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The Impact of Knowledge Sharing on the Relationship Between Market Orientation and Service Innovation

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ABSTRACT

Few studies have been conducted on how each element of market orientation contributes to service innovation through different types of knowledge sharing. Drawing on the dynamic capability perceptive and synergy approach, this study examines the effects of knowledge donation and knowledge collection on service innovation and the effects of customer orientation, competitor orientation, and inter-functional cooperation on service innovation through knowledge donation and knowledge collection. This study collected a total of 258 valid questionnaires randomly from different Malaysian motorcycles companies. The empirical (PLS-SEM) findings indicate that customer orientation, competitor orientation, and inter-functional coordination are positively related to service innovation. The findings show that knowledge donation and knowledge collection are significantly related to service innovation. Interestingly, the effects of customer orientation, competitor orientation, and inter-functional coordination on service innovation are fully mediated by knowledge donation and knowledge collection, respectively.

KEYWORDS

Knowledge Collection, Knowledge Donation, Market Orientation, PLS-SEM, Service Innovation

1. INTRODUCTION

The existing literature shows that service innovation plays an important role in pursuing firms' performance (e.g., Cheng & Krumwiede, 2010, 2012; Grawe, Chen, & Daugherty, 2009). Moreover, service innovation is an important factor in maintaining a firm's competitive advantage in the manufactory industry. However, "uncovering the organizational antecedents of service innovation is still one of the main challenges in (service) innovation literature" (Janssen, Castaldi, & Alexiev, 2016; Tuzovic, Wirtz, & Heracleous, 2018, p. 41) because there are different categories of and unclear definitions of service innovation that can be found from service innovation literature (e.g., Carlborg, Kindström & Kowalkowski, 2014; Snyder et al., 2016; Witell et al., 2016). Service innovation is

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difficult to achieve for firms because service innovation entails distinct resources, capabilities (e.g., Randhawa, Wilden, & Gudergan, 2014; Rusanen, Halinen, & Jaakkola, 2014; Windler et al., 2017) and knowledge process activities (e.g., Consoli & Elche, 2014; Janssen et al., 2016). Drawing on the synthesis approach, service innovation refers to the firm's ability is able to integrate new knowledge from multiple resources and capabilities for new service and value creation (Hu, Horng, & Sun, 2009; Liu, 2009; Skålén et al., 2015; Yang, Marlow, & Lu, 2009).

In particular, the previous study has shown that service innovation is rooted in the resources/capabilities (e.g., Gebauer, Gustafsson, & Witell, 2011; Melton & Hartlin, 2015; Kindstrom, Kowalkowski, & Sandberg, 2013; Kindstrom & Kowalkowski, 2014) and knowledge sharing processes (e.g., Hu, Horng, & Sun, 2009; Wu, 2016). Additionally, in order to promote service innovation, some researchers have started to study knowledge processes/knowledge management to investigate conceptual links to dynamic capabilities (e.g., Shang, Lin, & Wu, 2009; Sambamurthy & Subramani, 2005). The dynamic capability has been recognized that "the ability to integrate, transfer and use the knowledge on an ongoing basis underpins the firms' capabilities and competitive advantage" (Easterby-Smith & Prieto, 2008, p. 235; Teece, 1998). However, the existing literature does not provide a clear picture of how the firm enables itself to apply resources and capabilities to enhance service innovation through knowledge sharing processes in terms of knowledge donation and knowledge collection.

Previous studies have shown that some firms could provide better service innovation outcomes than others because they have different ways of application on its resources and capabilities (e.g., Melton & Hartlin, 2015; Skaalsvik & Johannessen, 2019). For instance, one stream of service innovation research has investigated the role that market orientation has on service innovation as market orientation can be regarded as a resource (e.g., Hunt & Morgan, 1995) and an aspect of organizational culture (e.g., Day, 1994). Specifically, market orientation not only focuses on generation, dissemination, and use of market intelligence (Kohli & Jaworski, 1990) but it also focuses on the coordinated application of customer, competitor, inter-functional resources within an organizational culture which efficiently creates new value and service for customers (Narver & Slater, 1990). It is therefore more likely to provide new market resources and explore superior customer needs to promote service innovation. However, this raises an interesting question that remains regarding whether the production of service innovation outcome can be warranted by the market orientation because market orientation might improve the firm's abilities to satisfy customers' need and then lead to enhancement of its organizational capabilities (Luo, Sivakumar, & Liu, 2005). The other reason is that market orientation literature did not clearly demonstrate how a firm's capabilities are able to apply market intelligence and resources in designing and implementing its market response and did not significantly deal with these transformational issues such as transforming organizational resources and routines (Sett, 2018). In order to deal with this issue, this study adopts the definition of market orientation which refers to a (higher-order) capability to transform the market resources and intelligence to create new value for the customer's needs and response to external environment (Ma & Todorovic, 2011; Sett, 2018). This study proposes market orientation as a type of dynamic capability that leads to service innovation. This is because dynamic capability not only integrates and reconfigure resources lead to change-orientation (Winter, 2003; Zollo & Winter, 2002) but it also helps companies to seek to customer demands and market trends to increase demand for services and promote new services (Kindström et al., 2013; Janssen et al., 2016). Thus, based on these discussions above, three basic research questions are provided in this study: First, to what extent does market orientation promote service innovation? Second, how does knowledge sharing lead to service innovation? Third, how does market orientation promotes service innovation through knowledge sharing?

In order to answer these research questions, this study creates a conceptual model to examine the relationships among customer orientation, competitor orientation, inter-functional coordination, knowledge donation, knowledge collection, and service innovation. This model also examines how knowledge donation and knowledge collection respectively mediate the relationships among customer orientation, competitor orientation, and inter-functional coordination with service innovation. Drawing

on dynamic capability perceptive, this study focuses on the effect of market orientation in terms of customer orientation, competitor orientation, and inter-functional coordination on service innovation (e.g., Cheng & Krumwiede, 2010; Liu, 2013) for at least two reasons. First, based on market orientation literature, the majority of studies only assessed market orientation as a single construct influences on new service (e.g., Cheng & Sheu, 2017) and largely lack its multi-dimensionality (e.g., Cheng & Krumwiede, 2010; Tsiotsou, 2010). Second, according to the component-wise approach (Li & Calanton, 1998), each component of market orientation not only holds its own locus of interest it also involves various types of cognitive activities. Moreover, previous studies have applied a component-wise approach to interpreting the relationship between three components of market orientation and organizational innovation which leads to organizational performance (Han et al., 1998). Third, some authors argue that the relationship between market orientation and innovation still remains unexamined as well as is suitablity in explaining service innovation (Cheng & Krumwiede, 2012; Tsiotsou, 2010).

Based on the knowledge management perceptive, this study proposes that knowledge donation and knowledge collection can help explain the relationships among customer orientation, competitor orientation, and inter-functional coordination with service innovation. This is because these types of knowledge processes are nourished by each component of market orientation and raise the expectations for successful service innovation (Li & Calanton, 1998; Tang, Wang, & Tang, 2015; Wu, 2016). Therefore, both types of knowledge processes - knowledge donation and knowledge collection – can lead each component of market orientation towards service innovation so as to respond to the customer needs and new services as well as take advantage of market intelligence. The specific purpose is to analyze the mediating role of knowledge donation and knowledge collection, that is, how each component of market orientation leads firms to service innovation through knowledge donation and knowledge collection. Hence, this can help to strengthen the linkage among dynamic capability perceptive, knowledge management perceptive, and synergy approach (service innovation) as well as the result leads to a better understanding of the antecedents of service innovation.

