanding into online retail (Vize et al., 2013). A conscious effort in complying with R.A. 10173 known as the Data Privacy Act of 2012 is exerted by retailers going online, requiring them to be mindful of the cybersecurity concerns, a serious concern that retailers must address before adopting the online platform since the Filipino consumer commonly uses cash as a mode of payment, as opposed to utilizing electronic fund transfers (EFT). The pandemic lockdowns, though, led to a drastic increase in EFTs accompanied by a retail industry sales increase of 31% by the end of 2019. Based on a report by Kemp (2019), it found that less than 2% of the population owns a credit card, whereas mobile wallet services are already used by 40% of the population. Hence, the Philippines is now considered as one of the fastest-growing e-commerce markets in Asia (Lipsaman,2019).

While there is extant literature on the assessment of the key success factors and drivers for brick-and-mortar retailers' expansion into the online market, very few studies exist in the Philippine context. It is in this light that answers to the following questions will interestingly be of significance in the Philippine retailing industry: "What factors do Philippine brick-and-mortar retailers consider in their expansion into online retailing?" and "What is the best suitable transformation strategy for hybrid online retail or for adopting fully online retailing that would be equally valuable to the industry?" This research study, hence, aimed at achieving the following objectives: (1) To determine the factors that Filipino retailers consider in their decision to expand into online retailing; and (2) To recommend a readiness index and an implementation framework for online retailing adoption.

The results of the study would provide Philippine retailers a better grasp of the local market and technology factors that need to be considered before expanding into online retailing. Additionally, in view of the post-COVID-19 pandemic that presents a host of health protocol concerns, this study would aid the Philippine retailing industry in strategizing how to sustain firm profitability and how to better serve its target consumers via a brick-and-click or pure click platform for ordering their desired products. The research can also provide Micro, Small, and Medium-sized Enterprises (MSMEs) in the consumer-based goods retailing sector a reference basis in deciding to adopt the online shopping platform, especially those who are up against retail giants with big store infrastructures but are already planning to expand into online retailing.

2. Methodology

Data from related literature were gathered to determine factors that affect the decision of retailers who are planning to expand into online retailing. Aided by an extended Technology Acceptance Model, the conceptual framework containing latent variables Hedonic Value, Reach, Availability of Payment Options, Capital Cost, Availability of IT Solutions, Cybersecurity, Competition, Scalability, Cost, Utilitarian Value, Convenience, Perceived Ease of Use, Perceived Usefulness, Technological Readiness, Intention to Adopt, Online Retailing Industry Attractiveness, and Retailer's Decision to Expand Into Online Retailing as shown in Figure 1 guided the flow of the study. A survey in the form of a 5-point Likert scale was conducted to determine the factors that online retailers consider in their decision to expand into online retailing.
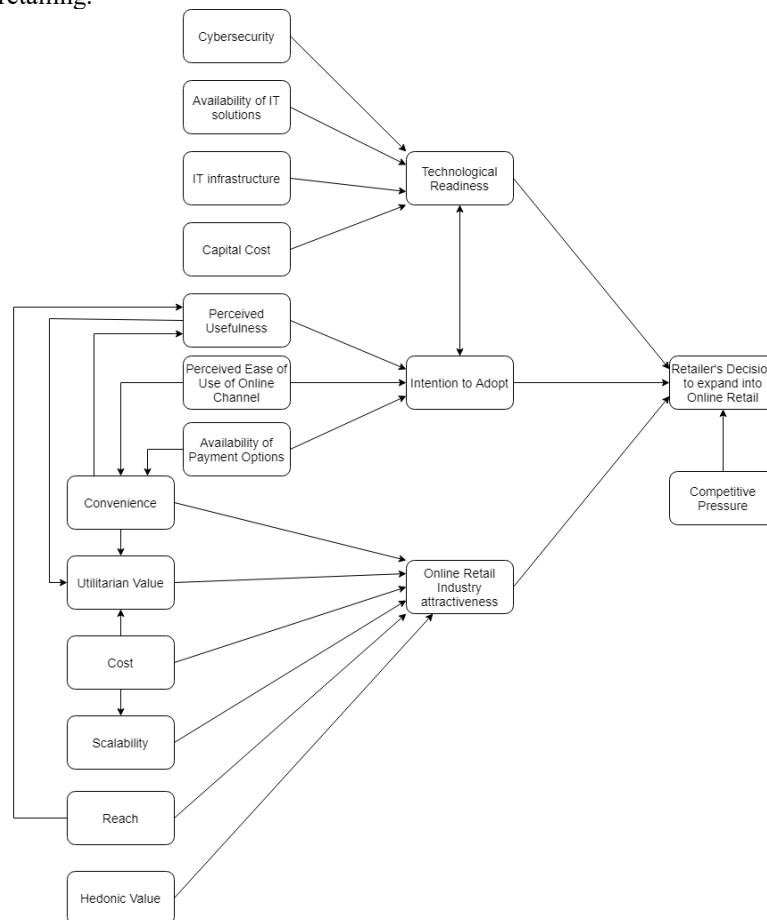

