Measuring Malaysian Public Sector Innovation Performance through Business Model Perspective

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ABSTRACT: Public Sectors around the world face constant demand in increasing efficiency and productivity. The pressure to improve service delivery particularly during this pandemic demands the public sector to provide more with less. Being subjected to mandates from the government, public scrutiny and compliance to legal system, public sector organisations are in constant pressure to perform above average, reform outdated process and deliver the best results with fewer resources. Adding to this, increasing demand has become the general expectation where the needs for customisable services based on the current lifestyle of the civil society or described as the "24/7 society" requires services to be available and accessible at all times. Therefore, public sector innovation agenda often focused in national level policy and initiatives. However, the innovation landscape remains an understudied terrain especially in Malaysian Public Sector. Capitalising on little existing insights, this study further expands the knowledge base by analysing underlying driving factors in innovation performance measurement from a Business Model Perspective for a more contemporary model discovery. Utilising Structural Equation Modelling technique, this study analysed responds from 328 middle managers within government agencies and organisation and revealed that the Malaysian Public Sector innovation management still depends on innovation capabilities both as a factor and mediator in influencing innovation performance greater than innovation management which has been the focus. The study found that there is a dire need for an organisation level model to improve the innovation performance in public sector agencies by focusing on both innovation capabilities and innovation management to ensure an excellent governance and delivery system being implemented effectively.

KEY WORDS: Innovation Business Model, Malaysian Public sector innovation, Innovation Performance Measurement, Innovation Capabilities, Innovation Performance, Innovation Management

1. INTRODUCTION

Public Sectors around the world face constant demand to improve efficiency and productivity (Arundel et al., 2019). The pressure to improve service delivery demands (Torfing et al., 2019) the public sector to do more with less (Wallis & Goldfinch, 2010). Being subjected to mandates from the government, public scrutiny and compliance to legal system and public sector organisations are in constant pressure to perform above average, reform outdated processes and deliver the best results with lesser resources (Ramli et al., 2016).

Adding to this, increasing demand from the multiple stakeholders (Sørensen & Torfing, 2019) has become the general expectation where the needs for customisable services tuned to cater to the current lifestyle of the of civil society or commonly identified as the "24/7 society" requires services to be made available and accessible at all times (Lekhi, 2007). The Innovation chant or mantra has become an important element in enhancing economic performance, social welfare and environmental sustainability (Borins, 2001; ANAO, 2009). It must be accepted and recognised that in attempting to implement innovation in the public sector is fraught with several layers of impediments and barriers as the process requires unravelling the complex structures within the civil service (Colville & Carter, 2013) whilst it can be accepted that when addressed innovation in the civil service can be an effective tool (Osborne & Brown, 2013).

Many researchers (Klimentova, 2014; Pekkarinen, Hennala, Harmaakorpi, & Tura, 2011) acknowledges the public sector as an under researched domain (Clausen et al., 2020) and Malaysia is no exception to the rule in this regard. A library or literature of experience and knowledge in understanding innovation in the public sector is scarce (Bloch & Bugge, 2013) and empirical research is still at its surface whilst admittedly innovation in the public sector had long taken off albeit with a lack of maturity (Bloch et al., 2009) planning and structure.

More studies are needed to gain insight into the organisational aspect of public sector innovation (De Vries et al., 2016) as they come in many forms (Nelson & Svara, 2012). Therefore, in understanding this landscape on public sector innovation multiple

aspects need to be explored (Arundel et al., 2019), revealed and discussed such as the status quo, underlying theoretical footing, measurement and critical factors that influence the present domain. This study shall employ the Business Model Theory in examining the innovation landscape in the public sector when attempting to utilise its resources, processes and strategy.

