

# The Impact of Digitalization and Resources on Gaining Competitive Advantage in International Markets: The Mediating Role of Marketing, Innovation and Learning Capabilities

*Yan Yin Lee and Mohammad Falahat*

*“If all you're trying to do is essentially the same thing as your rivals, then it's unlikely that you'll be very successful.”*

Michael Porter  
Professor at Harvard Business School

International Entrepreneurship as a field of studies depends on digitalization as an essential factor that drives internationalization. Riding on the wave of digitalization, firms can produce and market their products and services globally through digital platforms with reduced costs and time savings. Yet, digitalization as a determinant of competitive advantages for small and medium enterprises in international markets is rarely examined. This study fills the gap by testing the direct and indirect effects of digitalization on enterprise, specifically focusing on price, product, and service advantages in digitalized international markets. Based on the data collected from 143 exporting SME manufacturers in Malaysia, results from our analysis revealed that digitalization has no direct effect on competitive advantage, but rather has strong indirect effects on product and service advantages. Managers and policymakers can thus leverage digitalization to improve their company's internationalization plans according to its intended competitive strategies.

## Introduction

This study aims to contribute to an acceleration of small and medium enterprises (SME) internationalization by identifying key determinants of their competitive advantages for internationalization. Resource-based theory (Barney, 1991; Barney et al., 2011) is often used to explain the determinants of international performance (Cavusgil and Knight, 2015; Øyna and Alon, 2018). However, little is known about the resources and capabilities that lead to Malaysian SMEs' competitive advantages in international markets (Falahat et al., 2013; Falahat et al., 2018). In addition to resources and capabilities, international entrepreneurship scholars are also showing increased interest to explore the role of digitalization in SME internationalization through studies of digital platform firms (Ojala et al. 2018; Stallkamp & Schotter 2018), internet-based companies (Wittkop et al., 2018), ibusiness firms (Brouthers et al., 2018), and high-tech startups (Neubert 2017 & 2018). While resources and

capabilities are fundamental prerequisites for international research exploration, the concepts existed prior to the emergence of digital era (Coviello, Kano, and Liesch 2017; Wittkop et al. 2018). To date, the interaction between digitalization and these fundamental prerequisites has not been sufficiently validated with quantitative evidence (Coviello et al., 2017; Strange & Zucchella, 2017; Watson et al., 2018). Despite earlier studies that acknowledge the needs for integrating digitalization with a strategic internationalization model, most studies are still qualitative in nature. More quantitative evidence is therefore needed to demonstrate the role of digitalization in SME internationalization studies (Coviello et al., 2017; Knight & Liesch, 2016; Neubert, 2018; Ojala et al., 2018).

The impacts of digitalization on business models have been well described in case studies (Neubert, 2017 & 2018). Some businesses that embrace digitalization for internationalization have achieved early and rapid

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internationalization (Stallkamp & Schotter, 2018; Wittkop et al., 2018). Consistent with this understanding, digitalization's role in determining a SME's competitive advantages and its interaction with other factors are crucial for business owners in their planning and decision-making strategies (Dana, 2017; Knight & Liesch, 2016; Romanello & Chiarvesio, 2019). It is important to understand the relationships between digitalization, various resources and capabilities that give a firm competitive advantages, in order for SMEs to accelerate their internationalization (Coviello et al., 2017; Neubert, 2018; Wittkop et al., 2018).

The main objective of this study is to examine the impact of digitalization on SMEs, and to develop a model for the determinants of SMEs' competitive advantages in international markets, with specific consideration to digitalization, resources, and capabilities. The study also tests various capabilities as a mediator in the relationship of digitalization, resources, and competitive advantages. Based on the findings, researchers may further explore the role of digitalization and other determinants of competitive advantages in the context of international entrepreneurship. Managers and policymakers should gain a better understanding of how to incorporate digitalization together with other determinants of competitive advantages that enable the company to enter international markets. This will reduce the risk, time, and cost for a company's internationalization process (Neubert, 2017; 2018; Ojala et al., 2018).

## Literature Review

### *Underlying theories*

Since the 1990s, "born global" theory has often been used to explain the process of SME internationalization (Rennie, 1993). In this study, we refer to both born global and international new venture studies (Oviatt & McDougall, 1994 & 1999) through the lens of a resource-based view (RBV) (Barney, 1991; Grant, 1991) combined with a dynamic capability view (Teece et al., 1997). In these approaches, empirical studies conducted to relate the resources and capabilities for SME internationalization are used as input to develop the research model.