This study provides conceptual contribution in at least two ways. First, this study adopts dynamic capability perceptive on the antecedents of service innovation by focusing on three dimensions of market orientation in terms of customer orientation, competitor orientation, and inter-functional coordination. Toward this objective, this study argues that the effects of customer orientation, competitor orientation, and inter-functional coordination on service innovation. Although a body of research has demonstrated the importance of market orientation on service innovation, this respond to the recent calls for further research on how market orientation as a type of dynamic capability may impact service innovation or new service (Janssen et al., 2016; Kindström et al., 2013; Teirlinck & Spithoven, 2013). Moreover, this outcome also responds to recent calls for further investigation on how service innovation is rooted in resources and capability (Melton & Hartlin, 2015; Skaalsvik & Johannessen, 2019) because three dimensions of market orientation represent a type of dynamic capabilities which enables firms' abilities to capture market intelligence and resources.

Second, this study also identifies knowledge donation and knowledge collection processes that mediate the relationship between three dimensions of market orientation (customer orientation, competitor orientation, and inter-functional coordination) on service innovation. This outcome also responds to the recent calls for more attention to the effects of market orientation and knowledge management on service innovation, especially when knowledge management as an effective mechanism between market orientation and service innovation (Hsieh & Chou, 2018; Lin & Chen, 2017; Ordanini & Parasuraman, 2011). Additionally, the results also enrich prior studies on the effects of market orientation on innovation through knowledge competence or knowledge transfer, as it is still underexplored (Ozkaya et al., 2015; Cambra-Fierro, 2011). Therefore, this study proposes that integrating customer orientation, competitor orientation, and inter-functional coordination with knowledge donation and knowledge collection which helps to explain how service innovation can be impacted by customer orientation, competitor orientation, and inter-functional coordination, it also

enriches the synergistic value of knowledge management which leads to service innovation from these three types of market orientation.

2. THEORY AND HYPOTHESES

2.1 Linking Customer, Competitor, and Inter-Functional Orientation with Service Innovation

Assimilation, demarcation, and synthesis approaches reflect on how the thinking on service innovation evolved in the literature (Witell et al., 2016). Based on the synthesis approach, service innovation is rooted in resources and capabilities reconfiguration/transformation by synthesizing different market information through the knowledge sharing system (Kindström & Kowalkowski, 2014; Shang et al., 2008). Therefore, the association of service innovation with resources and capabilities contribute to generating new value and service for the firm. Previous studies have shown that all the capabilities (e.g., dynamic capabilities) enable entrepreneurial experimentation to novelty creation as a service-based extension of the original set (Teece, 2007). Kindstrom et al., (2013) state that dynamic capability allows firms to create value and prosper in the marketplace. In other words, dynamic capability enables firms' capabilities to source ideas and transfer these ideas into marketable service propositions and effective service development in terms of service innovation (Janssen et al., 2016; Shang et al., 2008).

Market orientation is one of higher-order orientation construct named strategic orientation which is an aspect of corporate culture (Narver & Slater, 1990; Ozkaya et al., 2015). Culture refers to a set of complex routines that enables firms to integrate internal resources into capabilities and competencies (Todorvic, 2004). Hence, market orientation as a type of dynamic capability because market orientation is highly related to one set of dynamic complex routines, which turns to facilitate organizational performance (Day, 1994; Hurley & Hult, 1998; Menguc & Auh, 2006; Narver & Slater, 1990). Therefore, based on dynamic capability perceptive, market orientation defines a (higher-order) capability to transform the market resources and intelligence to establish new value to fulfill customer needs and react to the turbulent environment (Cambra-Fierro et al., 2011; Ma & Todorovic, 2011; Sett, 2018). Market orientation includes three dimensions in terms of customer orientation, competitor orientation, and inter-functional coordination which can be treated separately and disentangled its effects (e.g., Ma & Todorovic, 2011; Naver & Slater, 1990; Ozkaya et al., 2015).

Customer orientation defines a firm's capabilities to gather customer-related intelligence in order to satisfy customer needs and offer them greater value (Day, 1994; Lukas & Farrell, 2000; Hunt & Morgan, 1995). Previous research shows that customer orientation captures similar characteristics of dynamic capabilities which enable firms' capabilities to sense market intelligence for the development and provision of services (Kindström et al., 2013). Market-sensing approach as a core capability enriches a firm's resources to create and deliver new service and innovation through customer involvement and feedback loops of interaction with customers (Kindström & Kowalkowski, 2009). Customer orientation is not only a well-developed driver of innovation (Wang, Zhao, & Voss, 2016) it also enables a firm the ability to create superior customer value and service through interacting directly with customers (Vargo & Lusch, 2016). Therefore, customer orientation is more likely to facilitate service innovation by providing useful information and uncovering potential customer needs (Wang et al., 2016).

Competitor orientation defines a firm's abilities to create superior value through identifying, analyzing, and responding to competitors' actions (Kholi & Jaworski, 1990; Slater & Narver, 1994). Competitor orientation shares a similar features with dynamic capability which enables a firm the ability to seize new opportunities and reconfigure resources to foster service innovation (Kindström et al., 2013). Specifically, a competitor-oriented firm enables itself to create appropriate new service by integrating and reconfiguring their competitors' information in terms of resources, cost position, and financial performance (Zhou & Li, 2010). After identifying and analyzing competitors' information,

competitor orientation helps a firm to imitate competitors' new services which not only reduces its risks and development costs but it also provides valuable opportunities and resources for incremental and radical service innovation (Cheng & Krumwiede, 2012).

Inter-functional coordination refers to a firm's abilities to provide superior value and new service development for customer needs through the coordinated use of various resources and business functions (Kahn, 2001; Narver & Slater, 1990). Inter-functional coordination also captures a similar characteristics of dynamic capability which enables a firm must reconfigure fundamental resources to foster service innovation (Kindström et al., 2013). Additionally, in order to remain a competitive advantage, firms need to improve, combine, and integrate tangible and intangible resource bases by applying resource reconfiguration capability which corresponds to inter-functional coordination (Sett, 2018). Furthermore, inter-functional coordination not only enables a firm's abilities to coordinated or integrated its resources effectively it also adapts the necessary "entire human and other capital resources in its value creation efforts" (Narver & Slater, 1990, p.22). Lastly, inter-functional coordination could be found in innovative responsiveness and dissemination of marketing resources which play important role in the creation of new service (Cheng & Krumwiede, 2012). Therefore, this study proposes that:

Hypothesis 1 a: The customer orientation is positively related to service innovation
Hypothesis 1 b: The competitor orientation is positively related to service innovation
Hypothesis 1 c: The inter-functional coordination is positively related to service innovation