Innovation Performance in the public sector is influenced by Innovation Capabilities and Innovation Management which consists of Innovation Strategy and Innovation Activities. Prominent studies by international researchers (Bloch & Bugge, 2013; Hughes, Moore & Kataria, 2011; Arundel & Huber, 2011) and locally conducted research such as (Ramli, 2016) confirmed the interaction between constructs which will be addressed in this study. However, it must be noted, this study found a new form of linkage which further extends the variation in the Malaysian context. Measurement for this study were improvised from previous studies (Hughes, Moore & Katarina, 2011; Bloch, 2011; Ramli, 2018) thus validating the applicability of the measurement used.

2. LITERATURE REVIEW

2.1 Business Model

Concept of business models emerged in some literature in studying the strategic management field (Zott and Amit, 2007) which studied the way successful companies organises and aligns its activities and processes in value creation based or how it operates (Magretta, 2002). The business model took cognisance of the content, structure, and governance of activities inside a firm and its external partners in support of the company's value creation (Santos, Spector, & Van Der Heyden, 2009; Zott & Amit, 2008; Saebi & Foss, 2015). Scholars also viewed business models for their strategic choices made by firms (Magretta, 2002; Zott & Amit, 2008). Most business models mainly advocate the flexibility and agility of a firm by directing and leveraging the resources and processes of an organisation to achieve its goals. (Bosch & Al, 2004) mentions the interlinked reality of its actors, exchange of value, activities of creating value and the objects of the value. It is mainly focused on the architecture of an organisation's value creation, delivery, and procurement mechanisms (Foss & Saebi, 2018).

Innovation, incorporates strategic choices; the adoption of innovation requires organisations to redefine their methods and processes of operations. (Weill & Vitale, 2001) extended this concept to the public sector by providing a whole host of views to the government. Magretta (2002) placed the business model as a logical narrative where it shows the customer, that includes his interaction in the value creation process of an organisation.

This narrative provides a wider spectrum of views to consider thus enabling all elements of an organisation to be consolidated in this study. The public sector is heavily dependent on established framework, methodologies, circulars and directives which are often centralised based on the existing civil service manual that was prescribed decades ago which today acts as the established norms of civil service federalism. The overarching and holistic integration attributes of any business model allows for a combination of several theories accustomed and practiced in public sector public engagement and being promoted in attempts to introduce an Innovation System Theory that were considered and determined by previous studies (Bloch & Bugge, 2013; Ramli, 2018).

2.2. Innovation Performance

Implementations of innovation in the public sector is primarily aimed to enhance efficiency, effectiveness which contribute to performance. This was clearly stressed by scholars (Subramanian & Nilakanta, 1996) where innovation is expected to improve organisation and enhance organisational performance. In endeavouring to introduce innovation for the purpose of performance, cognisance must be given to the fact that when you touch one aspect in the structure you are required to consider the layers of the administrative functions for attempting to isolate one layer may affect the other. This is the nature of addressing or attempting to change the administrative aspects of the civil service be they technical or administrative (Ciliberti, Carraresi, & Bröring, 2016; Mention & Bontis, 2013; Darroch, 2005).

To measure Innovation is to measure performance and performance can be measured by the effectiveness of its implementation and this concept is given credibility as supported by several literary articles that can be found in (Albury, 2005), policy matters (Arundel & Hollanders, 2011), in administration and efficiency (Bugge, Markus M.Mortenson, 2011), with the emphasis being economic value (Hughes, Moore & Kataria, 2011), user satisfaction and quality of goods or services. This was also further (Ramli, 2017) highlighted in broader terms of organisation performance and service delivery.

(Ramli, Abdullah, Ariffin & Hassan, 2016) indicated that in the public sector a broader definition can be adopted as each category could encompass all the dimensions of the public sector such as product, service (Torvinen & Haukipuro, 2018), process, organisational, collaboration (Sørensen & Torfing, 2017) and communication, and improved public value (Chen et al., 2019).

