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Innovator-Firm Collaboration: The Moderating Role of Transactional Capacity (TC)

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Abstract— **Product innovation's success at research and development level, does not guarantee that it will lead to the success in commercialization stage. Despite the enormous research efforts, the commercialization rates of product innovation are still at an alarming level in many countries including Malaysia. While collaboration has been acknowledged as pertinent to the success of innovation product commercialization, the collaborative effort between innovation recipient firm and the innovators remains limited. Besides, one of the central questions is how and under what condition the two parties are more likely to engage in a resilient collaborative effort, from the perspective of innovation recipient firms remain unclear. This new perspective requires an understanding of the relationship between collaboration and commercialization performance and the moderating effect of TC from firm's perspective. Based on the response of 104 product innovation recipient firms, the findings show that collaboration positively affects firm's market performance and innovation survival. In addition, transactional capacity gives medium effect to collaboration, leading to better firm's innovation survival. This study contributes to the literature by exploring how close collaboration between firm and innovator initiates to enhance the firm's market performance and innovation survival. It also increases our understanding of how TC relate to collaboration and market performance and innovation survival.**

Keywords— *Commercialization, Collaboration, Transactional Capacities, Survival.*

1. Introduction

In the new global economy, collaboration has become a central issue for innovation commercialization success. The issue of collaboration in the field of innovation commercialization has received considerable critical attention. In recent years, there has been an increasing interest in investigating the effect of collaboration on commercialization performance. The literature on collaboration in the commercialization context has starting emerged in 2007 [1]. In fact, a considerable amount of literature has been published on the effect of collaboration on commercialization performance. This is because, it is believe that collaboration during commercialization stage has led to the firm's success [2]. However, collaboration between firm and innovators seem to be challenge. Research has shown that there is a mix results on the relationships between collaboration and commercialization performance. Inconsistent results can be explained by the exclusion of moderators in the research design [3]. Thus, based on this gap, further investigations were conducted into the moderating effect between collaboration and commercialization performance.

Existing research recognises the critical role played by transactional capacity to enhance the effect of collaboration towards its performance. Transactional capacity in this study is define as a combination of dissemination capacity and absorptive capacity. There is argument that if the absorptive capacity of the potential acquirer is weak, then there is a tendency for the technology

acquirer's cost of integrating external technologies to be high [4]. This would lead to an increase in the cost and have a negative effect on the commercialization performance. Even though a number of studies have focused on absorptive capacity as a moderator [5], [6], the studies examined the effect of the dissemination capacity of the innovation provider on the commercialization performance of the recipient firms were not found. The dissemination capacity is important for the alliance firms to ensure that the transfer activities are successful [7]. Due to product complexity and tacit knowledge, hence, it would be advantageous to determine the moderating effect of the dissemination capacity together with the absorptive capacity on the relationship between collaboration and commercialization performance. Therefore, this paper investigates the effect of transactional capacities on the relationship between innovation commercialization collaboration and market performance and innovation survival. More specific this study aims to answer the following questions: Does transactional capacity (TCAP) strengthen the relationship between commercialization collaboration and performance?

In this study, the relational view from Resource Based View (RBV) theory was adopted as the core foundation for developing a theoretical framework. From the systematic literature review, this research presents a comprehensive research framework that can be used to describe the effect of moderators on the relationship between collaboration and commercialization performance.

This study providers an exciting opportunity to advance our knowledge of the influence of transactional capacity on the effect of collaboration towards commercialization performance. Next, this study includes disseminative capacity of innovator together with absorptive capacity of firm for transactional capacity construct. Thirdly, this study performed extensive content analysis to study the effect of collaboration on commercialization performance. Lastly, using RBV theory, this study proposed an integrated theoretical framework that explains the causal relationship between firm-innovator collaboration in an innovation commercialization. Based on these, thus, this study gives some significant implications for practitioners. For researchers, this conceptual framework provides a starting point to further define, explore and validate the two factors of absorptive capacity and disseminative capacity exhibited in transactional capacity can, it is believed, raise the level of commercialization performance. This research moved ahead to empirically test this proposition.