### *Competitive advantages in international markets*

In this study, competitive advantages refer to whether a firm performs better in price, product, or service advantages, in comparison with its competitors in international markets (Kaleka & Morgan, 2017). Specifically, price advantage means a firm is at a better

position in terms of pricing when it comes to competing with other industry players in their international venture. Product advantage in contrast means that a firm is at a better position in terms of their product design, customization, adaptation, and/or overall quality in comparison with other industry players in their international venture. Additionally, a service advantage refers to a firm that is at a better position in terms of their reliability of service, timeliness of delivery, product accessibility, and/or overall service quality, and customer satisfaction. These three performance measurements are analogous to the concepts of lower cost strategy and differentiation strategy (Porter, 1980), in which differentiation can be studied either as product differentiation or service differentiation.

Among empirical studies in the field of international entrepreneurship, focus has generally been skewed to international performance, while little investigation has been done on competitive advantages in international markets. This study posits that understanding digitalization, resources, capabilities, and competitive advantages provides additional insights for more systematic planning of resource allocation (Grant, 1991). Hence, we were motivated for the present study to operationalize competitive advantages in international markets that reflect the price, product, and service advantage.

### *Digitalization for competitive advantages in international markets*

As defined by Autio (2017: 2), digitalization refers to "the application of digital technologies and infrastructures in business, economy, and society". Firms thus apply different types of digital technologies, such as e-commerce, big data analytics, internet of things, machine learning, additive manufacturing, and others for value creation (Autio et al., 2018; Nambisan, 2017; Strange & Zucchella, 2018). SME adopts digital technologies such as informmediation (Ordanini & Pol 2001), e-Commerce (Gregory et al., 2007; Gregory et al., 2019), social media (Eggers et al., 2017), and others in their business (Foroudi et al., 2017; Neubert, 2018; Pagani & Pardo, 2017). Adopting digital technology can directly or indirectly create competitive advantages in the digital economy.

This study posits that fragmented digitalization studies are in line with Grant's RBV(1991), in which digitalization is a specific resource that contributes to a company's competitive advantage. Thus, the following hypotheses are developed:

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**H1:** Digitalization positively affects competitive advantage (price, product, service) for SMEs in international markets.

## *Resources for competitive advantages in international markets*

Guided by new venture internationalization studies, we compile key resources (Laanti et al., 2007; Oviatt & McDougall, 2005; Ruzzier et al., 2006) that are essential for competitive advantages, and conceptualize them as an international resource. We often see three concepts of management characteristics (Madsen & Servais, 1997; Weerawardena et al., 2007; Zor et al., 2019), international knowledge (Johanson & Valne, 1977; Rodríguez-Serrano & Martín-Armario, 2019), and network (Che Senik et al., 2011; Falahat et al., 2015; Freeman & Cavusgil, 2007) in SME internationalization studies. Based on the empirical studies, resources may directly be related to capability (Fernández-Mesa & Alegre, 2015; Lu et al., 2010; Monteiro et al., 2017; Weerawardena, 2003), or to international performance (Cao & Ma, 2009; Kaleka, 2002; Krammer et al., 2018).

Despite the fact that most studies have directly tested international performance based on financial and strategic performance, this study instead intended to provide more insights on competitive advantages in international markets. The discussion in the earlier section leads to the following hypothesis development:

**H2:** Resources positively affect competitive advantage (price, product, service) for SMEs in international markets.

## *Capabilities for competitive advantages in international markets*

Grounded on a resource-based view, we see a likely a bundle of capabilities that contributes to international performance (Kaleka, 2002; Leonidou et al., 2011). A bundle's complexity prevents other firms from imitating or transferring the capabilities easily, thus assisting the firm to outperform its competitors. This study compiles key capabilities from SME internationalization studies that are deemed essential nowadays for competitive advantages.