2.2 Linking Knowledge Donation and Knowledge Collection with Service Innovation

Knowledge management defines "creating a culture of alignment for knowledge sharing among engaged actors" and then promoting value-creation (Carrillo, Edvardsson, Reynoso, & Maravillo, 2019, p. 2). This is because knowledge management can be regarded as a process that enables firms' the ability to acquire, disseminate, and apply knowledge to facilitate business performance (Gupta, Iyer, & Aronson, 2000). Knowledge sharing is recognized as a key component of knowledge management (Chen & Huang, 2009; Gupta et al., 2000). Knowledge sharing is a process that enables the actors to exchange knowledge/resources and create new knowledge throughout the firm (Van Den Hooff & De Ridder, 2004). Knowledge sharing not only involves the dissemination of knowledge, resources, and capabilities to identify new value propositions for the customer it also enables the actors' abilities to synthesize dispersed knowledge into new service ideas (Skålén et al., 2015; Tang, Wang, & Tang, 2015). Therefore, knowledge sharing enables the firm ability to facilitate service innovation by dissemination and synthesis of knowledge and resources. Knowledge sharing includes two processes: knowledge donation and knowledge collection. This study focuses on knowledge donation and knowledge collection is because knowledge sharing includes both sides of the supply of new knowledge and the demand for new knowledge (Ardichvili, Page, & Wentling, 2003). Additionally, knowledge donation and knowledge collection are different in its nature (de Vries, van den Hooff, & de Ridder, 2006).

Knowledge donation refers to the actors' willingness to exchange their intellectual capital and know-how with their colleagues (Liao, Fei, & Chen, 2007; Lin, 2007). Knowledge collection refers to the actors' willingness to consult and receive new intellectual capital and know-how from others (Liao et al., 2007; Lin, 2007). Knowledge donation and knowledge collection are chosen because knowledge sharing is linking with both supply and demand for new knowledge (Van der Rijt, 2002; Ardichvill et al, 2003). Moreover, knowledge is related to value-creating activities (Carrillo et al., 2019). Furthermore, the firms encourage willingness and eagerness of actors to share knowledge is important to achieve the same goal because knowledge sharing not only involves information exchange but it also allows actors to transfer new thoughts, experiences, and capabilities within the firm (Ismail, Nor, & Marjani, 2009). Previous studies have studied the effect of knowledge sharing on service innovation (e.g., Monica Hu et al., 2013; Wu, 2016). This is because "knowledge sharing practices

involve the dissemination of knowledge, skills, key resources which enables the firms' and individuals' abilities to realize the value proposition for customer need and improve their service delivery process (e.g., Edvardsson & Olsson, 2016; Hussain, Konar, & Ali, 2016). Hence, there are three reasons to support that service innovation can be facilitated by knowledge donation and knowledge collection.

First, based on the knowledge management perceptive, knowledge donation and knowledge collection are highly embedded in intellectual capital which enables firms to create a higher value asset and effective service improvement (Shang et al., 2008). Intellectual capital management helps firms to improve value-creation capabilities by involving strategic planning and implementation activities in terms of intangibles (Kujansivu, 2008). Drawing on this view, knowledge donation and knowledge collection are able to provide multi-faceted and complex knowledge to create new service production and improve value delivery to customers (Kianto, Hurmelinna-Laukkanen, & Ritala, 2010) that can promote its service innovation.

Second, service innovation requires a scarcity of new resources and opportunities. Service innovation is more likely to be facilitated by knowledge donation which enables the actors' abilities to generate new ideas and develop new business opportunities (Lin, 2007). Priem, Wenzel, & Koch, (2018) state that good new ideas help firms to achieve more benefit by generating consumer value proposition. Value creation can be fostered by enhancing collaboration and improving business opportunities (Matinheikki et al., 2016). Previous studies have emphasized that new value propositions and value creation are highly embedded in service innovation (e.g., Skålén et al., 2015). Knowledge donation is more likely to capture the features of value proposition and value creation which results in service innovation.

Furthermore, service innovation can be promoted by knowledge collection which enables actors' abilities to gather new resources from external and internal sources (Lin, 2007). "The open model of external knowledge sourcing and the sharing of internal knowledge are most effective in the diffusion of existing innovations across service" (Battistic et al., 2015). Specifically, the external source of information has been regarded as an important resource for the development of innovation and services (Chesbrough, 2011), and the external resources are related to social network which results in value creation (Lepak, Smith, & Taylor, 2007). Internal sources are associated with internal R & D which facilitates firms to generate innovative services because the higher R & D intensity involves the development of new R & D capabilities and new technological knowledge (Gu, Jiang, & Wang, 2016). Knowledge collection is able to grasp the characteristics of the social networks and R & D intensity which results in service innovation. Therefore, this study proposes that:

Hypothesis 2 a: Knowledge donation is positively related to service innovation
Hypothesis 2 b: Knowledge collection is positively related to service innovation

2.3 Mediating Role of Knowledge Donation and Knowledge Collection

A Previous study has shown that market orientation leads to service innovation through knowledge sharing. For example, market orientation fosters service innovation through inter-functional coordination that is highly related to the sharing of the new ideas, resolution of problems, and innovative responsiveness (Cheng & Krumwiede, 2012; Gatignon & Xuereb, 1997). As shown in this study, the main purpose is to explore the role of knowledge donation and knowledge collection which may play in the process that customer orientation, competitor orientation and inter-functional coordination go through to facilitate service innovation. A previous study has shown that knowledge management processes (e.g., knowledge sharing) can be enhanced by dynamic capability which in turns to facilitate service innovation because dynamic capability is important to knowledge reconfiguration and knowledge integration (Shang et al., 2009). As mentioned above, market orientation is regarded as a type of dynamic capability. Therefore, this study proposes that knowledge donation and knowledge collection (knowledge sharing) respectively mediate the relationship of customer orientation-service

innovation, competitor orientation-service innovation, and inter-functional coordination-service innovation.

As customer orientation represents market information pertaining to customer preferences, this study argues that the effect of customer orientation on service innovation through knowledge donation and knowledge collection respectively for at least two reasons. The first reason is that through knowledge donation, the actors who show higher levels of generating new ideas and developing new business opportunities are more likely to engage in capabilities involving market intelligence collection and competitor information, because they may provide greater value creation for customer needs (Eloranta & Turunen, 2016). For example, the actors with stronger new idea generation might be more likely to experience their target market, including customer involvement, stronger long-term customer relation, and rapid service innovation diffusion (Melton & Hartline, 2010). Moreover, the actors with higher in knowledge donation tend to show a high level of developing new organizational knowledge over time, which are recognized as necessary elements of service innovation (Kim & Lee, 2013). Through knowledge collection, external information as a market intelligence form might help the actors to identify problem, changes, and opportunities from external environment (Talvinen, 1995). These actors therefore are more likely to accept new challenges and ideas in order to create value and higher quality service for customer (Chesbrough, 2011).