2. Theoretical Background

Commercialization of innovation is a key process to the growth of competitive advantage. The management of innovator involvement in manufacturing and commercialization, therefore, can be positioned as being a main and increasingly important part of this process. Establishing successful firm-innovator collaboration is key to achieve a competitive advantage [8] as it enables the firm to gain benefits that are unlikely to come from traditional transactional relationships. Thus, by collaborating with innovator effectively, the performance of the recipient firms more likely to improve [1], [2], [9]. Referring to relational view from RBV theory, firms that are capable of accumulating resources and capabilities that are rare, valuable, non-substitutable and not simply imitable will attain a competitive advantage over competing firms. In defining the relational view, [10] stated that "a supernormal profit jointly generated in an exchange relationship cannot be generated by either company in isolation and can only be created through the joint idiosyncratic contributions of the specific alliance partners". Therefore, innovator capabilities and the firm ability to absorb the knowledge to enhance their performance are main factors in its competitive and innovation commercialization strategy.

The effects of collaboration on the innovation performance have been studied by many authors (e.g. [11]–[13]). A comprehensive systematic literature review search based on a collection of papers published between 2007 and 2015 has been done. Using multiple sources (e.g., web of knowledge and EBSCOHOST) and a pre-determined set of keywords (e.g. "innovation sales"; "commercialization") a selection of 245 related papers were selected. Through both content and abstract analysis this set was reduced to only 64 articles discussed collaboration in the context of commercialization. The analysis was continued to identify the effect of collaboration on commercialization performance and the result

shows that 29 out of the 65 quantitative studies examined the relationship between collaboration and commercialization performance. The result of systematic literature review was shown in Table 1. In literature, there is a mix results identified by different authors on the effect of collaboration on commercialization performance.

Table 1: Results of Relationship between Collaboration and Innovation Performance

Type of Collaboration	Author(s)	Year	Result
University and industry	Gonzalez-Pernia et al	2015	Significant
	Kafourus et al.	2015	Significant
	Hemert	2013	Significant
Diversity of partner	Belderbos et al.	2015	Significant
	Fidel et al.	2015	Significant
	Gesing et al.	2015	Significant
	Luzzini et al.	2015	Significant
	Wang et al.	2015	Sigificant
	Yan & Nair	2015	Not Significant
			Significant
	Laosirihongthong et al.	2014	Not Significant
	Sompong et al	2014	Significant
	Von Raesfeld	2012	Significant
Intra-firm (Cross Functional)	Brettel	2011	Significant / not significant
	Bercovitz	2011	Signifcant
	Song	2010	Significant
	Song & Swink	2009	Significant
	Swink & Song	2007	Partial
	Luca	2007	Partial
Inter-firm (Firm-Firm)	Ahn et al.	2015	Significant
	Badillo & Moreno	2015	Significant
	Schott & Jensen	2015	Significant
	Wang et al	2015	Partial
	Ernst & Fischer	2014	Significant

	Lai	2012	Not Significant
	Wu	2012	Significant
	Zeng	2010	Significant
	Lin	2009	Significant
	Cousin	2007	Significant
Scientist and businesses	-	-	-
Intermediaries and firm	Zeng	2010	Significant
Firm and public / society / customer	Lai	2012	Significant
	O'cass & Sok	2014	Significant
Triple Helix	-		
Scientist and university	-		
Government and firm	Zeng	2010	Not Significant

Next, this study explored the moderating variables that have been used by different authors using systematic literature review. The details are discussed below in order to synthesize the type of moderating variable that affect the relationship between collaboration and commercialization performance. The following (see Table 2) thirteen variables have been used as moderating variables on the relationships between collaboration and commercialization performance.

The first moderating variable is organizational learning. When firm have strong ability to learn, they are potentially able to transform, expand and enhance organizational knowledge base, which effect the firm performance results from collaboration instead of only combine such knowledge with external knowledge [14]. Organizational learning also strengthens firm's knowledge acquisition from R&D consortia. The second one is the level of product or project innovativeness. The successful of NPD results from the collaboration between marketing and manufacturing during commercialization stage is more positively associated with return on investment (ROI) in low product innovativeness compared to high level of product innovativeness [15]–[18].