We posit that a firm with strong international capabilities should exhibit advanced innovation capacities in terms of product and innovation process, which they have control over in terms of product specification, quality, and customization. At the same time, the firm should be able to control productivity and production costs in order to meet price flexibility. In addition, a firm with strong capabilities should exhibit

strong marketing capacities (Morgan et al., 2004; Morgan et al., 2012) so that they can effectively introduce their product to new markets. In light of the dynamic capability view, firms with strong capabilities should exhibit strong learning capacities (Gassmann & Keupp, 2007; Grant, 1991; Johanson & Vahlne, 2009; Teece et al., 1997), where they can always respond to changes in international markets in terms of regulatory, customer, or market requirements. Firms with learning capabilities know how to apply new technology to support product and innovation process (Fernández-Mesa & Alegre, 2015; Oura et al., 2016; Raymond et al., 2013).

Based on empirical studies, capabilities are directly related to competitive advantages (Ahmadi et al., 2014; Kamboj et al., 2015; Weerawardena, 2003). Nevertheless, most studies have directly tested resources and capabilities on international performance without explicitly investigating competitive advantages (Evangelista & Mac, 2016; Pham et al., 2017; Raymond et al., 2013; Takahashi et al., 2016). This study instead intended to provide more insights on competitive advantages.

Discussion in the earlier sections leads to the following hypothesis development:

**H3:** International capabilities positively affect competitive advantage (price, product, service) for SMEs in international markets.

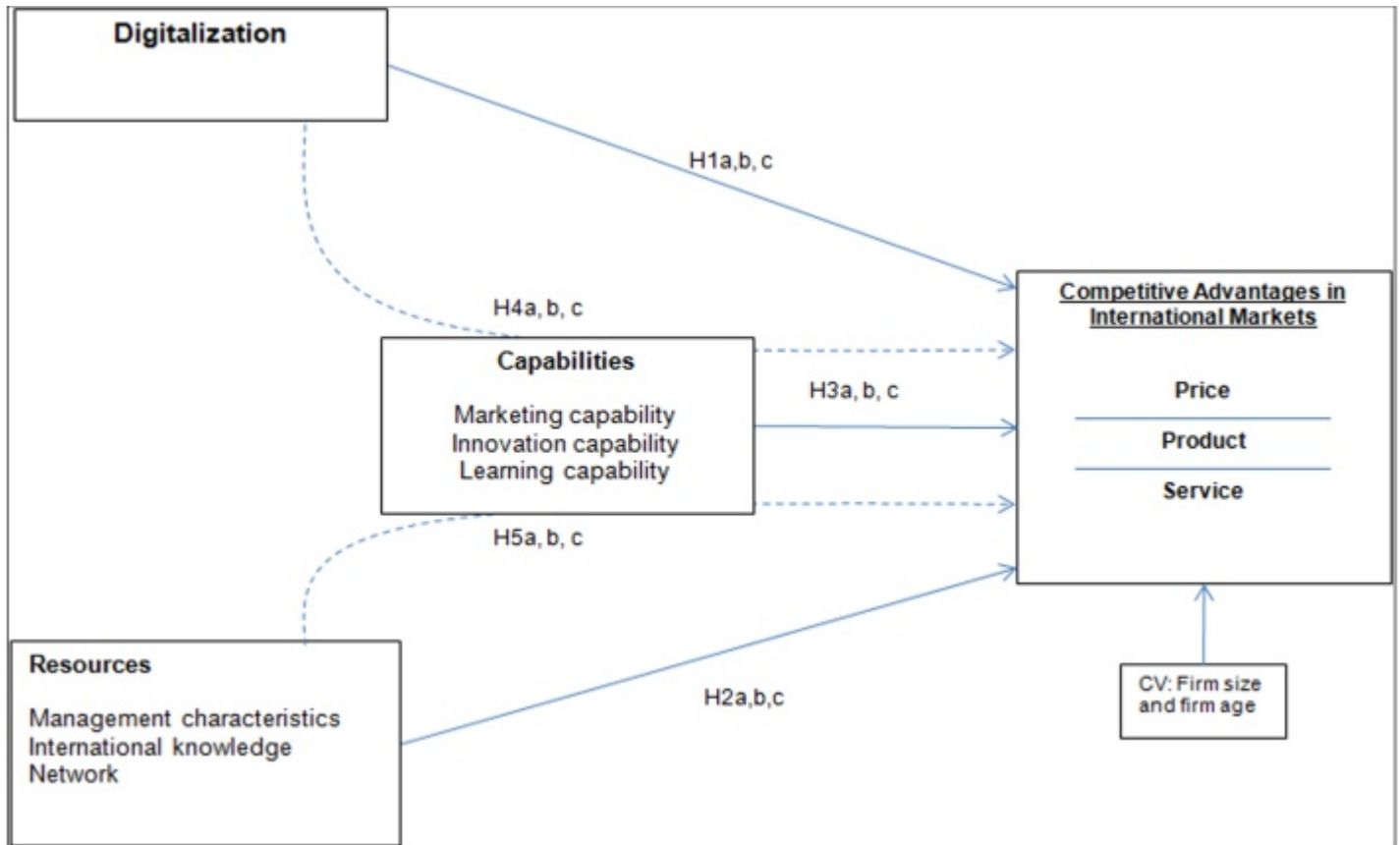
## *Capabilities as mediator for competitive advantages in international markets*