A broader definition can be considered as being rational as innovation occurs using different principles across different ministries and agencies simultaneously involving multi-faceted types of innovation (Clausen et al., 2020). Based on the insights from available literature, it can be noted that authors' were of the belief that innovative performance can come from a variety of perspectives but most of them are in agreement on the importance of measuring performance based on all elements of innovation in

the process of its implementation. Measuring innovation performance could aid the public sector to evaluate policy initiative and to do so would require insights for further improvements to be introduced. (Steen, 2009; Sounila & Ukko, 2012). Therefore, this study takes a broader aspect in measuring innovation performance through efficiency, effectiveness, organisational performance and culture.

2.3 Innovation Capabilities

Whilst introducing innovation it is necessary for researchers to take into account a broad spectrum of ideas; the expressions of acceptance or discontent are in itself challenges that must be faced in the introduction of innovation into established sectors.

In examining public sector performance most researchers are of the opinion that when applying the principles of innovation there must be in place a modus to help understand and determine the challenges and if the expected results can be derived therefrom. Scholars recognised these challenges as drivers of innovation and along these similar premises, (Hurley & Hult, 1998) it must be acknowledged that such challenges can act as the primary resources in the general application of innovation.

Based on an organisational perspective (Hoffman, 1999; Chang and Lee, 2008; Lee and Choi, 2003; Sundbo, 2001) it is acknowledged, these factors can remain as the benchmark of internal mechanism of an organisation. This mechanism takes into account the fact that in simple terms innovation can consist of three categories; input, output and processes thus resulting in capabilities, resources and leadership (Muller et al., 2005). Organisational culture in innovation requires, structures, resources and systems to aid innovation (Schneckenberg et al., 2015; Trivellato et al., 2021). Fundamentally, researchers confirmed that innovation capabilities has positive connection with firm performances (Cooper and Kleinschmidt, 2007) based on its impact in organisations.

Innovation capabilities reportedly contribute to development of new products and services (Schilke et al., 2018). Authors collectively have identified innovation capabilities influence innovation outcomes in public sector organisations (Clausen et al., 2020). Using current literature as a common denominator it can be said that innovation capabilities be measured by its outcomes. It is rather uncertain as to how public sector agencies can formulate their capabilities (Arundel et al., 2019) based on innovative approaches and yet on the long term sustain the innovation (Trivellato et al., 2021) recommendations.

If we are to use innovation capabilities as a factor in determining effectiveness of the organisational structure (Schilke et al., 2018;); can or will this innovation based restructuring provide the requisite results to the organisation (Helfat & Winter, 2011) to help pave the way (Teece, 2016) for growth and development (Wilden et al., 2016).

Established international studies have identified the Nordic countries MEPIN and UK's NESTA that set the framework for assessing public sector innovation parameters which is used as the foundation of innovation in the public sector. These are now the main factors in providing the framework for influencing innovation performance Mafini (2015). The hypothesis being: *innovation capabilities has significant positive influence on innovation performance.*

2.4 Innovation Management

In this study Innovation Management serves as an overarching construct with two sub constructs that influence innovation performance. Based on Exploratory Factor Analysis that were conducted during the pilot study, the results returned Innovation Strategy and Innovation Activities as a single component.

2.5 Innovation Strategy

Prior to introducing innovation it is essential that strategies are studied and discussed. (Subramanian & Nilakanta, 1996). Each environment has its own set of peculiarities and these must be given cognisance prior to introducing and adopting innovation and its recommendation for change to be accepted. This is reflected in the views as stated by some scholars in the field of innovation. (Akman & Yilmaz, 2008) (Lawson & Samson, 2001). (Gilbert, 1994). Their studies also discussed on some aspects of implementing business strategies for enhancing performance.

A study by (Hughes et al., 2011) found that organisations that employed innovation were found to be innovative in their approach to determining business strategies. (Lee, Hwang, & Choi, 2012). It was also noted that the public sector (Tajeddini, 2016) took a different approach in attempting to introduce some forms of innovation. (Tajeddini, 2016). (Arundel & Hollanders, 2011).