The third, moderator between collaboration and innovation performance is contingent upon third party involvement [19]. This is based on an argument from [19], that the third party can provide extra capabilities that lead to better design and market performance. Fourth, positive effects of

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technological collaboration on product innovation will be weakened under the conditions of high levels of competition and negative effects of technological collaboration on firm product innovation due to intense market competition may be offset in high-tech sectors [20]. The fifth moderating impact factor is network support. The network support by particular institutional will enhance the quality of the network itself in the sense that it increases the performance, results from the quality networking [21]. Beside these five moderating variables, there are several other variables, which will not be discussed in length here, but also give an impact to the relationship between collaboration and product performance. These variables are; R&D intensity[22], knowledge management [23], market performance, [24] and regional specific attributes [12].

As current research shows, every time an acquirer firm intends to collaborate with an innovation provider, the transactional capacity is of the utmost importance. From the literature studied, this study conclude that the higher the transactional capacity of the collaboration between acquired firm and innovation provider, the more likely a positive outcome of the commercialization performance.

Table 2: Moderators between Collaboration and Commercialization Performance

Years	Author	Moderating Variable
2007	Luca & Atuahene-Gima	-
	Cousin & Lawson	-
	Swink & Song	-
2009	Lin et al.	Organizational Learning
	Song & Swink	Product Innovativeness
2010	Song et al.	-
	Zeng et al.	-
2011	Brettel et al.	Project Innovativeness
	Bercovitz & Feidman	-
2012	Lai et al.	Third Party Involvement
	Wu	Market competition
		High-tech sector
	Von Raesfeld et al.	-

Years	Author	Moderating Variable
2013	Van Hemert et al.	Innovation Capabilities
2014	Ernst & Fischer	Innovativeness
	O'cass & Sok	-
	Sompong et al.	-
2015	Schott & Jensen	Network Support
	Gonzalez-Pernia et al	-
	Yan & Nair	-
	Gesing et al	R&D intensity
	Badillo & Moreno	-
	Belderbos et al	-
	Ahn et al	-
	Fidel et al	Knowledge Management
	Wang et al	Market Performance
	Luzzini et al	-
	Wang et al	-
	Kafourus et al	Regional Specific Attributes

[4] argued that the technology acquirer's cost of integrating external technologies will tend to be high if the absorptive capacity of the potential acquirer is weak. This will lead to an increase in costs and will have a negative effect on commercialization performance. Even though a number of studies have focused on absorptive capacity as a moderator between collaboration and commercialization performance [5], [6], none of the works examined the effect of the dissemination capacity of the innovation provider on the commercialization performance of the recipient firm. Dissemination capacity is important for alliance firms to ensure the success of transfer activities [7]. Since new invention products involve complex and tacit knowledge, thus it would be valuable to determine the moderating effect of dissemination capacity together with absorptive capacity on the relationship between collaboration and commercialization performance.

In addition, previous studies that examined the moderating effect of absorptive capacity between collaboration and commercialization performance used secondary data to measure absorptive capacity (e.g., R&D expenditure/sales). However, for this study, primary data were applied to measure the absorptive capacity because, according to the argument made by [6], absorptive capacity is a process that relates to several steps, and it is not sufficient to measure it by focusing on R&D items

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whilst dimensions, such as skills and experience, contribute more to the overall absorptive capacity of firms. Based on these arguments, the following research framework is developed.
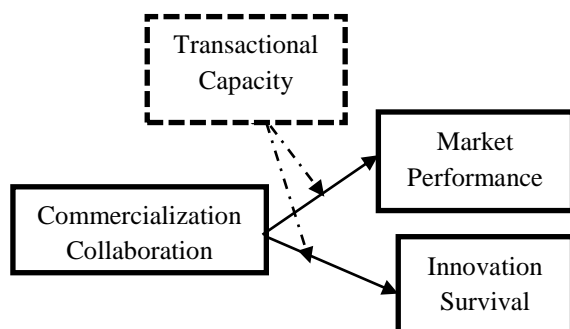

Figure 1: Conceptual Framework

3. Hypotheses Development

3.1 Commercialization Collaboration and Market Performance

Studies have reported on the positive effect that collaboration can have on market performance. A study by [17] revealed that university and industry innovation collaborations have a significant effect on innovation sales growth. Studies have also found that cross-functional collaborations have a significant effect on market share [15], [16] and sales growth [16]. Besides that, other studies have also found that inter-firm collaborations are significantly related to sales growth (Lin et al., 2009; Wu, 2012) and market share [25]. Collaborations with end users, such as public citizens or customers, also have a positive relationship with market share and sales growth (Lai et al., 2012).