The study of interactions between resources and capabilities is scarce in comparison to study of the direct relationship between resources, capabilities, and competitive advantages (Kaleka, 2002). Nevertheless, there are exceptions. Some scholars have proposed that capabilities often act as a mediator between resources and performance (Lu et al., 2010). Extending from the direct relationship reported in H2, this study posits that capabilities are a mediator between resources and competitive advantages in international markets.

Although digitalization may be considered separately from resources, it is conjectured to have similar attributes as a resource. Firms utilize digital tools as input to enhance their international capabilities (Neubert, 2018), and subsequently lead to improved international performance (Lee et al., 2019). This assumption is in line with Grant (1991) and other research models (Fernández-Mesa & Alegre, 2015; Lu et al., 2010; Monteiro et al., 2017; Weerawardena, 2003).

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**Figure 1.** Research model

(Note: Dotted line denotes the indirect relationship, capabilities construct as a mediator)

Thus, the following hypotheses are developed:

**H4:** International Capabilities mediate the relationship between digitalization and competitive advantage (price, product, service) for SMEs in international markets.

**H5:** International Capabilities mediate the relationship between resources and competitive advantage (price, product, service) for SMEs in international markets.

The research model is presented in Figure 1.

## Research Methods

Malaysia is considered as a good representative of emerging countries in the world (Bloomberg 2018). Based on key determinants of competitive advantages compiled from SME internationalization literature, this study adopts a quantitative research approach to examine the role of these determinants in the Malaysian context. In addition to a literature review, advice from experts was used as input to further advance a questionnaire related to the main objectives of the research. This gave us extensive information about key

determinants associated with competitive advantages for Malaysian firms in international markets.

Manufacturers were selected as the study's sample, due to the fact that their international export business mostly involved manufactured goods. Owing to the type of business, this excluded service providers to ensure homogeneity of the samples, especially in term of resources and capabilities involved in the business process. Thus, the questionnaire was distributed to exporting SMEs from manufacturing sectors.

The MATRADE (Malaysia External Trade Development Corporation) directory was used as the sampling frame. This directory is the most complete and updated directory to reach exporting SME manufacturers, compared with other directories that are not export-focus. Company selection was derived by using a quota sampling technique. First, a total of 8,869 unique contacts in the directory was categorized according to industry sectors, and a ratio of each sector was calculated. For instance, 2,643 out of 8,869 firms (30% of

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the firms) were from the food and beverage industry. Next, a total of 1,000 SMEs were randomly selected from the directory, according to the calculated ratio. The chosen firms were contacted through email, or called to verify their ongoing activity in an export business, prior to sending the questionnaire.

The survey received 143 usable responses. All responses were screened to ensure they are exporting manufacturers. 41.3% of the respondents had business operations under 10 years, and 49% had below 25 employees. Respondents came from multiple industries, the top three being food and beverages (32%), household and consumer products (15%), and electrical, electronic, medical, and telecommunications (14%).

The measurements were adapted from existing literature and all measures used were previously validated in the literature. Sources for measured items are outlined in Appendix 1. All items were measured in a five-point Likert scale. The analysis was carried out using SmartPLS v.3.2.8 software (Ringle et al., 2015).

## Results

A total of 143 responses were received and used for data analysis. Prior to assessing the measurement model, the data was checked for non-response bias and common method bias. Next, the composite reliability and average variance extracted were confirmed within the recommended threshold (Hair et al., 2017). Then, the Heterotrait-monotrait ratio approach (HTMT) was used to assess discriminant validity. All HTMT values are below 0.85, thus all constructs are distinctive (Henseler et al., 2015).