2.6 Innovation Activities

Based on previous discussions the impact on innovation, its performances did take into account the process flow that provided the necessary input and output (Cordero, 1990; Muller et al., 2005; Kumar & Rose, 2010). The process of innovation requires a sequencing of activities to achieve the desired result or converting old functions into new ideas (Aiken & Hage, 1971). The Oslo Manual (2005) addressed the necessary steps that must be taken in the course of implementing innovation. Having said this most scholars are in agreement over the importance of achieving the innovation results (Saunila & Ukko, 2014). Their investigations also (Chiesa et al., 2009) found the direct influence sequencing of activities (Chiesa et al., 2009) and essential steps that support the implementation of innovation in the public sector.
(Arundel et al., 2019).

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A large number of researchers approached innovation through a process flow approach (Zaltman, Duncan, & Holbek, 1973; Van de Ven et al., 1986; Hansen & Birkinshaw, 2007; Tidd & Bessant, 2009) based on available multiple options. Some approached application of innovation in the public sector by using surveys to measure (Sachdeva & Agarwal, 2013) applicable processes to help in the implementation. Each step that is taken toward implementation and acceptance of innovation should incorporate a logical process flow. (Preez & Louw, 2008) thus enabling the measurement of results at each step of the implementation. (De Vries, Bekkers, & Tummers, 2016).

Interaction between innovation activities and innovation capabilities are well documented in literature (Karahan & Karhan, 2013). This interaction could occur in both ways as ability of employees are equally vital in the innovation processes (Ramli, 2016). Moreover, this interaction takes place at different levels in organisational to national macro policies (Frank, Cortimiglia, Ribeiro, & Oliveira, 2016).

Based on the importance of elements of innovation strategy and innovation related activities in organisation, it is vital to establish the hypotheses; *innovation management has positive influence on innovation performance*; and *innovation management has positive influence on innovation capabilities.*

3. RESEARCH METHODOLOGY

There are two main approaches that researchers adopt, they being "subject approach" and "object approach" (Oslo Manual, 2005). "Subject approach" is conducive in measuring the innovation related factors in an organisation representing the whole organisation's capacity in producing innovation outputs. Moving a level deeper, the "object approach" focuses at output of innovation in organisations in the form of projects. This is more result oriented and specific in nature as different projects might produce different results.

Using the "business practice approach" as a criteria we are in a position to examine the processes that were used to influence performances and their results based on the principles of innovation and its corresponding organisational activities. This study equally looks at organisational factors, thus all three approaches are considered as being suitable to be employed. It complements the collection of data using all three components and the associated respondents enabling the study to collate responses based on their respective job functions and related experiences.

A majority of innovation researches are done through surveys to produce statistical analysis data. It is acknowledged in the Oslo Manual as the appropriate tool to study innovation (Gault, 2013). This study examined innovation practices in 25 Ministries in the Malaysian Public Sector involving 328 middle managers. Those are executive group of officers that are responsible for policy planning, formulation and execution in the public sector. Responses from this group can give the overall picture of the innovation landscape as these respondents are the people that lead units and departments. Several researchers (Laegreid et al., 2011) have engaged middle managers (Bugge & Markus M.Mortenson, 2011) as they were regarded as the appropriate respondents (Lonti & Verma, 2003).

The surveys were done through a self-administered and highly effective for capturing data in an unmanned environment (Zainuddin, 2012). The questionnaire was designed as a series of statements related to the indicators from a scale of ten (10) to for comprehensive and effective measurement which enables structural equation modelling analysis.

A total of three constructs were measured they being Innovation Capabilities, Innovation Management and Innovation Performance. Considering that all constructs operated as the second-tier reflecting 27 items where Innovation Performance were measured with 8 items, Innovation Capabilities measured with 7 items, Innovation Management sub constructs consisting Innovation Strategy and Innovation Activities both of which were measured with 6 items each. **Table 1** presents details of the constructs employed in this study.