Even though previous studies have shown that there is a significant relationship between collaboration and market performance, a study by [16] on cross-functional collaborations showed that only collaborations between R&D and manufacturing units, and between marketing and manufacturing units, had a positive effect on market performance. For collaborations between R&D and marketing units, the results showed that there was no relationship between these two variables. This was also supported by a research that examined the relationship between inter-firm collaborations and market performance among 245 Taiwanese manufacturing companies, where no significant relationship was found between

collaboration and market share and sales growth [19]. Hence, based on these arguments underpinning the relational view in the resource-based theory (RBV), the following hypothesis was formulated:

Hypothesis 1: The greater the innovation commercialization collaboration (ICC) between the innovator and the recipient firm, the greater the likelihood the innovation will succeed in the market.

3.2 Commercialization Collaboration and Innovation Survival

The evidence from the literature shows that collaboration significantly affects commercialization performance, either in terms of market performance ([15]–[17], financial performance [15], [26]–[28] or technological performance [29]–[31]. However, according to [32], there are three criteria or outcomes of product success – firstly, whether the product reaches the market; secondly, how long the product remains on the market (survival); and thirdly, the yearly profits gained by the firm. In view of this argument, it made good sense to study the criteria on the relationship between collaboration and survival success separately in order to learn more about the drivers of total returns. Therefore, it sufficed to hypothesize that:

Hypothesis 2: The greater the innovation commercialization collaboration (ICC) between the innovator and the recipient firm, the greater the likelihood the innovation will survive in the marketplace.

3.3 The Moderating Effect of Transactional Capacity

The commercialization of innovations acquired from outside innovators involves transfer activities. Therefore, the innovator is an important source of new scientific knowledge and collaboration, where the innovator enables a firm to access knowledge and other supporting resources. A study by [33] showed that absorptive capacity is important for firms, especially SMEs, to collaborate successfully with research institutions. While collaborating with innovators, firms with a high level of absorptive capacity are better able to learn new perspectives that may provide better and more effective

solutions in new product development. In contrast, an organization that lacks sufficient absorptive capacity may be unable to digest the advanced innovation that is transferred to them when they are closely collaborating with the innovator. In this situation, close collaboration with the innovator may be a waste of time and money, and will inhibit the commercialization performance of the innovation.

Disseminative capacity has been defined as the ability of a network member (knowledge holder) to efficiently and effectively codify, articulate, communicate and teach knowledge to other network members [34]. Innovators with a greater disseminative capacity are more likely to share, teach, codify and articulate new innovation knowledge. Hence, the market performance and innovation survival of a firm may be improved through close collaboration with the innovator. Conversely, an innovator who is lacking in sufficient disseminative capacity will be unable to transfer the needs and knowledge into the development of the new product. Thus, even if a firm were to collaborate closely with the innovator, these activities may not increase the market performance and prolong the sustainability of the innovation in the market, and may even be detrimental to such performance. Based on the arguments above, this study proposed that:

Hypothesis 3: The greater the transactional capacity, the stronger the relationship between innovation commercialization collaboration (ICC) with the innovator and market performance.

Hypothesis 4: The greater the transactional capacity, the stronger the relationship between innovation commercialization collaboration (ICC) with the innovator and innovation survival.

4.   Data and Methods

This study employed quantitative survey approached based on convenience sample and administrated among 200 firms. Firms were selected based on data gathered from Malaysian Technology Development Corporation (MTDC) CRDF grant recipient lists. Data were collected from all the states in Malaysia and from all the different industries related to manufacturing. A total 104 questionnaires were received, which in a

response rate of 53 percent. Further analysed using the appropriate statistical procedures was run. The research model was then tested by quantitative analysis using the partial least square (PLS) technique. The SmartPLS 3.0 was used to validate the research model and to test the proposed research hypotheses.