Resource and capability constructs were developed using repeated indicators approach (Hair et al., 2017). Prior to hypotheses testing, a collinearity test was carried out. VIF values recorded below five, thus there is no critical concern of collinearity (Hair et al., 2017).

## Hypotheses testing

Based on 5,000 samples using a bootstrapping procedure, the significance of the path coefficients of hypothesized relationships was assessed based on p-values. The beta values and p-values were reported in Table 1. In a PLS-SEM context, bootstrapping is the most recommended approach to test mediating effects (Hair et al., 2017). Table 1 shows the mediator test results, including two control variables and their relationships with competitive advantages. Most of the relationships

are not significant, except firm age, which is positively related to service advantage.

The coefficient of determination ( $R^2$ ) represents the amount of variance in the endogenous construct explained by all predictors in the model. Table 2 indicates that exogenous constructs explain 59.6% variance in price advantage, 42.6% variance in service advantage, and 33.9% variance in product advantage. As well, the Stone-Geisser's  $Q^2$  values were greater than zero, which indicates the predictive relevance of the model (Hair et al., 2017).

## Discussion

The research objective was to better understand the role of digitalization in achieving competitive advantages for SMEs internationalization. A firm can utilize different types of digital technologies (Pagani & Pardo, 2017; Strange & Zucchella, 2017) to enhance their competitive advantages. This study measures digitalization based on the use of digital technologies for learning, sales and marketing, process improvement, and product development, thus covering a wider scope of digitalization instead of focusing on a specific type of digital application (Gregory et al., 2019; Ordanini & Pol, 2001).

We find that capabilities can be used to mediate digitalization for better product and service advantages. The study also provides an important insight that digitalization has no direct influence on either price, product, or service advantage. A firm should not automatically expect a positive outcome on its international competitive advantages through digitalization, without at the same time considering the roles of other interrelated factors (Neubert, 2018; Ojala et al., 2018). Instead, a firm should aim to develop international capabilities through digitalization, which eventually will lead it to better product and service advantages. The study shows no effect of digitalization on price advantage, in line with other studies that have commented that digitalization is costly, and often unable to yield short term financial gain (Choshin & Ghaffari, 2017). Overall, the impact of digitalization may not be directly reflected through competitive advantages in international markets. Yet, firms should not ignore the indirect effect of digitalization as an antecedent to ramping up international capabilities.

The study also examined resources associated with competitive advantages for SMEs aiming to internationalize. While resources themselves appear

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**Table 1.** Hypotheses testing

#	Hypotheses	Path Coefficient	p Value	VIF	Result
H1a	Digital -> Price Adv	0.057	0.569	2.155	Not supported
H1b	Digital -> Prod Adv	-0.003	0.983	2.155	Not supported
H1c	Digital -> Service Adv	0.063	0.530	2.155	Not supported
H2a	Resource -> Price Adv	0.714	0.000* **	2.149	Supported
H2b	Resource -> Prod Adv	0.115	0.233	2.149	Not supported
H2c	Resource -> Service Adv	0.031	0.741	2.149	Not supported
H3a	Capability -> Price Adv	0.031	0.744	2.351	Not supported
H3b	Capability -> Prod Adv	0.503	0.000* **	2.351	Supported
H3c	Capability -> Service Adv	0.587	0.000* **	2.351	Supported
H4a	Digital -> Capability -> Price Adv	0.014	0.746		Not supported
H4b	Digital -> Capability -> Prod Adv	0.218	0.002* **		Supported
H4c	Digital -> Capability ->Service Adv	0.255	0.000* **		Supported
H5a	Resource -> Capability -> Price Adv	0.012	0.751		Not supported
H5b	Resource -> Capability -> Prod Adv	0.201	0.000* **		Supported
H5c	Resource -> Capability ->Service Adv	0.234	0.000* **		Supported
CV	Firm size--> PriceAdv	-0.015	0.748		Insignificant
CV	Firm size--> ProdAdv	0.007	0.911		Insignificant
CV	Firm size--> ServiceAdv	0.014	0.829		Insignificant
CV	Firm age--> PriceAdv	0.032	0.473		Insignificant
CV	Firm age--> ProdAdv	0.075	0.231		Insignificant
CV	Firm age--> ServiceAdv	0.148	0.009* **		Significant

Note: CV: Control variable

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insufficient to yield product and service advantages, they may assist exporting SME manufacturers to gain a better position in international markets with a price advantage. Hypothesis 2 showed that there is a direct relationship between resources and price advantage. This implies that SMEs without strong capabilities can explore international markets if they are able to offer a price advantage compared with their competitors. These SMEs strive to compete with lower costs, and sell with a better price in order to gain market attention. Generally, resources are a strong predictor of price advantage, as shown with a path coefficient in the study of 0.714 and effect size of 0.587.