Table 1: Construct Employed in the Study

Construct & Sub Construct	No of Items
1. Innovation Capabilities	7
2. Innovation Management	12
Innovation Strategy (6)	
Innovation Activities (6)	
3. Innovation Performance	8
Total Items	27

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Population framework for this study comprised 1983 middle managers in 25 Ministries. Administrative department of each of the ministries were contacted and questionnaires were handed out to the respondents through the Administration Head. About 350 responds were returned. After data screening and data analysis only 328 data sets were maintained for further analysis. Initial descriptive analysis indicated that all items employed to measure the constructs are effective with moderately high mean values.

4. RESULTS AND FINDINGS

Obtained data analysed systematically to unveil the underlying measurement results. In line with the Oslo Manual, this study measured innovation performance and contributing factors in all ministries including central agencies to secure an overall picture of the current landscape.

4.1. Descriptive Analysis

Analysis commenced with profile details of the respondents. Main demographic information that were captured consists of area of responsibility, age, gender and grade. An assessment of the respondent's demographic profile. This section provides a substantive information in this respect, including socio-demographic background information.

Among the ministries covered in this study included Ministry of Foreign Affairs that recorded the highest percentage of respondents with 11%, followed by the Ministry of Finance with 10%, Ministry of Water, Land and Natural Resources with 8%, Ministry of International Trade and Industry with 7%, Ministry of Housing and Local Government with 6%, both Ministry of Defence and Ministry of Home Affairs with 6% each. Other ministries recorded less than 5% but above 2%.

This study was participated by respondents working in the field of policy development at 28%, Administration 32% and other various fields about 39%. The largest group of respondent belong to the 41 to 50 age group with approximately 47% followed by those below the age of 40 years about 27% and lastly the age group more than 51 years make up 26%. About 49% respondents were female and 51% were male middle managers. Respondents from Grade 48 makes about 42%, Grade 52 about 31% and Grade 54 remaining 27 %. Details of the respondents profile are as presented in **Table 2**.

Table 2: Respondents Profile

No	Profile		Frequency	Percentage
1	**Area of Responsibility**			
	Policy Development		93	28%
	Administration		106	32%
	Others (Core Functions)		129	39%
		Total	**328**	**100%**
2	**Gender**			
	Male		167	51%
	Female		161	49%
		Total	**328**	**100%**
3	**Age Group**			
	Less than 40		89	27.0%
	41 - 50		154	47.0%
	More than 51		85	26.0%
		Total	**328**	**100%**
4	**Grade of Service**			
	Grade 48		138	42%
	Grade 52		103	31%
	Grade 54		87	27%
Total	**328**	**100%**		

The mean score for innovation performance was 6.8494, innovation management was on the lower side with 6.3274 and followed by innovation capabilities with 6.2896. Results recorded in this study suggests a moderately high score for all three constructs based on the full mean score of 10.

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4.2. Measurement Model

This study utilised Structural Equation Modelling as statistical analysis technique based on its suitability and capabilities in analysing multiple relationships in the proposed model. Complex relationships could be analysed between several independent variables and one or more dependent variables (Zainudin, 2013). Direct effects, indirect effect as well as mediation iacobucci, (2010) mediation could be determined without time consuming. Execution of the Structural Equation Model involve sequential of procedure. According to Hair et al. (2009) there are two steps in the modelling process in performing Structural Equation Modelling. The first step is a process of testing the measurement model, known as Confirmatory Factor Analysis (CFA) followed by the process of testing the structural model. The structural model testing is conducted to examine the specifications of the relationship path between the underlying theoretical latent constructs prior to a good fitting of the structural model is identified. The structural model is then used for hypotheses testing.

The CFA process in this study reported that all items utilised scored past the minimum value of factor loading of 0.5. This confirmed the dimensionality of the measurement model. The same was recorded in terms of the construct validity assessment, convergent validity, and discriminant validity, where the fitness indexes values of measurement model recorded a good fit. The result also fulfilled the minimum required level for absolute fit, incremental fit, and parsimonious fit thus, confirming the construct validity with RMSEA = 0.78 , CFI = 0.947 , TLI = 0.941 and NORMED CHI-SQUARE (ChiSq/df) = 2.983.