The second reason is that the actors with higher knowledge donation and knowledge collection are highly related to a high level of involving intellectual capital (especially human capital) in obtaining market intelligence from their customers (Agostini & Nosella, 2017), which in turns to facilitate service innovation. This is because intellectual capital enables the actor's ability to transfer dynamic knowledge (e.g., customer needs and market information) to new services by adding value and applying intelligence and networks (Jordrão & Novas, 2017). In other words, customer orientation is more likely to provide market intelligence to foster service innovation through knowledge donation and knowledge collection. Therefore, this study proposes that:

Hypothesis 3a: Knowledge donation mediates the relationship between customer orientation and service innovation

Hypothesis 3b: Knowledge collection mediates the relationship between customer and service innovation

As competitor orientation represents the relative information pertaining to competitor information, this study explores the indirect effect of competitor orientation on service innovation through knowledge donation and knowledge collection for at least two reasons. First, the actors higher in knowledge donation are more likely to demonstrate a higher level of new ideas generation and new business opportunity development in collecting competitor-related information and monitoring rivals' behaviors, such as resources and cost position (Zhou & Li, 2010). These features are considered key sources to achieve new products and services (Liu & Atuahene-Gima, 2018). The actors who can focus on new idea generation and new business opportunities throughout the service innovation process tend to constantly monitor the actions of competitors which is considered an important element for meeting customer needs (Dibrell, Craig, & Hansen, 2011). In terms of knowledge collection, the actors are more likely to enrich their intellectual capital by transferring competitor information (Wang, Wang, & Liang, 2014). These actors tend to promote service line extension and new-to-the-market service which are embedded in the firm's service strategy and service innovativeness (Alam, 2005). The actors therefore high in knowledge collection are more likely to enhance service innovation through processing competitor information.

Second, the reflection of competitor information might help the actors to think differently as they tend to believe in their capabilities to transfer know-what knowledge resources to foster their know-how deployment capability (Morgan, Vorhies, & Mason, 2009). In other words, the actors high in knowledge donation and knowledge collection are more likely to indicate a high level of imitating

competitor information from their colleagues and networks to enrich their new service development (Lüftenegger, Comuzzi, & Grefen, 2017). Thus, those actors with knowledge donation and knowledge collection tend to generate new ideas from external competitor information to service innovation as they engage with interaction among their networks. Based on the above, this study proposes that:

Hypothesis 4a: Knowledge donation mediates the relationship between competitor orientation and service innovation

Hypothesis 4b: Knowledge collection mediates the relationship between competitor orientation and service innovation

As inter-functional coordination represents a relevant knowledge pertaining to the coordinated use of different resources and business functions, this study examines the indirect effect of inter-functional coordination on service innovation through knowledge donation and knowledge collection for at least two reasons. First, the actors with high knowledge donation and knowledge collection are more likely to gather and interpret knowledge across different functional areas to perceive new service innovativeness because different functional areas may provide opportunities for sharing information and cross-fertilisation ideas among actors (Hong & Vai, 2008). The marketing, R & D, and manufacturing in the different functional areas need to coordinate their activities and work together in order to satisfy customer needs and services (Ahmad, Schroeder, & Mallick, 2010). In other words, inter-functional coordination tends to manage these various resources and business functional activities promote service innovation through knowledge donation and knowledge collection, respectively.

Second, as shown above, knowledge donation and knowledge collection enable the actors' ability to engage in exchanging marketing information and communication. The knowledge donation and knowledge collection tend to be facilitated by inter-functional coordination which in turn to facilitate service innovation because inter-functional coordination involves new idea sharing, openness in communication, and innovativeness (Han, Kim, & Srivastava, 1998). Previous studies have demonstrated that inter-functional coordination allows itself to engage in sharing market intelligence which is important to promote new service development (Henard & Szymanski, 2001; Im & Workman, 2004). Therefore, inter-functional coordination is more likely to foster service innovation through the actors with higher knowledge donation and knowledge collection. Therefore, this study proposes that:

Hypothesis 5a: knowledge donation mediates the relationship between inter-functional coordination and service innovation

Hypothesis 5b: Knowledge collection mediates the relationship between inter-functional coordination and service innovation

3. METHODS

3.1 Sampling and Data Collection

To test these hypotheses, this research selected firms in the motorcycle industry in Malaysia as an empirical study setting. Comparing with the majority of previous studies, which have focused on a particular industrial context such as service industry, instead this study focuses on the motorcycle the service industry in Malaysia for at least three reasons. First, Malaysia's motorcycle industry was selected because it has been increasing at a faster rate than car industries is about 50-50 and the motorcycle is very important transportation for Malaysia commuters (Sukor, Tarigan, & Fujii, 2017). Moreover, some firms are facing bottlenecks such as the uneven quality of technicians and franchising chains with high competition. Second, the lack of theoretical and empirical studies have led to the investigation of the sales and service of the motorcycle in Malaysia (Shaharudin et al., 2011). Third, the value of co-creation (e.g., service innovation) is needed by the traditional manufacturing industries

which provide tangibles such as motorcycle, which requires further investigation (Payne, Storbacka, & Frow, 2008) on its service. Therefore, according to Chad (2013), the market orientation promotes the firm's value, the study shows that each component of market orientation leads the firms towards creating new service processes through knowledge sharing practices.

Based on previous studies on market orientation, knowledge sharing, and service innovation, the questionnaire was designed in English and followed the tailored design method (Dillman, 2007). The questionnaire is conducted by a pilot test and reviewed by two professors who are specialized in the field of marketing and knowledge management. Based on the test and feedback, the questionnaire is modified and finalized. The questionnaires were distributed to the different sectors within the companies, such as marketing, product and service development, and technology department after checking those companies' information online. 400 questionnaires were distributed to those managers with a cover letter stating reasons for the research purpose by email. A reminder email was also sent out after three weeks. A total of 270 questionnaires were received from the emailing of the original invitation. Due to some missing data in the response, only 258 valid questionnaires are available for further analysis, which represented a response rate of 64.5%.

3.2 Measures

As shown in Table 1, all items were designed on a 5-point Likert scale (1 = "strongly disagree" to 5 = "strongly agree") based on previously validated measurement, the constructs were measured by running Smart-PLS. All constructs in the questionnaire were prepared through self-reporting .

Service innovation. As shown in Table 1, based on prior studies (Chen, Tsou, & Ching, 2011; Grawe, Chen, & Daugherty, 2009), service innovation was measured by five items (Cronbach's alpha = 0.881).

Knowledge sharing. As shown in Table 1, flowing previous studies (Kim & Lee, 2013; Lin, 2007; Van den Hooff & De Ridder, 2004), Knowledge sharing includes knowledge donation and knowledge collection. Knowledge donation was measured by four items (Cronbach's alpha = 0.808) and knowledge collection was measured by three items (Cronbach's alpha = 0.809) (Figure 1).

Market orientation. As shown in Table 1, drawing on prior studies (Cheng & Kumwiede, 2012; Narver & Slater, 1990), market orientation includes customer orientation, competitor orientation, and inter-functional coordination. However, this study adopts and modifies the work of Chen & Krumwiede (2012) and Liu (2013) to evaluate customer orientation, competitor orientation, and inter-functional coordination. Customer orientation was measured by four items (Cronbach's alpha = 0.821), competitor orientation was measured by four items (Cronbach's alpha = 0.759), and inter-functional coordination was measured by three items (Cronbach's alpha = 0.919).