Figure 1. Conceptual Framework

Structural Equation Modeling through AMOS was used to establish causal relationships between latent variable constructs, where data gathered from the survey was examined to test the following hypotheses:

H1: Reach has a significant effect on Perceived Usefulness

H2: Cost has a significant effect on Scalability and Utilitarian Value

H3: Convenience has a significant effect on Perceived Usefulness and Utilitarian Value

H4: Hedonic Value, Reach, Scalability, Cost, Utilitarian Value, Convenience has a significant effect on Online Retail Industry Attractiveness

H5: Perceived Ease of Use of Online Channel has a significant effect on Convenience, and Intention to Adopt

H6: Perceived Usefulness has a significant effect on Utilitarian Value and Intention to Adopt

H7: Availability of Payment Options has a significant effect on Convenience, and Intention to Adopt

H8: Cybersecurity, Availability of IT solutions, IT Infrastructure, Capital Cost has a significant effect on Technological Readiness

H9: Intention to Adopt and Technological Readiness are correlated

H10: Technological Readiness has a significant effect on Retailer's Decision to Expand into Online Retail

H11: Intention to Adopt has a significant effect on Retailer's Decision to Expand into Online Retail

H12: Online Retail Industry Attractiveness has a significant effect on Retailer's Decision to Expand into Online Retail

H13: Competitive Pressure has a significant effect on Retailer's Decision to Expand into Online Retail

3. Results and Discussion

3.1 Structural Equation Modelling

Results from the initial run of SEM are shown in Figure 2, producing a number of insignificant relationships as indicated by their low regression weights. Several iterations were made by starting off from the lowest regression values until a model fit was arrived at.