The constructs of innovation commercialization collaboration (ICC) consist of seven items adapted from [35],[36],[37],[38], [39], [40],[41],[42],[43], [44], [14],[45], [46],[47]. The variables are information sharing, trust, business understanding, communication, commitment, decision synchronization, and resource sharing. The selection of these variables was based on the frequencies of the measurement of collaboration by authors. A 42-item scale was used to measure CC in this research. For this variable, the respondents were asked to rate their agreement or disagreement with the statements given on a 7-point Likert scale ranging from (1) strongly disagree to (7) strongly agree.

Market performance was measured using five items. The studies carried out by [26], [29] and [19] were referred to, where they utilized two items to measure market performance, namely market share and sales volume. In addition, besides market share, [25] added time as one of the items for measuring market performance. A sample of the items for customer acceptance was adapted from [19] and [48]. These two authors also included customer satisfaction as one more item for measuring market performance, and this item was also adapted from another author, [29]). One additional author, [49]., also used sales goal as one of the items of measurement.

In this study, innovation survival was defined as the length of time innovation was sustained in the market. This definition was based on the study by [32]. According to their study, the success of innovation can be measured by whether the product reaches the market (commercialization), how long the product remains on the market (survival), and any yearly profit. This study measured innovation survival using 3 dimensions taken from the study by [32] using a seven-point Likert-type scale.

Transactional capacity, in this research, means the capacity of a firm to acquire all the knowledge, equipment and processes that are transferred from the innovator, and the perception of the firm towards the capability of the innovator to transfer the innovation. Two variables were employed for

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transactional capacity, namely the absorptive capacity and the disseminative capacity. The respondents were asked to rate the transactional capacity of their firm on a 7-point scale ranging from (1) strongly disagrees to (7) strongly agree. The absorptive capacity questions were designed based on the ability of the firm's staff to acquire knowledge, their level of skill to implement the new process, their own knowledge, and their ability to absorb, assimilate and exploit that knowledge[29], [50]–[53]. The disseminative capacity was measured using items derived from discussions by [54], [55] and [49]. Disseminative capacity, in this study, is defined based on the definition by [34], which describes it as "the ability of people to efficiently, effectively and convincingly codify, articulate and communicate, and spread knowledge in a way that other people can understand accurately, and finely, tactically put learning into practice". Based on this definition, this variable was measured using five items.

5.   Results

The research model was tested using the partial least squares (PLS) in the SmartPLS 3.0 software. The SmartPLS was used to assess the measurement model and the structural model for this study [56]. The assessment of the reliability test for the measurement model was conducted and included all the reflective constructs and their associated manifest indicators. The calculations of the item loadings, composite reliability, and average variance extracted (AVE) indicated satisfactory reliability at the construct level, using the conventional threshold criteria of 0.5, 0.6, 0.7 and 0.708 for the loadings, 0.7 for the composite reliability, and 0.5 for the AVE [56], [57]. These results showed a strong and consistent relationship between each set of items and their latent variable. The PLS generated factor loadings for each scale indicator, which could be used to assess the measurement model. From the measurement model analyses, most of the factor loadings were greater than 0.5, 0.6, 0.7 and 0.708. For this case, the composite reliability and AVE were above the suggested threshold value of 0.5. Therefore, all these items were retained for the hypothesis testing. It can be concluded that all the constructs exhibited good internal consistency based on the loading, composite reliability and AVE.

Table 3: Factor loading for reflective measures

Construct	Items	AVE	CR
Commercializ ation Collaboration	Information Sharing	0.768	0.959
	Trust		
	Business Understanding		
	Communication		
	Commitment		
	Decision Synchronization		
	Resource Sharing		
Transactional Capacity (TCAP)	Absorptive Capacity	0.926	0.962
	Disseminative Capacity		
Performance	Market Performance	0.781	0.947
	Innovation Survival	0.596	0.935

Next, this study examined the cross loadings of the indicators. Specifically, an indicator's outer loading on the associated construct should be higher than its loadings on all the other constructs. The results for this study showed that in all cases, the outer loadings of the items on each of the relevant constructs were higher than all its cross loadings, indicating discriminant validity on the indicator level. For this study, the correlations for the reflective constructs and the AVE values on the diagonal. All the AVEs were higher than the squared inter-construct correlations, which suggested satisfactory discriminant validity for all the reflective constructs.