Convergent validity in this study was determined and confirmed by assessing Average Variance Extracted (AVE) and the values passed the minimum threshold of 0.5 as mentioned by Zainuddin (2015). Reliability of the measurement model proposed in this study was examined by assessing Composite Reliability values (CR) and AVE. Values of CR and AVE exceeded the minimum level of 0.6 and 0.5 (Zainuddin, 2015) and confirmed the reliability of the measurement model as shown in **Table 3**.

Table 3: Reliability of Construct in measurement Model

Construct	Items	Factor Loading	CR (above 0.6)	AVE (above 0.5)
Innovation Performance	P1	0.86	**0.977**	**0.840**
	P2	0.80		
	P3	0.94		
	P4	0.93		
	P5	0.97		
	P6	0.94		
	P7	0.93		
	P8	0.95		
Innovation Capabilities	C1	0.86	**0.953**	**0.745**
	C2	0.89		
	C3	0.90		
	C4	0.94		
	C5	0.86		
	C6	0.82		
	C7	0.76		
Innovation Management	Innovation Strategy	0.95	**0.959**	**0.922**
	Innovation Activities	0.97		
Innovation Strategy	S1	0.87	**0.940**	**0.724**
	S2	0.91		
	S3	0.79		
	S4	0.82		
	S5	0.88		
	S6	0.83		
Innovation Activities	A1	0.82	**0.958**	**0.793**
	A2	0.89		
	A3	0.88		
	A4	0.91		
	A5	0.92		
	A6	0.92		

Next, Discriminant Validity Index Summary was produced in assessing Discriminant Validity. It is calculated by square root of AVE values represented in the diagonal value of each construct is larger than its corresponding correlation coefficient pointing towards adequate discriminant validity (Zainuddin, 2015). **Table 4** shows Discriminant Validity values highlighted in grey (square root of the AVE) are higher than the values on the left (correlation coefficient) in the same row.

Table 4: Discriminant Validity Index

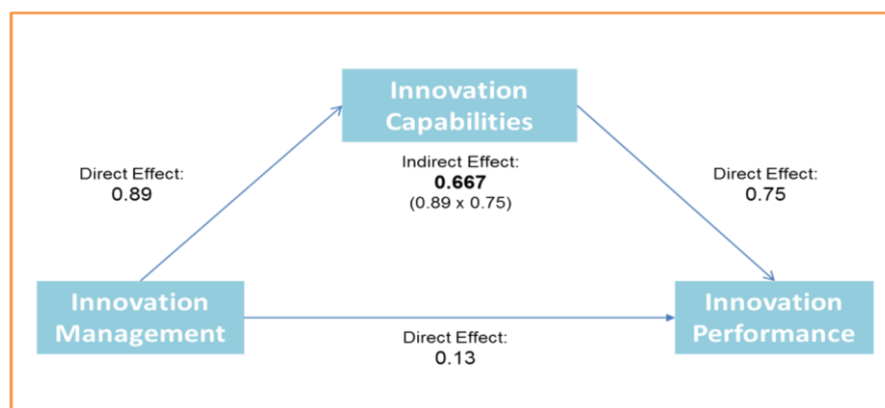| Construct Performance	Innovation Capabilities	Innovation Management	Innovation
Innovation Performance	**0.916**	-	-
Innovation Capabilities	0.86	**0.863**	-
Innovation Management	0.79	0.89	**0.960**

4.3   Structural Model Analysis

The second part in Structural Equation Model is the structural model analysis. This was conducted post measurement model validation. Hypothesis testing are done through this procedure by measuring the significant paths between constructs. Analysis in this study indicated that both Hypotheses 1 and 2 are supported with significant (P-Value) at 0.001. The results as shown in **Table 5** established that innovation capabilities has a significant positive effect on innovation performances and innovation management has a significant positive effect on innovation capabilities.