The final SEM model is as shown in Figure 3. Figure 3 shows that IT infrastructure had a direct significant effect on Technological Readiness, indicating that the ability to utilize IT systems is one of the considerations of Filipino Retailers. This is consistent with Ramirez et al. (2010) where they found Information Technology necessary in the process redesign of a business. Retailers planning to expand into online retailing should meticulously identify their needs with regards to Information Technology so as to have a seamless and efficient expansion. Capital Cost also had a direct significant effect on Technological Readiness, showing that prior to expansion, capital costs that come with employing and using technology in business processes is also one of the major considerations. Careful planning and determining capital allotment for certain business processes to be digitalized would benefit the retailer in that they will be able to maximize their profits. Dow et al. (2017) also highlighted the importance of ensuring financial profitability as an antecedent to adopting technology. Data privacy and safety of payments is also a precursor to technological readiness, with Cybersecurity having a direct significant effect on Technological Readiness). Alcaide and Llave (2020) also confirmed the devastating effects of data breaches specifically in the maritime sector, outlining how cybersecurity plays a huge role in protecting individuals and organizations, in this case, retailers and customers. A retailer who wishes to delve into online retailing must put cybersecurity at the forefront of their technological expansion, as an oversight of which has dire implications for both their customers and their business. Technological Readiness had a direct significant effect on Retailer's Decision to Expand into Online Retail, signaling that a well-established and reliable system of technological infrastructure is one of the critical considerations of retailers who wish to migrate some or all of their business processes into online platforms. This is consistent with Kim and Garrison (2010) who found that technological knowledge, as a part of organizational readiness, related positively with evaluation of technology, which further leads to adoption and integration. Reach had a significant direct effect on Online Retailing Industry Attractiveness, indicating that expanding reach, especially within the local market but also in reaching markets with more niche demands, makes online retailing attractive to Filipino Retailers. Based on the journal of Adelaar, Bouwmanm, and Steinfield (2004), due to the large geographical reach that e-commerce brings, a number of physical store retailers tend to pursue online retailing due to its effect on the industry's attractiveness. Online Retailing Industry Attractiveness also had a significant direct effect on Retailer's Decision to Expand into Online Retail, showing that one of the reasons why retailers expand into online retailing is because they see how attractive it is for the purposes and interests of their business. This data is also consistent with the study conducted by Cunha et.al. (2002), which proves that the industry attractiveness has a positive direct impact on the organization's decisions for system improvement.
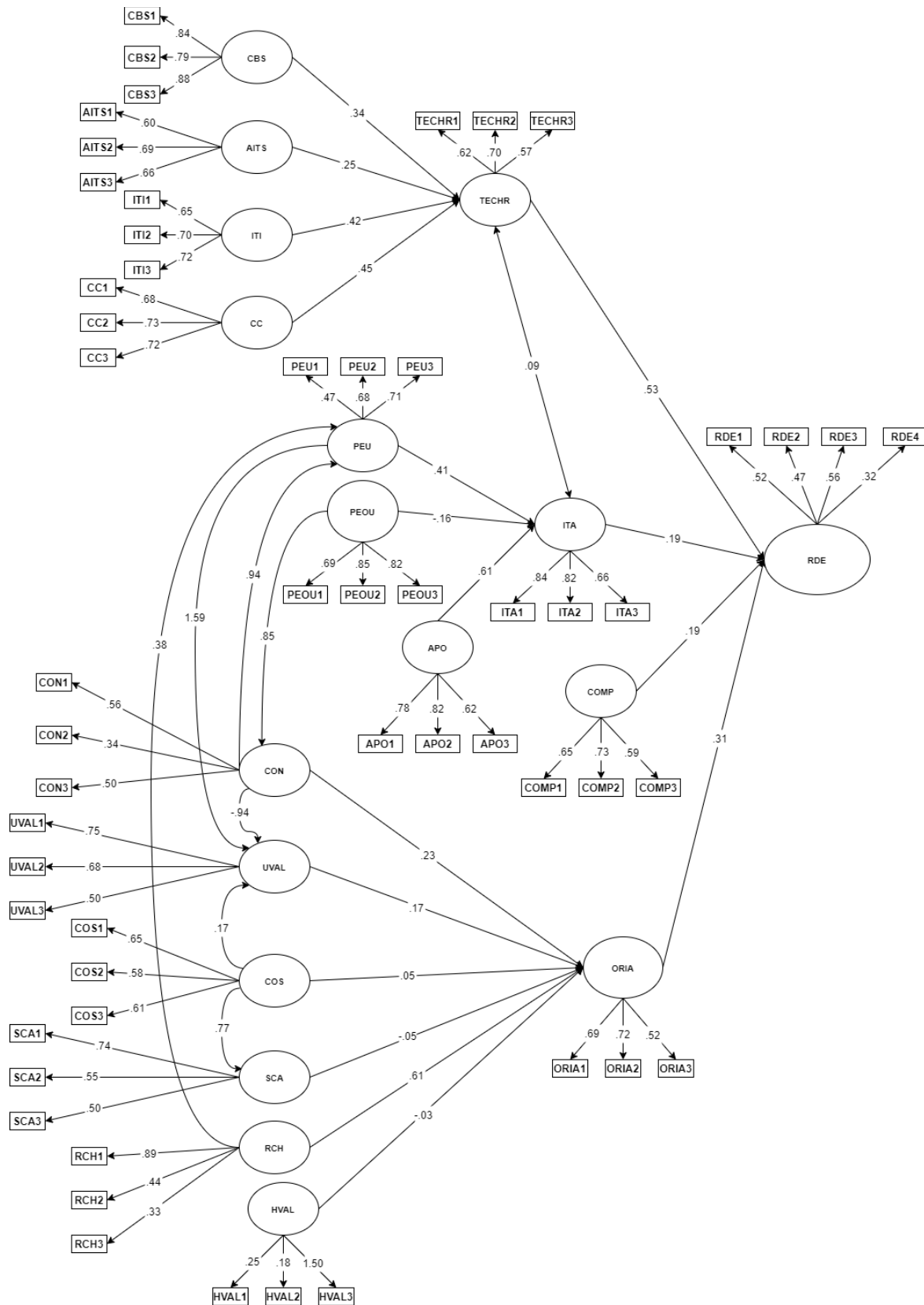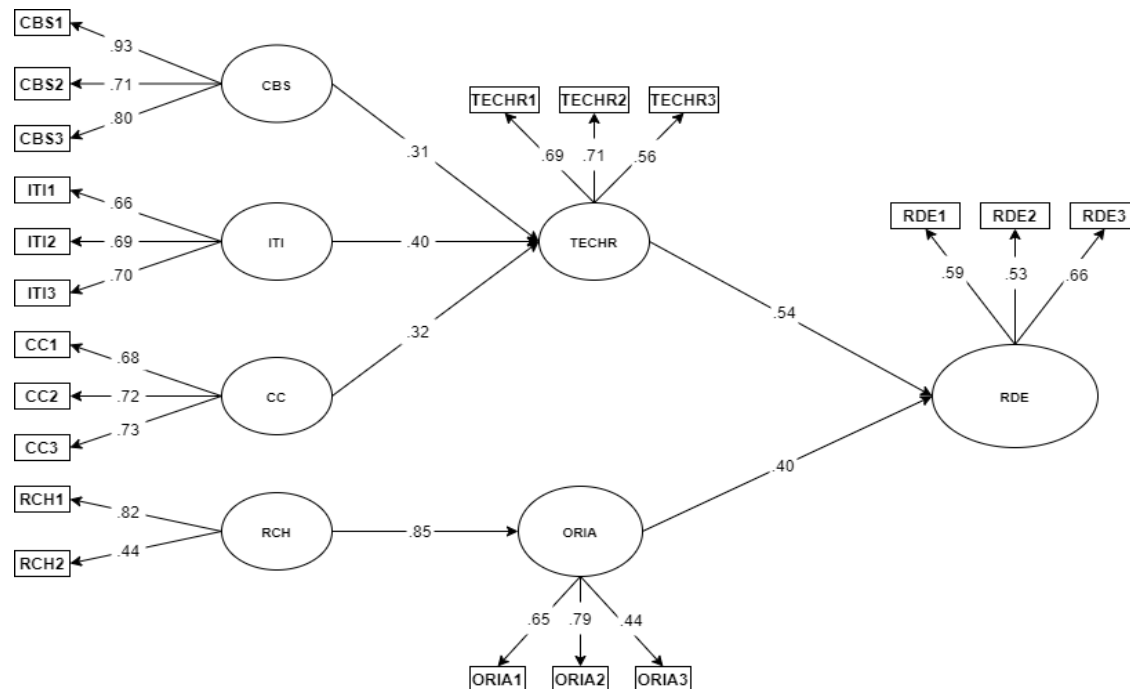
Figure 2. Initial SEM Framework