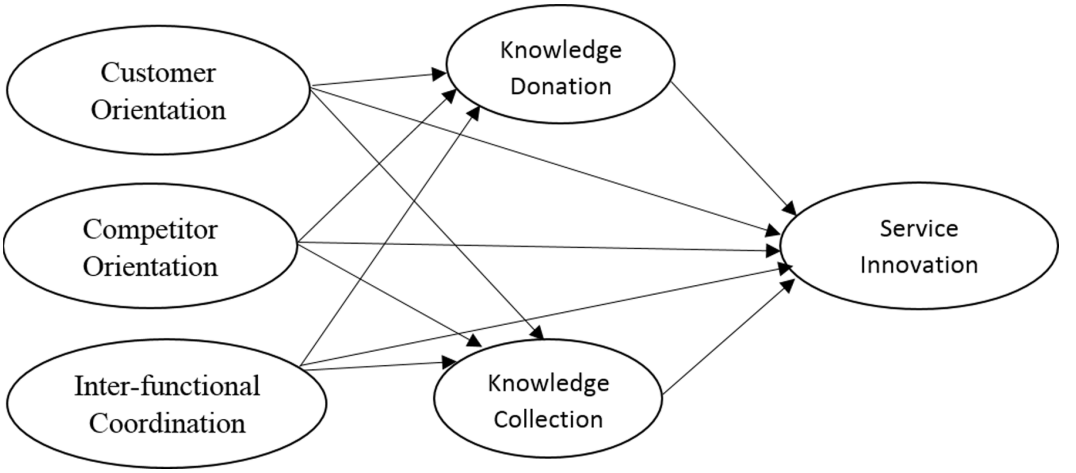
3.3 Common Method Bias

Common method bias (CMB) could influence the behavioral research, due to the questionnaire survey was self-reported (Podsakooff et al., 2003). This study applies some approaches to test CMB. First of all, this study assesses Harman's one-factor test (Podsakoof & Organ, 1986). There are 23 items were covered by six constructs in the structural model, 23 factors were extracted (eigenvalues is more than 1), which accounts for 71.506 percent of the variance explained with eigenvalues more than 1 and the first item occupies 35.513 percent of the variance. Second, CFA is applied to examine an unmeasured methods latent factor, the results show that an insignificant model fit in a one-factor model (X^2= 1746.218, X^2 /df = 7.592, p-value < 0.001, GFI = 0.592, AGFI = 0.5111, NFI = 0.499, CFI = 0.531, RMSEA = 0.160). Third, this study also applies Liang et al., (2007) approach for further examining CMB through Smart-PLS. All the items within six constructs are included and each indicator variance can be explained by substantive and method variances. As shown in Table 2, the outcomes indicate that the average substantive and method variances. The average substantive

Table 1. Measurement of Items

Construct	S. F. L	C.R	a	AVE
Service Innovation(SI)		**0.913**	**0.881**	**0.676**
1. The brand new services and value were created successfully for the market over the past three years.	0.806			
2. The existing services were improved and strengthened over the past three years.	0.811			
3. The extant services and value were repackaged and promoted over the past three years.	0.824			
4. The existing service lines and values were extended and promoted over the past three years.	0.854			
5. Our firm has provided better new services than other competitors over the past three years.	0.815			
Knowledge Donation (KD)		0.875	0.808	0.638
1. We share our experiences and skills with my colleagues in the department.	0.836			
2. We share the new market information with my colleagues once I learned it.	0.829			
3. We share competitor's information with my colleagues face to face when they need it.	0.850			
4. We disseminate timely reports with new knowledge to my colleagues from other departments	0.667			
Knowledge collection (KC)		0.886	0.809	0.514
1. Colleagues share what they know about market information with me when they know.	0.828			
2. Colleagues tell me what they know about competitor's information with me when I ask for it.	0.876			
3. Colleagues share their experiences and skills with me face to face when I need it.	0.845			
Competitor orientation		0.839	0.759	0.722
1. We always analyze the marketing information and compare it with other competitors' strategies within our department.	0.806			
2. We always rapidly make a great decisions and actions to respond the turbulent environment.	0.723			
3. The top team leaders always discuss and analyze the competitors' advantagesand disadvantages with their colleagues.	0.760			
4. We always find solutions quickly for the competitive action which threatens us.	0.718			
Customer orientation		0.883	0.821	0.654
1. Customer satisfaction is always our first priority and objectives	0.865			
2. The level of commitment and orientation toward customers are always noticed constantly.	0.802			
3. Our strategy is to fulfill customer's needs with more value in order to maintain a competitive advantage.	0.850			
4. We always systematically and frequently measure the satisfaction of customers and provide great service for after-sales.	0.708			
Inter-functional coordination		0.949	0.919	0.860
1. We always discuss the customers' information, marketing successes, and marketing failures across functions.	0.912			
2. Our business functions and departments have a responsibility to integrate new resources in service markets.	0.933			
3. The market intelligence and resources are shared within the business unit inside the firm.	0.937			
Note: S.F.L= Standardized Factor loading; C.R. -Composite reliability; a= Cronbach's a; AVE= Average variance extracted				

Figure 1. Conceptual model



variance of the indicator loading is 0.705 and the average method factor variance is 0.21. In addition, the most of the method factor loadings are insignificant and expect a few items. Hence, these results support that common method bias does not involve in this study.

4. ANALYSIS AND RESULTS

This study follows the assessment measurement model and the testing of the structural model to analyze and explain the Smart-PLS results (Hair et al., 2016). The Smart-PLS is suitable for this study because the key constructs are focused on prediction and explaining the variance and the sample does not need to follow the normal distribution rule of thumb (Heseler et al., 2009). This study follows two steps processes to assess the data set and measure the conceptual model.

4.1 Measurement Model

In the first step, there are serval analyses for testing hypotheses to ensure reliability and validity. First, all reflective items of the constructs were measured with Cronbach's alphas and composite reliabilities (CRs). As demonstrated in Table 1, the item Cronbach's alphas for the measures of reflective constructs ranges from 0.759 to 0.919, which are greater than the suggested level of 0.70 (Nunnally, 1978). The values of composite reliability (CRs) ranges from 0.839 to 0.949, which are (Marke, 2006) above the accepted level of 0.60 (Hair et al., 2016). Therefore, these results demonstrate adequate internal consistency reliability of the measure.

Second, the convergent validity of the constructs was evaluated with factor loading and average variance extracted (AVE). As indicated in Table 4, the item factor loadings for all the reflective constructs measurement are above 0.70 which is higher than suggested cut-off point (Hair et al., 2016), except one item with 0.667 which still matches the accepted level of 0.40 as suggested by Nunnally (1978) and Hair et al., (2017). The average variance extracted (AVE) values ranges from 0.514 to 0.860, which are above the standard value of 0.500 (Fornell & Larcker, 1981). Additionally, the Fornell-Larcker criterion and Heterotrait-Montrait (HTMT) are assessed to test discriminant validity. To be more specific, the Fornell-Larcker criterion is applied to measure correlations of the variables that compare with the values of the square root of the AVE (Hair et al., 2016). As shown in Table 3, the square roots of AVE values are computed and range from 0.752 to 0.927, which are above all the correlations of the variables. Furthermore, as indicated in Table 3 (Highlight area), the result that all the HTMT values are lesser than the suggested cut-off mark 0.85 (Henseler et al.,