Table 5: Hypothesis Testing (Path Coefficient)

Path		Est	S.E	C.R	P Value
Innovation_Capabilities <	Innovation_Management	.986	.053	18.626	0.00
Innovation_Performance <	Innovation_Capabilities	.718	.081	8.821	0.00

Median effect of Innovation capabilities on interactions between innovation management and innovation performance were analysed by determining the direct and indirect effect among the construct.

Figure 1: Mediating Effect of Innovation Capabilities

Result shows that direct effect of Innovation Management on Innovation Performance is 0.13. Indirect effect between these two was obtained by multiplying the standardised estimate value for direct effect of Innovation Management to Innovation Capabilities (0.89) and direct effect of Innovation Capabilities to Innovation Performance (0.75) which recorded value of 0.667 (0.89 x 0.75). Indirect effect value of (0.667) is higher than the direct effect value (0.13) and the result indicated mediation effect of Innovation Capabilities.

Indicated median effect were further analysed for confirmation through bootstrapping procedure where the result was regenerated with 5000 sample size.

The result of this procedure is are as in Table 6.

Table 6: Bootstrapping Result

	Direct Effect IM to IP	Indirect Effect IM to IP
Bootstrapping result	-0.073	0.391
Bootstrapping P-Value	0.200	0.002
Result on Mediation	Not Significant	Significant
Type of Mediation	Full Mediation since direct effect is not significant	

Bootstrapping result indicated that indirect effect of Innovation Management to Innovation Performance resulted in a greater value (0.391) compared to the direct effect (-0.073). Value produced by the bootstrapping procedure concluded that the meditation is also confirmed in line with previous result. Only one bootstrapping PValue indicate significant value that is indirect effect (p – value = 0.002). Since only the indirect effect p – value was significant it is concluded that the type of mediation effect poised by Innovation Capabilities in the interaction between Innovation Management and Innovation Performance is full mediation. Therefore, the bootstrapping mediation test confirmed the result of the earlier mediation test and hypothesis 3.

5. DISCUSSION

Main objective of this study was to examine and reveal the landscape of Malaysian Public Sector from a Business Model perspective through cross Ministry setting. This study also aimed to identify, measure and model factors that facilitate innovation initiatives in the public sector in conjunction with the nation's innovation agenda. Results of this study unveiled a new changing pattern of the innovation drivers as reported by previous studies. Conceptually, it is a novelty to reveal that insights through business model theory successfully found to be effective in the public sector.

Hence, debunking the myth of static public sector innovation (Torfing, 2018).

The insight into public sector innovation landscape revealed the interactions among underlying factors that are indeed influential in determining the innovation performance outcome of the public sector. The Business Model Theory employed found suitable in diagnosing, modelling and establishing interaction between Innovation Performance, Innovation Capabilities and Innovation Management. Thus, indicating its applicability in the public sector.

Structural model measured and validated in this study indicated fit and significant in addressing innovation performance hence, revealing the positive and significant effect of Innovation Capabilities on Innovation Performance. Innovation capabilities highly influence Innovation Performance. On the other hand, Innovation Capabilities are highly and significantly influenced by Innovation Management.

Results obtained in this study supported developed hypotheses hence giving a clearer picture on the significance of each factor. Innovation in the public sector takes place in an impact focused through varied supporting factors. It was further effectively predicted by Innovation Capabilities and Innovation Management. The outcome of the study also revealed the interactions between Innovation Capabilities and Innovation Management. This study also found that the measurement used in previous studies (Ramli, 2016) in the Malaysian Public sector evolved and further expanded where Innovation Management established encompasses both Innovation Strategy and

Innovation Activities.