Figure 3. Final SEM Framework

3.2 Readiness Index

According to Parasuraman and Colby (2014), there are four dimensions for the Technological Readiness Index (TRI); Optimism and Innovativeness (Contributors), and Discomfort and Insecurity (Inhibitors). Parasuraman and Colby (2014) defined each dimension as follows: (1) Optimism — a positive view of technology and a belief that it offers people increased control, flexibility, and efficiency in their lives. (2) Optimism — a positive view of technology and a belief that it offers people increased control, flexibility, and efficiency in their lives. (3) Discomfort — a perceived lack of control over technology and a feeling of being overwhelmed by it. (4) Insecurity — distrust of technology, stemming from skepticism about its ability to work properly and concerns about its potentially harmful consequences.

Consistent with the above, the study's final SEM Framework was used to develop a readiness index with a similar structure and manner of measuring the variables. The observed variables of latent factors Cybersecurity, IT Infrastructure, Capital Cost and Reach, and Online Retailing Industry Attractiveness were catered to and distributed among each dimension in the readiness index score sheet as shown in Table 2; their regression weights used as weight multipliers for a 3-point Likert scale. Retailers are to rate how much they agree with each statement. With "3" corresponding to "agree", "2" for "neutral", and "1" for "disagree" multiplied by the weight in each row, they will be obtaining a readiness score by subtracting their total "Inhibitors" score from their total "Contributors" score. Their score will then be compared to indices in the readiness index shown in Table 1 to determine their readiness level.