The study also examines marketing, innovation and learning capabilities as associated with competitive advantages for SMEs internationalization. Hypothesis 3 reveals that capabilities are not a predictor for price advantage. Firms with strong capabilities may not be competitive in term of their pricing. Nevertheless, they can still compete in international markets through better products or service advantages. This is consistent with prior studies that suggest resource-scarce SMEs mostly compete with niche strategies, instead of cost leadership strategies (Knight & Liesch, 2016).

	R Square	Q Square
Price Advantage	0.596	0.491
Prod Advantage	0.339	0.174
Service Advantage	0.426	0.266

**Table 2.** The value of R square and Q square

Apart from having a direct relationship, capabilities also act as a mediator in 'digitalization-competitive advantages' and 'resources-competitive advantages' relationships. Hypotheses 4 and 5 validate the resource-capability-competitive advantage relationship, consistent with other studies (Lu et al., 2010). In brief, our findings demonstrate the important roles of capabilities, particularly in achieving product and service advantages. Firms are likely to accelerate their internationalization through product and service advantages by developing strong capabilities.

This study empirically tested a model that was developed on the ground of a few well recognized theories for SME internationalization. It thus extends our understanding of network theory, resource-based theory, organisational learning theory, and new venture internationalisation theory. Before this, there were only limited quantitative studies for drivers of SME internationalisation (Gerschewski et al., 2015), particularly empirical studies related to Malaysian SMEs (Falahat et al., 2018). Additionally, the study discussed the role of digitalization for SME internationalisation. Although researchers always highlight the importance of digitalization in the current digital economy, the digitalization construct has rarely been tested in SME internationalisation research model especially in emerging market. This research therefore provides important insights about the role of digitalization, and extends our understanding of the resource-based view in digital economics. It also connects resources and capabilities to three different types of competitive

advantages in international markets. In the field of international entrepreneurship, our research helps to close the gap between digitalization, resources, capabilities, and international performance through a better understanding of the outcomes of these variables on price, product, and service advantages. This complements earlier work on international performance, which were consulted and cited throughout our analysis.

Generally, this study discusses the success factors for Malaysian exporting manufacturers who use digital tools. SMEs who wish to explore international markets can evaluate their readiness to internationalize or transnationalize through examining the extent of their resources and capabilities. Subsequently, they can focus their investment by developing resources and capabilities that best suit their business strategy. Apart from resources, firms may also consider digitalization as a mean of enhancing their international capabilities.

The research findings contribute to justifications for the need to adopt digitalization, together with other resources and capabilities for internationalisation. In the real business world, a firm may need to achieve a price advantage, product or service advantage, depending on their operating context. Based on their research findings, managers are aware of the relationships between resources and the capabilities that give different types of competitive advantages. Managers can assess their company resources for potential to achieve price advantages. Similarly,

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managers who plan to pursue product and service advantages should enhance their international capabilities. They may in this pursuit cultivate suitable management characteristics, build up network orientation, acquire more international knowledge, and adopt digitalization to achieve greater international capabilities. The ready and suitable use of digital tools is going to accelerate this process.

We recommend that SMEs with comparatively limited resources to sustain in a price war should consider more effective use of digital tools to enhance their marketing, learning, and innovation capabilities. This will enable them to outperform otherwise more resourceful competitors, through uniqueness of service or product.

This study has a few limitations. First, the collected data does not realistically demonstrate the dynamic pattern of the relationships due to it is cross-sectional character. Second, the model intends to focus on firms' internal factors only; thus, the influence of external factors on the model has not been considered. Third, the findings are restricted to manufacturing firms from a single country, which limits the generalizability of the findings.