Innovation performances are perceived as satisfactory among middle managers in a diverse impact dimension. Generally, the result indicates a positive outcome in innovation initiatives with equal emphasis in efficiency and change aspects that are services improvement, quality, technology, cooperation, flexibility, cost, culture, and objective. Efficiency and change aspects remains the focus of innovation and directly linked to performance. This rather reveal that most public sector agencies are internally focused organizations whereby the aim of innovation directed at core functions. It is also an indication of reliance on central directive and serious evidence of being merely complying because of central agencies monitoring. Having found this, it is also worth highlighting that change elements are equally perceived as central to innovation impact. Potentially, based on demographic of middle managers where majority of respondents are in age group of less than 45-50 indicates shift in management style and approach. Younger middle managers from generation Y are more inclined towards organisational change and creating impact.

On the other hand, Innovation Capabilities rely on both core aspects as well as supporting elements. This could be due to different styles of micro systems being in place and management practiced at organisation level by different teams. Thus, indicating existence of unique condition and capabilities in innovation. Business Model approach effectively captured these unique elements in this regard. Moreover, measurement items are a combination of innovation friendly environment and organisational climate. Results promotes a deeper view into organisation than previous research where findings concluded from sectorial view. Malaysian Public Sector showed serious capability toward innovation.

Discussing further, this study reveals Innovation Management emphasises on elements of strategy and activities in an interwoven manner namely innovation process, supporting elements of organisation, innovation monitoring and information dissemination. Innovation in public sector organisations largely focuses on process and supporting elements employing incremental strategies. This could be due to the norms in public sector to work on low risk projects and continuous improvement approach in execution. On the other side of the coin this may indicate the pressure to be in compliance of central directives and one time episodes.

6. CONCLUSION

Expanding variations from previous studies (Ramli, 2017) which was conducted in similar settings, Innovation Activities were highlighted as the mediator with partial type of mediation. Whereas this study revealed that Innovation Capabilities functions both as a factor and an important mediator between Innovation Management and Innovation Performance with full mediation effect. In other words, Innovation Management (Strategies and Activities) in the public sector could not enhance performance without Innovation Capabilities. Innovation focused strategies and activities does not significantly contribute to performance. This is a fundamental issue where processes that does not create value or direct impact is a sign of lack in alignment between strategic direction and resources quality. Therefore, public sector agencies could utilise finding of this study to focus on becoming innovation friendly organisations by creating conducive environment, strategies, activities and support systems.

Ultimately, it is fair to conclude that the Malaysian public sector still need to focus on quality to enhance innovation capabilities that are directly linked to Innovation Capabilities. These are not limited to innovation friendly environment (risk acceptance), leadership (top management support), competency (knowledge transfer and training), financial support (innovation budget allocation) and IT capabilities to enhance innovation performance. However, this is an unpleasant situation for the organisations as the innovativeness are not sustainable and highly volatile. A simple occurrence such as a loss of talent through movement of officers, brain drain and retirement could seriously impair innovation capability that are highly reliant on change. It is also a serious issue in capturing tacit knowledge and institutionalising innovativeness in organisational systems and processes. At least, new talent could be trained and existing innovative practices could be retained even though in small numbers. Without such capability, current conditions poised a great potential downfall to the public sector because the programs and initiatives that were in place previously adds little value and found to be unsustainable.

Possible contributing factors could be the discontinuation of quality related initiatives such as total quality management, radical innovation, business process reengineering, and absence of conducive environment for innovation, reduced budget for innovation and lack of Management/employee empowerment. The results support all of these contributing factors. The literature clearly indicated aggressive and innovation based initiative in 2009 which produced many impressive results (Siddiquee, 2019) but they gradually declined.

In addressing the current condition, Innovation Management in public sector organisations need to be closely aligned with the core functions and capabilities through an **appropriate organisation level business mode**l to create an innovation inspired effective public sector organisations. Without such alignment with resource and talent, strategies could not be materialised and process efficiency under achieved. This study clearly depicts the use of evidence derived from the business model for application in the public sector. Impact of Innovation Management need to be enhanced and balanced with reliance on Innovation Capabilities to ensure sustainability of innovativeness of organisations. Issues in the current landscape in the public sector innovation could be addressed by incorporating all interacting factors in a business model and applied in public sector organisations. Effectiveness of such a model could be measured for future research and improvements.

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