Figure 2 shows the structural model of this research hypothesis. Overall the structural model was acceptable. The relationship between CC and

H	Std. Beta	Std. Error	t-value	R^2	f^2
H1	0.660	0.085	7.782**	0.436	0.772
H2	0.683	0.094	7.236**	0.466	0.872

MP was positively significant (β=0.660, t=7.782). CC was significantly correlated with innovation survival (β=0.683, t=7.236). These results support hypotheses 1 and 2 (See Table 3).

Table 3: Direct effect hypothesis testing result

After examining the direct path relationships, the next step was to examine the moderating effect of transactional capacity. Table 4 presents the results of the moderating effect of transactional capacity on the relationship between innovation commercialization collaboration and market performance. The results showed that there was no

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sizable moderating effect. Therefore, hypothesis 3 was not supported. The significant moderating effect of transactional capacity on the relationship between innovation commercialization collaboration and market performance was further evaluated by using a graph. Based on Table 4, the moderating effect of transactional capacity on the relationship between innovation commercialization collaboration and market performance was not significant (β = -0.077, t-value = 1.356, f^2 = 0.060). The same procedure was repeated in testing the moderating effect of transactional capacity on the relationship between innovation commercialization collaboration and innovation survival. The results show that transactional capacity had a statistically significant effect on the relationship between innovation commercialization collaboration and innovation survival (β= -0.198, t-value=3.612, f^2 = 0.308). Therefore, hypothesis 4 was supported

Table 4: Hypothesis results of moderating interaction.

| H	Std. Beta	Std. Error	t-value	f^2
H3	-0.077	0.057	1.356	0.060
H4	-0.198	0.055	3.612**	0.308
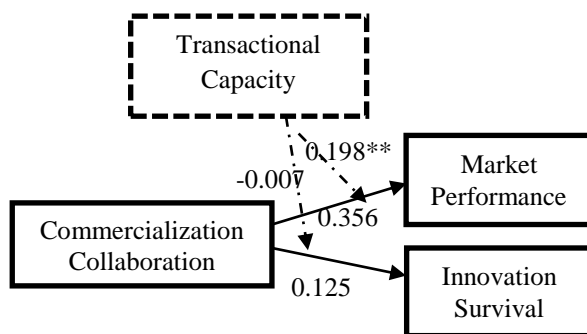
Figure 2: Hypothesis testing for moderating interaction

The graph showed in Figure 4 (a) and (b) indicated that at a low level of innovation commercialization collaboration, firms with a high transactional capacity have high market performance, and at a high level of commercialization collaboration, firms with high transactional capacity have high market performance. While at a low level of commercialization collaboration, both parties with

(a)

(b)
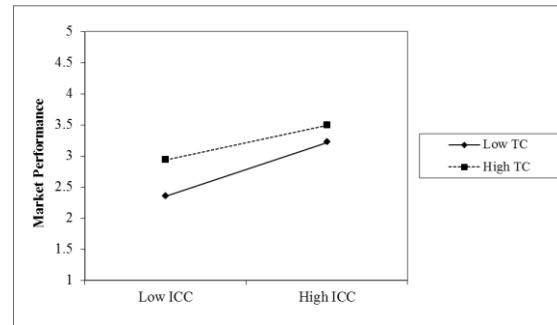
high transactional capacity had higher innovation survival than those with low transactional capacity, while for parties with a high level of collaboration, the relationship with innovation survival was negative and significant.
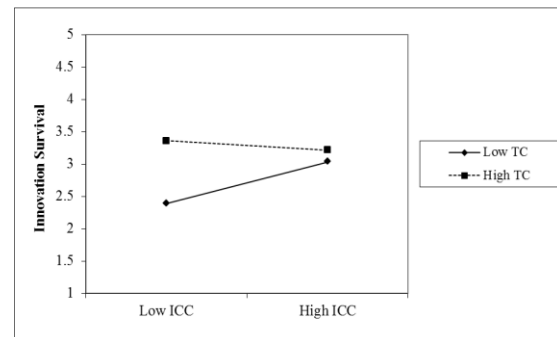
Figure 4: Graph of moderating effect of transactional capacity on the relationship between innovation commercialization collaboration and a. market performance, b. innovation survival