Table 2. Common method bias analysis

Constructs		Substantive factor loading (R_1)	R_1^2	Method factor loading (R_2)	R_2^2
Service Innovation (SI)	**SI1**	0.805***	0.684	0.016	0.000
	SI2	0.798***	0.637	-0.013	0.000
	SI3	0.904***	0.817	-0.086	0.007
	SI4	0.736***	0.542	-0.129	0.017
	SI5	0.857***	0.734	-0.028	0.000
Knowledge Donation	**Knowledge Donation 1**	0.740***	0.548	0.111*	0.012
	Knowledge Donation 2	0.847***	0.717	-0.028	0.001
	Knowledge Donation 3	0.871**	0.758	-0.003	0.000
	Knowledge Donation 4	0.741***	0.549	-0.075	0.006
Knowledge collection	**Knowledge collection 1**	0.898***	0.806	-0.087	0.008
	Knowledge collection 2	0.904***	0.817	-0.020	0.000
	Knowledge collection 3	0.749***	0.561	0.104	0.011
Competitor orientation	**Competitor orientation 1**	0.959***	0.920	-0.169	0.029
	Competitor orientation 2	0.852***	0.726	-0.127	0.016
	Competitor orientation 3	0.979***	0.979	-0.272	0.074
	Competitor orientation 4	0.308***	0.095	0.453***	0.205
Customer orientation	**Customer orientation1**	0.831***	0.690	0.027	0.001
	Customer orientation2	0.856***	0.732	-0.064	0.004
	Customer orientation3	0.981***	0.962	-0.159	0.025
	Customer orientation4	0.549***	0.301	0.208*	0.043
Inter-functional coordination	**Inter-functional coordination 1**	0.825***	0.681	0.104	0.011
	Inter-functional coordination 2	0.968***	0.937	-0.039	0.002
	Inter-functional coordination 3	0.981***	0.962	-0.055	0.003
Average		0.839	0.705		0.021

Significant level:*p < 0.10; *p < 0.05; **p < 0.01; ***p < 0.001.

2015). Lastly, for further discriminant validity confirmation, as shown in Table 3, no items loaded greater with relates to other constructs can be identified through examining the cross loading of all the indicators. Thus, these results of discriminant validity are adequately supported.

In the second step, a structural model was created to test our hypotheses. First, the variance inflation factor (VIF) was employed to test the possibility of multi-collinearity. The results indicate that the values of VIF for all explanatory variables in each regression model ranged from 1.327 (KD) and 2.057 (SI), showing that all the outcomes were positively affected by collinearity when all of them presented lower than 5 (Hair et al., 2013). Second, the direct effects of customer orientation, competitor orientation, and inter-functional coordination on service innovation were tested. As shown in Figure 2, the results are all significantly correlated. Then, by assessing PLS algorithm and blindfolding procedures, as demonstrated in Figure 3, the results show that the adjusted R^2 values for KC (Adjusted $R^2 = 0.301$, $p < 0.001$; Stone-Geisser's $Q^2 = 0.302$), and service innovation (adjusted R^2

Table 3. The Fornell-Larcker Criterion and Heterotrait-Monotrait Ratio

	Mean	St. Dev	1	2	3	4	5	6
1.Service Innovation(SI)	3.43	0.95	**0.822**	0.460	0.388	0.355	0.372	0.346
2.Knowledge Donation (KD)	3.15	0.90	0.398	**0.799**	0.566	0.702	0.720	0.497
3.Knowledge collection (KC)	3.18	1.00	0.351	0.591	**0.850**	0.537	0.595	0.456
4.Competitor orientation	3.07	0.73	0.324	0.569	0.579	**0.752**	0.680	0.486
5.Customer orientation	2.96	0.95	0.356	0.595	0.660	0.528	**0.809**	0.497
6.Inter-functional coordination	3.39	1.24	0.317	0.517	0.396	0.450	0.424	**0.927**

Table 4. Indictor loadings and cross loading

Constructs	NSD	KD	KC	Competitor Orientation	Customer orientation	Inter-functional coordination
SI1	**0.806**	0.330	0.256	0.269	0.229	0.329
SI2	**0.811**	0.306	0.271	0.270	0.225	0.197
SI3	**0.824**	0.264	0.250	0.250	0.248	0.202
SI4	**0.854**	0.442	0.315	0.311	0.323	0.281
SI5	**0.815**	0.265	0.259	0.256	0.290	0.277
Knowledge Donation 1	0.372	**0.836**	0.453	0.542	0.493	0.457
Knowledge Donation 2	0.324	**0.829**	0.344	0.534	0.440	0.434
Knowledge Donation 3	0.325	**0.850**	0.363	0.48	0.548	0.422
Knowledge Donation 4	0.248	**0.667**	0.308	0.388	0.391	0.328
Knowledge collection 1	0.268	0.348	**0.828**	0.309	0.347	0.298
Knowledge collection 2	0.272	0.424	**0.876**	0.368	0.426	0.358
Knowledge collection 3	0.302	0.402	**0.845**	0.452	0.464	0.347
Competitor orientation 1	0.206	0.372	0.336	**0.806**	0.366	0.327
Competitor orientation 2	0.155	0.375	0.225	**0.723**	0.418	0.292
Competitor orientation 3	0.152	0.296	0.317	**0.760**	0.375	0.220
Competitor orientation 4	0.381	0.647	0.390	**0.718**	0.469	0.431
Customer orientation1	0.352	0.516	0.407	0.432	**0.865**	0.342
Customer orientation2	0.194	0.469	0.433	0.397	**0.802**	0.336
Customer orientation3	0.263	0.441	0.361	0.404	**0.850**	0.282
Customer orientation4	0.224	0.471	0.380	0.570	**0.708**	0.409
Inter-functional coordination 1	0.318	0.511	0.381	0.439	0.444	**0.912**
Inter-functional coordination 2	0.267	0.461	0.369	0.414	0.380	**0.933**
Inter-functional coordination 3	0.293	0.463	0.349	0.396	0.350	**0.937**

= 0.186, P < 0.001; Stone-Geisser's $Q^2 = 0.120$) are above the acceptable level of 10% (Falk & Miller, 1992). All the values of Stone-Geisser's Q^2 are able to zero, which means the predictive relevance of paths in the model can be accepted (Hair et al., 2016). Furthermore, to assess Smart-PLS, 5000 sub-sample bootstrap with no alternative option to measure our parameters (Hair et al., 2016). The path coefficients were used to estimate path relationships among the latent variables in the structural model. The study tests the effect of customer orientation, competitor orientation, and inter-functional coordination on service innovation involving knowledge donation and knowledge collection. Thus, as shown in Figure 2, customer orientation ($\beta = 0.184$, $P < 0.05$), competitor orientation ($\beta = 0.165$, $p < 0.10$), and inter-functional coordination ($\beta = 0.162$, $p < 0.10$) are positively related to service innovation. Therefore, hypothesis 1a, hypothesis 1b, and hypothesis 1c are supported.

As shown in Table 5, Table 6 and Figure 3, this study also tests the mediating effects of knowledge donation and knowledge collection. First, as indicated in Table 5, the relationship between knowledge donation and service innovation is positive and significant ($\beta^2 = 0.215$, $p < 0.10$, $f^2 = 0.28$), which support Hypothesis 2a. Moreover, Table 5 also indicates that the relationship between knowledge collection and service innovation is positive and significant ($\beta^2 = 0.138$, $p < 0.10$, $f^2 = 0.016$), which support Hypothesis 2b. Second, as shown in Figure 3, customer orientation is positive and significant effect on knowledge donation ($\beta = 0.299$, $p < 0.001$, $f^2 = 0.118$) and knowledge collection ($\beta = 0.215$, $p < 0.10$, $f^2 = 0.016$). The result shows that the positively effect of competitor orientation on knowledge donation ($\beta = 0.399$, $P < 0.001$, $f^2 = 0.148$) and knowledge collection ($\beta = 0.199$, $p < 0.10$, $f^2 = 0.036$), respectively. Inter-functional coordination is positive and significant effect on knowledge donation ($\beta = 0.177$, $p < 0.001$, $f^2 = 0.034$). Third, as shown in Figure 3, the effects of customer orientation ($\beta = 0.066$, $p > 0.1$), competitor orientation ($\beta = 0.10$, $p > 0.10$), and inter-functional coordination ($\beta = 0.049$, $p > 0.10$) on service innovation are not significantly related.