Table 1. Readiness Index

Range	Description
9.4 to 1.59	Ready
1.58 to -6.23	Hesitant
-6.24 to -14.04	Not Ready

Indices for each level of readiness shown in Table 1 were obtained by finding tercile ranges between the following maximum and minimum values, respectively: (1) 9.4 Maximum Score - score of "3" in all contributor variables, score of "1" in all inhibitor variables. (2) -14.04 Minimum Score - score of "1" in all contributor variables, score of "3" in all inhibitor variables. Computations are also shown in Figure 4.

$$Tercile\ Range = \frac{Max\ value - Min\ value}{3}$$

$$Tercile\ Range = \frac{9.4 - (-14.04)}{3} = 7.81$$

$$1st\ Tercile\ (Ready): 9.4\ to\ (9.4 - 7.81) = 9.4\ to\ 1.59$$

$$2nd\ Tercile\ (Hesitant): 1.58\ to\ (1.58 - 7.81) = 1.58\ to - 6.23$$

$$3rd\ Tercile\ (Not\ Ready): -6.24\ to\ (-6.24 - 7.81) = -6.24\ to - 14.04$$

Figure 4: Computation for Tercile Ranges

Table 2. Readiness Index Scoresheet

		Weight	Contributors		Inhibitors	
			Optimism	Innovativeness	Discomfort	Insecurity
ITI2	The use of an IT Infrastructure has significant effects on my business' performance.	0.69				
ORIA2	Online Retailing is a major shopping option.	0.79				
ORIA3	Multi-channel operations can greatly increase revenue potential and increase customer base.	0.44				
RCH2	My business can reach markets with specialized demands through online retail.	0.44				
CC2	My business has the capacity to use financial capital for attractive growth and profits.	0.72				
CC3	My business has the capacity of gauging whether a capital expense can be profitable.	0.73				
ORIA1	The rise of internet related technologies allows for different forms of online businesses.	0.65				
RCH1	My business has the capability to reach a substantial number of local clients through online retail.	0.82				
ITI1	My businesses is not capable of catering to an information technology infrastructure.	0.66				
ITI3	My business is not capable of proper utilization of IT Infrastructure to come up with different strategic innovations.	0.7				
TECHR1	My business is not ready to learn the technology behind online retail.	0.69				
TECHR2	My business is not ready to migrate some or all business processes to online channels.	0.71				
TECHR3	My business is unaccepting of technology advancement.	0.56				

Table 2. Readiness Index Scoresheet (con't)

			Contributors		Inhibitors	
CBS1	Online retailing channels cannot keep my own and my customer's data safe.	0.93				
CBS2	The Philippines Data Privacy Act of 2012 has significant implications in my business.	0.71				
CBS3	Online retailing channels do not allow for safe payment transactions.	0.8				
CC1	My business is not confident with releasing capital prior to expansion into online retailing.	0.68				
			Contributors		**Inhibitors**	
		Total				