In the future, researchers may extend the research model to exporters from other industries, such as the service industry, and examine the dynamic pattern of relationships there by employing longitudinal data. It is also essential that future research demonstrate how robust this model is when interacting with important external factors, such as market conditions and government intervention (Knight & Liesch, 2016).

## Conclusion

This study demonstrates the distinctive roles of digitalization, resources, and capabilities with different types of competitive advantages in international markets. Resources contribute to price advantage, capabilities contribute to product and service advantages, while digitalization has no direct effect on any of these competitive advantages.

Yet, the indirect effects of digitalization and resources on product and service advantages keep these two constructs important in any comprehensive model of determinants for competitive advantages in international markets. These findings shed light on unique mechanisms and antecedents for managers who aim to focus on specific aspects of competitive strategies.

## Acknowledgements

This work was supported by the Malaysia Ministry of Education (MOE) under FRGS scheme (FRGS/1/2017/SS01/UTAR/02/3).

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# The Impact of Digitalization and Resources on Gaining Competitive Advantage in International Markets: The Mediating Role of Marketing, Innovation and Learning Capabilities

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Citation: Lee, Y.Y. and Falahat, M. 2019. The Impact of Digitalization and Resources on Gaining Competitive Advantage in International Markets: Mediating Role of Marketing, Innovation and Learning Capabilities. *Technology Innovation Management Review*, 9(11): 26-38. <http://doi.org/10.22215/timreview/1281>



Keywords: International Entrepreneurship, Digitalization, Competitive advantage, Innovation, Marketing, Learning Capabilities, SMEs

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## Appendix: Descriptive Statistics

Constructs		Outer Loading	CR	AVE
Resources ( Reflective second order construct)			0.826	0.615
Management characteristics	Mgmt1	0.640	0.922	0.573
Source: Adapted from Knight and Cavusgil (2004); Zhang, Sarker and Sarker (2013); Pre-test	Mgmt2	0.779		
	Mgmt3	0.805		
	Mgmt4	0.547		
	Mgmt5	0.838		
	Mgmt6	0.831		
	Mgmt7	0.777		
	Mgmt8	0.760		
	Mgmt9	0.785		
International Knowledge	IK1	0.843	0.920	0.794
Source: Adapted from Eriksson, Johanson, Majkgard, and Sharma (1997); Monteiro, Soares, and Rua (2017)	IK2	0.903		
	IK3	0.925		
Network	Netw1	0.778	0.881	0.553
Source: Adapted from Falahat et al.(2018); Yiu, Lau, and Bruton (2007); Pre-test	Netw2	0.758		
	Netw3	0.778		
	Netw4	0.679		
	Netw5	0.795		
	Netw6	0.664		
Digitalization	Digital 1	0.864	0.938	0.716
Source: Adapted from Hao and Song (2016); Song, Nason, and Di Benedetto (2008); Yu, Jacobs, Chavez, and Feng (2017)	Digital 2	0.896		
	Digital 3	0.841		
	Digital 4	0.873		
	Digital 5	0.776		
	Digital 6	0.824		

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Constructs		Outer Loading	CR	AVE
Capabilities ( Reflective second order construct)			0.942	0.843
Learning capability Source: Adapted from Pham et al. (2017)	LearnCap1	0.882	0.959	0.826
	LearnCap2	0.927		
	LearnCap3	0.910		
	LearnCap4	0.921		
	LearnCap5	0.901		
Marketing capability Source: Adapted from Pham et al. (2017)	MktCap1	0.960	0.947	0.914
	MktCap2	0.959		
	MktCap3	0.959		
	MktCap4	0.946		
Innovation capability Source: Adapted from Pham et al. (2017)	InvCap1	0.827	0.977	0.719
	InvCap2	0.837		
	InvCap3	0.857		
	InvCap4	0.859		
	InvCap5	0.834		
	InvCap6	0.864		
	InvCap7	0.854		
Price advantage	PriceAdv1	0.927	0.938	0.883
	PriceAdv2	0.952		
Product advantage	ProdAdv1	0.794	0.834	0.626
	ProdAdv2	0.788		
	ProdAdv3	0.792		
Service advantage Source: Adapted from Kaleka and Morgan (2017)	ServiceAdv1	0.774	0.918	0.691
	ServiceAdv2	0.847		
	ServiceAdv3	0.807		
	ServiceAdv4	0.846		
	ServiceAdv5	0.879		