Additionally, as shown in Table 6, the indirect effect of customer orientation ($\beta = 0.107$, $p < 0.01$) with lower bound 0.042 (95% confidence interval), competitor orientation ($\beta = 0.101$, $p < 0.01$) with lower bound 0.041 (95% confidence interval), and inter-functional coordination ($\beta = 0.076$, $p < 0.01$) with lower bound 0.028 (95% confidence interval) on service innovation through knowledge donation and knowledge collection are respectively significantly positive. These 95% confidence intervals are more than zero (Hair et al., 2016). Therefore, the results show that knowledge donation and knowledge collection are fully mediated the effect of customer orientation, competitor orientation, and inter-functional cooperation on service innovation. Hence, Hypothesis 3a, Hypothesis 3b, Hypothesis 4a, Hypothesis 4b, Hypothesis 5a, and Hypothesis 6b are supported.

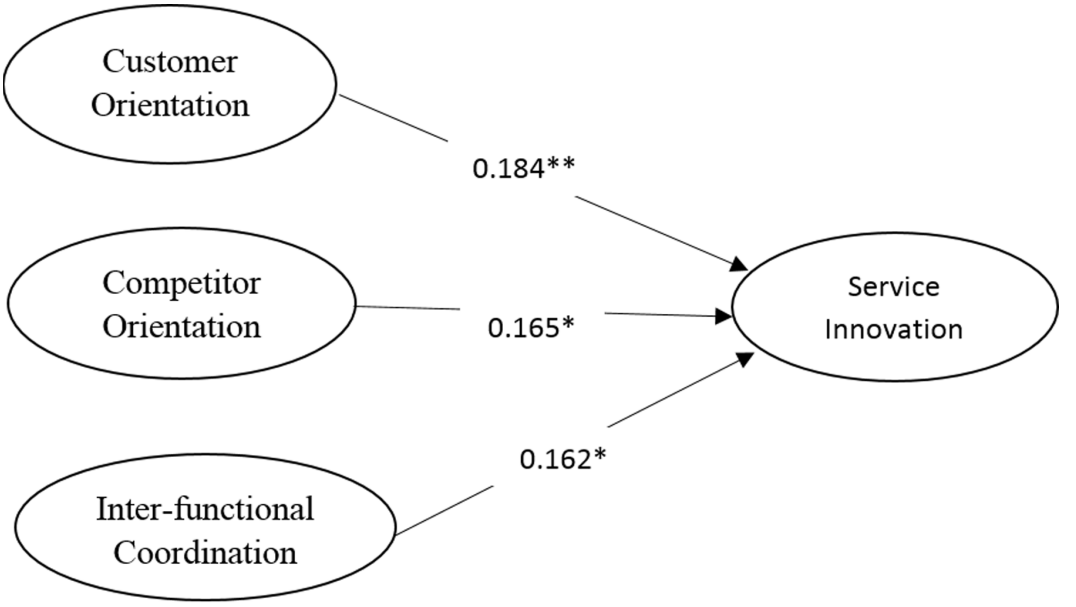
5. DISCUSSION

Previous studies have shown that service innovation is associated with internal and external knowledge (e.g., Kang & Kang, 2014). Drawing on this view, this study investigates the direct and indirect effect of customer orientation, competitor orientation, and inter-functional cooperation on service innovation. The empirical results indicate that the effects of customer orientation, competitor orientation, and inter-functional cooperation have a significant impact on service innovation when knowledge donation and knowledge collection were not involved in the relationships among customer orientation, competitor orientation, and inter-functional cooperation, and service innovation. The empirical results also demonstrate that the effects of customer orientation, competitor orientation, and inter-functional orientation on service innovation which are fully mediated by knowledge donation and knowledge collection.

5.1 Theoretical Implication

This study provides several theoretical implications. First, when knowledge donation and knowledge collection were not taken into account, this study has proved that customer orientation, competitor orientation, and inter-functional cooperation are significant positive related to service innovation in

Figure 2. Direct effects of three dimensions of market orientation on service innovation



which it contributes to the dynamic capability perceptive of market orientation (Ma & Todorovic, 2011; Menguc & Auh, 2006). This result is consistent with previous studies (e.g., Grawe et al., 2009; Jian & Zhou, 2015; Ozkaya et al., 2015) on service innovation which is impacted by the elements of market orientation based on strategic orientation perceptive. This study provides empirical support of the beneficial effects of customer orientation, competitor orientation, and inter-functional orientation on service innovation, which emphasizes the importance of market orientation as a type of dynamic capability in promoting service innovation and also enriches the theoretical and empirical support on investigating sales and services of motorcycle products in Malaysia (Shaharudin et al., 2011). Furthermore, this study enriches a previous study on the effects of customer orientation (e.g., Wang,

Figure 3. Full model with significance level. Significant level: *p<0.10; *p<0.05;p<0.01;***p<0.001; $^{n.s.}$ p>0.1**

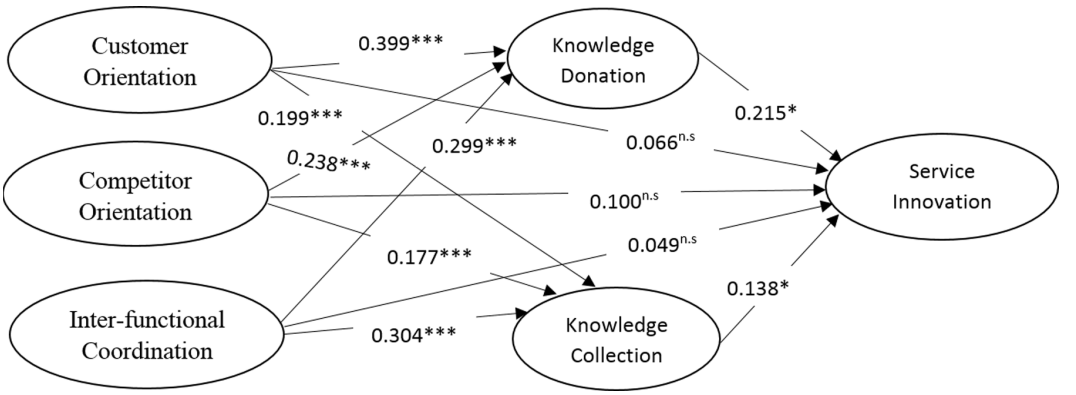


Table 5. Testing Results of the path coefficients (based on 5000 bootstraps)

Structural Paths	Path coefficient (p-value)	90% Confidence interval	Effect size (f^2)	outcomes
KD to SI	0.215*	(0.046, 0.375)	0.028	H1 supported
KC to SI	0.138*	(0.012, 0.264)	0.016	H2 supported
Customer orientation to KD	0.299***	(0.175,0.416)	0.118	H3(a)supported
Customer orientation to KC	0.304***	(0.167, 0.433)	0.087	H3(b)supported
Competitor orientation to KD	0.339***	(0.236, 0.447)	0.148	H4(a)supported
Competitor orientation to KC	0.199**	(0.065,0.337)	0.036	H4(b)supported
Inter-functional coordination to KD	0.238***	(0.137, 0.337)	0.086	H5(a)supported
Inter-functional coordination to KC	0.177***	(0.055, 0.302)	0.034	H5(b)supported
Customer orientation to SI	0.049	(-0.096, 0.201)	0.002	H6(a)unsupported
Competitor orientation to SI	0.066	(-0.078, 0.211)	0.003	H6(b)unsupported
Inter-functional coordination to SI	0.100	(-0.041,0.240)	0.008	H6(c)unsupported
Significant level:*p < 0.10; *p < 0.05; **p < 0.01; ***p < 0.001. The value of f2 0.02, 0.15, and 0.35 for weak, moderate, and strong effects.				