3.3 Implementation Framework

As is the ultimate purpose of developing a readiness index, the implementation framework shown in Figure 5 suggests different actions to be taken based on the retailer's / business' level of readiness. Since attractive readiness has already been established, the best course of action for those in the "ready" level is to materialize the contributors, and minimize any inhibitors that may hinder their successful expansion. Those in the "hesitant" level are suggested to re-evaluate their current situation as to the different facets of the contributors and inhibitors in an effort to assess their position prior to expansion. Lastly, those under the "not ready" are recommended to temporarily veer away from the "attractiveness" of online retailing and focus on addressing inhibitors as these are fundamental steps of the expansion.
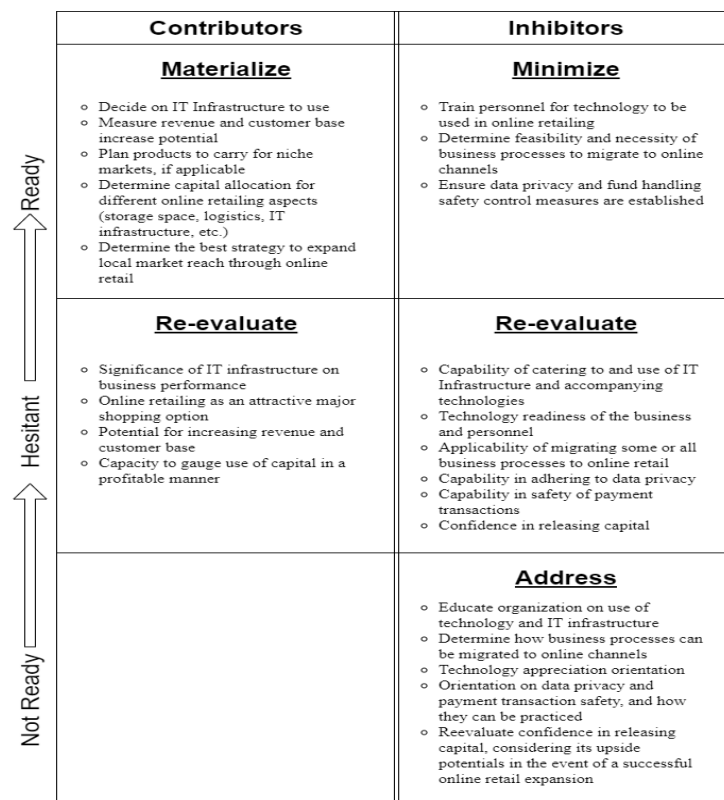
Contributors	Inhibitors
Materialize	**Minimize**
○ Decide on IT Infrastructure to use ○ Measure revenue and customer base increase potential ○ Plan products to carry for niche markets, if applicable ○ Determine capital allocation for different online retailing aspects (storage space, logistics, IT infrastructure, etc.) ○ Determine the best strategy to expand local market reach through online retail	○ Train personnel for technology to be used in online retailing ○ Determine feasibility and necessity of business processes to migrate to online channels ○ Ensure data privacy and fund handling safety control measures are established
Re-evaluate	**Re-evaluate**
○ Significance of IT infrastructure on business performance ○ Online retailing as an attractive major shopping option ○ Potential for increasing revenue and customer base ○ Capacity to gauge use of capital in a profitable manner	○ Capability of catering to and use of IT Infrastructure and accompanying technologies ○ Technology readiness of the business and personnel ○ Applicability of migrating some or all business processes to online retail ○ Capability in adhering to data privacy ○ Capability in safety of payment transactions ○ Confidence in releasing capital
	Address
	○ Educate organization on use of technology and IT infrastructure ○ Determine how business processes can be migrated to online channels ○ Technology appreciation orientation ○ Orientation on data privacy and payment transaction safety, and how they can be practiced ○ Reevaluate confidence in releasing capital, considering its upside potentials in the event of a successful online retail expansion

(Left axis labels: Ready, Hesitant, Not Ready)

Figure 5. Implementation Framework

4. Conclusion

The primary purpose of this research was to determine the factors that Filipino retailers primarily consider for them to expand into online retailing, as well as to help other retailers in their decision when it comes to the expansion. A survey consisting of 55 questions was conducted on 506 retailers, consisting of statements that would verify factors considered by retailers prior to expanding into online retailing.

The first objective of the study was to determine the factors that Filipino retailers consider in their decision to expand into online retailing. SEM was utilized to determine the relationship between latent variables, from which the significant factors were determined. Initially, the research was guided by and ventured on the suitability of the Technological Acceptance Model, but it was later found through the SEM results that the said model does not have a significant effect on the decision of retailers to expand online. The second objective of the study was to recommend an implementation framework for online retailing. With the results of the SEM, a readiness index score sheet with the corresponding weights together with a readiness index were formulated in order to verify retailers' readiness in expanding into online retail. The index was utilized in coming up with an implementation framework which would serve as a guide for Filipino retailers to strategically implement online retailing based on their level of readiness.

5. Recommendation

The study acknowledges that as difficulties in gathering data amid the COVID-19 pandemic present themselves, the study was only able to gather substantial responses from micro and small enterprises, with only a miniscule amount of medium enterprises being able to answer the survey. Further studies are recommended where data gathering is much more accessible to gather a substantial number of responses from medium enterprises.

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