6.   Discussion and Conclusion

This study investigates the relationship between commercialization collaboration between firm and innovation provider from firm's perspective. It also examines the moderating effect of transactional capacity. Recent literature argues that to gain successful in commercialization for external innovation, firms need to collaborate with innovation provider [58], [59]. This study extends their views that the collaboration between firm, as innovation recipient and innovation provider can enhance a firm's commercialization performance. Firstly, the final results showed that innovation commercialization collaboration has a positive significant effect on market performance. This result provides some insights into how the

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innovator collaboration structure affects the new product market. Effective collaboration between the firm and the innovator is the key factor for manufacturers to achieve market performance. The results supported the findings in this field of study, where the profit goals, sales goals, customer satisfaction, customer acceptance and market share goals rely heavily on the support of the innovator to develop a clear understanding of the manufacturing and commercialization of newly acquired innovations by external firms.

Secondly, this study also found that commercialization collaboration had a positive significant effect on innovation survival. A successful product innovation is not based on financial indicators alone. Clearly, innovation survival in the marketplace is a critical matter. While many financial indicators are commonly accepted in the field of innovation, these have not been studied or explained in the context of innovation commercialization collaboration, specifically for the technology transfer environment. It also raised further questions on how the governance structure of commercialization collaboration affects the survival of the innovation. The significant relationship between innovation commercialization collaboration and innovation survival was surprising. There was speculation as to why the significant finding arose. In many cases, a new product innovation always has to deal with manufacturing problems, such as the type of material used, the transformation from a small scale to a large scale, safety issues and other problems that affect the quality of the end-product. The quality of new products is one of the important attributes for the product to survive in the marketplace. Another important process for product innovation is continuous improvement. Continuous improvement on the new product seems to be crucial, especially for SME-type of companies, where normally the product range is very small. Some companies, which are categorised as micro companies, only produce and commercialize a single product innovation as their start-up product. Hence, innovation survival is so important in order for the firm to be sustained in the market. Having the innovation provider together at this stage could help firms to continuously improve their acquired innovation. For instance, when the innovator shares all the information concerning the innovation, this can reduce the failure rate of the product when it comes to the manufacturing and commercialization

process. Continuous communication from time to time between the firm and the innovator can also improve the quality of the product by identifying problems regarding the product design or safety. Thus, the chances of the product surviving in the market are higher.

Next, this study addresses the research gaps of the moderating effect of transactional capacity on the relationship between innovation commercialization collaboration and commercialization performance. As discussed, the results of the systematic literature review were inconsistent regarding the effect of collaboration on innovation performance. Therefore, one of the contributions of this study was regarding the moderating effects of transactional capacity on the relationship between commercialization collaboration and market performance and between commercialization collaboration and innovation survival. Transactional capacity (TC) appeared to provide fruitful results to the model. [4] argued that the technology acquirer's cost of integrating external technologies will tend to be high if the absorptive capacity of the potential acquirer is weak. This would lead to an increase in the cost and have a negative impact on market performance and innovation survival. Even though some previous studies were identified as having focused on absorptive capacity as the moderator between collaboration and commercialization performance [5], [6], no single work explored the dissemination capacity of the innovation provider, which this study believes can affect the market performance and innovation survival of the recipient firm. Dissemination capacity has been identified as one of the important factors for the alliance firm to ensure the success of the transfer activities [7]. The reason behind this is that new invention products involve complex and tacit knowledge, and therefore, it is valuable to determine the moderating effect of dissemination capacity together with absorptive capacity on the relationships between ICC and market performance and innovation survival.

Based on the results, this research revealed that transactional capacity had a significant medium interaction effect on the relationship between commercialization collaboration (CC) and innovation survival. The results indicate that when the level of collaboration between the innovator and the firm is weak, a high level of transactional capacity will help the innovation to survive in the

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marketplace. On the other hand, when the level of collaboration between both parties is high and the transactional capacity is at a low level, it does not reduce the chances of the innovation to survive in the market. The important point here is the weak relationship between CC and innovation survival. The results showed that the high absorptive capacity of the firm and the disseminative capacity of the innovator helped the acquired innovation to survive in the market when the CC was low.

Acknowledgments

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