Zhao, & Voss, 2016), competitor orientation (e.g., O'Dwyer & Gilmore, 2019) and inter-functional cooperation (e.g., Ho et al., 2018) on innovation.

Second, this study also examines the effects of customer orientation, competitor orientation, and inter-functional cooperation on service innovation through knowledge donation and knowledge collection, which not only responds to the recent calls for further investigation on the antecedents of service innovation (e.g., Janssen et al., Tuzovic et al., 2018) it also contributes to the synergy approach of service innovation. Previous studies have shown that innovative service is fostered by external resources through knowledge sharing (e.g., Battistic et al., 2015; Chen & Cheng, 2012; Eloranta & Turunen, 2016). Therefore, this study provides new insights on knowledge donation and knowledge collection as mediators on the effects of customer orientation, competitor orientation, and inter-functional cooperation on service innovation. To be more specific, this study adds to the previous study on the effect of market orientation on knowledge transfer (e.g., Cambra-Fierro et al., 2011) because the findings show that the significant influences of customer orientation, competitors orientation, and inter-functional cooperation on knowledge donation and knowledge collection. The ability of customer orientation and competitor orientation may promote firms by providing market intelligence. The ability of inter-functional cooperation may enhance firms by providing various resources and business functions. The customer and competitor information, different resources,

Table 6 . Mediating effects

	Indirect Effects	90% Confidence interval	p-value
Customer Orientation to SI	0.107	(0.042, 0.180)	0.002
Competitor Orientation to SI	0.101	(0.041, 0.172)	0.002
Inter-functional coordinal to SI	0.076	(0.028, 0.131)	0.005

and business functions respectively enrich knowledge donation and knowledge collection within Malaysia's motorcycle companies.

However, prior studies argue that the type of innovation and performance may not be enhanced by being market-focused (e.g., Hult & Ketchen, 2001; Baker & Sinkula, 2002). Market intelligence, various resources, and business function have to be complemented by knowledge donation and knowledge collection. Through knowledge donation and knowledge collection, firms need to build up its capabilities in terms of customer orientation, competitor orientation, and inter-functional cooperation. Therefore, this study finds that the effects of customer orientation, competitor orientation, and inter-functional cooperation on service innovation through the full mediations of knowledge donation and knowledge collection, respectively. This finding also contributes to Malaysia's motorcycle companies which requires more market intelligence, as each of the components of market orientation needs special relevance to lead motorcycle companies towards establishing new service processes through knowledge donation and knowledge collection.

Third, this study contributes to knowledge donation and knowledge collection processes literature through identifying knowledge donation and knowledge collection in the effects of market orientation on service innovation. In other words, this study enriches previous researches (e.g., Cheng & Krumwiede, 2012; Hu et al., 2009; Tang et al., 2015) by investigating the mediating effect of knowledge donation and knowledge collection on the influences of customer orientation, competitor orientation, and inter-functional cooperation on service innovation. As a result, it also enriches a previous study on the effect of market orientation on innovation through knowledge competence (Ozkaya et al., 2015) or knowledge transfer (Cambra-Fierro et al., 2011). Drawing on this view, this implies that service innovation requires more market intelligence through knowledge donation and knowledge collection. Furthermore, this study provides different results from prior research which indicated that discussing how knowledge management and market orientation are positively associated with innovation (e.g., Migdadi et al., 2017). These findings provides a different explanation on the relationship between market orientation and service innovation through knowledge donation and knowledge collection because some authors investigated the effect of market orientation on service innovation performance through organizational learning (Jian et al., 2015). Specifically, this study provides empirical evidence to support that knowledge donation and knowledge collection enable the actors the ability to transfer the market intelligence, various resources, and business function to service innovation within Malaysia's motorcycle companies.

5.2 Managerial Implication

The purpose of this study is to investigate the concept of customer orientation, competitor orientation, inter-functional cooperation, knowledge donation, knowledge collection, and service innovation within Malaysia's motorcycle companies, even these concepts were widely used in service industries. Toward this objective, the application of these concepts to Malaysia's motorcycle companies where are involving knowledge sharing and market intelligence which enrich the literature on customer orientation, competitor orientation, and inter-functional cooperation, knowledge donation, knowledge collection, and service innovation.

For the managers of Malaysia's motorcycle companies, this study proves that successful service innovation relies on customer orientation, competitor orientation, and inter-functional cooperation. At the same time, managers (e.g, technology department) need to pay attention on the nature of knowledge donation and knowledge collection which enable the actors' abilities to process market intelligence in order to enhance service innovation. The technological managers need to update their current technologies and transmission processes in order to turn the customer information into their new service innovation. Hence, in order to achieve service innovation from customer orientation, competitor orientation, and inter-functional cooperation, this study concludes that knowledge donation and knowledge collection enable itself to be effective mechanisms. Therefore, this study suggests that once the product and service development managers achieve new external resources, they should

initiate with knowledge donation and knowledge collection to deal with this new information, especially marketing sector. Those managers from the marketing department who have first-hand information from customers. This is because the current study finds that the influences of customer orientation, competitor orientation, and inter-functional cooperation on service innovation are fully mediated by knowledge donation and knowledge collection.

5.3 Limitation and Future Research

Despite the theoretical contribution and implication practices, this study has several limitations which lead to further investigations. First, a cross-sectional study was adopted to test the relationship between customer orientation, competitor orientation, inter-functional cooperation, knowledge donation, knowledge collection, and service innovation. Future research should conduct a longitudinal study to examine the various stages of study to achieve different empirical results. Second, this study only focuses on knowledge donation and knowledge collection as a mediator within the model. For future studies, scholars should consider knowledge documentation and knowledge creation as an effective mechanism to explain the effects of customer orientation, competitor orientation, and inter-functional cooperation on service innovation. Third, this study only investigates the relationships among customer orientation, competitor orientation, inter-functional cooperation, knowledge donation, knowledge collection, and service innovation in the context of the motorcycle industry in Malaysia. Future studies can capture the benefit from investigating these concepts from other countries such as Indonesia and Thailand, where they share a similar cultures for the comparison aim. Moreover, future research could investigate the boarder market orientation in different industries from a different cultures. For instance, the role of customer orientation might be involved in the life insurance service sectors and competitors may be interested in e-commerce business.

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