

## MANAGING MENU INNOVATION: MEDIATING EFFECTS OF MARKET ORIENTATIONS

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### ABSTRACT

*The paper reports the mediating role of market orientation in the link between innovation orientation and the first-stage of product innovation process (PIP), called concept development. In this study, to yield an empirical theoretical parsimony, a simultaneous assessment was adopted, using a component-based structural equation modelling (PLS-SEM), in examining the structural theory. The results indicate that the direct path coefficient value of  $c$  found to be negative ( $B = -0.471$ ) and significant at  $p < 0.01$ , thus confirmed support of radical orientations adoption. However, in the simultaneous assessment, the indirect path coefficient value of  $c_i$  has dropped to 90 percent significance level, indicating a partial mediation of market orientation by 47.7%. Thus, pointing to managing menu innovation in the chain restaurant appears to adopt both radical and incremental orientations. This paper, apart from its contribution to the marketing research, has useful insights for restaurateurs to engage new ideas when managing new menu developments.*

Keywords: Product innovation process, menu innovation, Partial Least Squares (PLS), innovation orientations, new product development (NPD) announced

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### INTRODUCTION

To date, as the business globalization charting its ways, consumer markets are rapidly converging into one global market, making the world's foodservice consumer markets increasingly unpredictable as the consumers become more affluent to palate point of view. To this notion, learning about and tracking customers need are essentials that need to be adhered to at the development phase of planning new products or services (Narver, Slater, & MacLachlan, 2004; Feltenstein, 1986; Cobbenhagen, 2000). Accordingly, by addressing those customers' needs at this initial stage, customer-need understanding could be better enhanced in shaping the direction of the NPD in the market ahead of rival competitors (Naver et. al 2004). Indeed, it is a reminiscence of Kona's theory to address the functional of particular products that are desired by the consumers in terms of its basic needs, performance and excitement, which in turn allow such products to be known and shine in the market in a reasonable period (Kano, Seraku, Takahashi & Tsuji, 1984). In marketing research, Narver et. al (2004) discovery of 'proactive orientation', a second dimension of market orientation after responsive orientation, sheds further insight into product innovation orientations. This notion of proactive orientation has been argued to be the key invention or development of new products (Song & Xie, 2000; Berthon, Hulbert & Pitt, 2004; Kotler & Armstrong, 1996). Yet, such argument receives little attention in marketing and new product development literature. In theory, regardless of how the new products being innovated, researchers advocated that it is the new product itself eventually tells whether all those efforts being brought-in lead to a success story (Abernathy & Clark, 1985; Lewis, Welsh, Dehler & Green, 2002). This is because, as the term product innovation implied, it carries multiple meanings, depending on the context of the study, such as the new product itself or a new technology being developed. To this context, the product or technology development may fall either one of the two commonly sought types of innovation orientations, namely radical or incremental (Ettlie, Bridges & O'Keefe, 1984; Dewar & Dutton, 1986). In each of these orientations, it entails its own pathway of developments (Iansiti 1995; Cunha & Gomez, 2003). It is at this point regardless of which orientations is adhered to come in-force to shape the development of the new product either to rely on novelty orientations or the opposite side of the spectrum (Roberts, 1999).

The notion of putting customer first when engage in NPD is certainly not new in literature. In fact, this phenomenon has been a subject of research interests for the past few decades (See Felton, 1959; Gummesson, 1991; Piercy, 1997; Kelley 1992; Harris, 1998). According to Drucker (1954: 37), "it is the customer who determines what a business is". In recent years, Berthon, Hulbert and Pitt, (2004) simplify it as "find out customer wants and give it to them". Indeed, while this notion has been advocated in the literature for the past few decades, recently, some scholars have argued that discovery of the future needs for customers' expectations on NPD is equally critical to be incorporated (Narver et al. 2004). This is because, according to Berthon et al. (2004), unlike express needs, study on customers' latent needs is relatively new in marketing studies, and therefore, much of what have been said about market orientation is largely centered towards serving customer by catering their observed and articulated needs. Hence, despite of Narver et.al (2004) and Berthon et.al (2004) assertion on customers' latent needs, little is known of its influence in NPD. Following this, we then presented our empirical evidences based on the research setting of chain restaurants in Malaysia. Objectively, this study designed to ascertain which of the two dimensions of market orientation based on the domain characteristics proactive and responsive that mediate chain restaurateurs' decision-making process on the relationship between innovation orientations and the first-stage of the NPD process model, which is also known as concept development.

### LITERATURE REVIEW

#### Product Innovation Orientations

Two of the most cited product innovation orientations in literature are radical and incremental innovation dichotomy, which first introduced in the late 1970s (Abernathy, 1978). Since then, there have been several terminologies used by different authors in literature, carrying similar meanings, such as continuous vs. discontinuous technological changes (Porter, 1986), incremental vs. breakthrough innovations (Tushman & Adersen, 1986), and conservative vs. radical innovations (Abernathy & Clark, 1985). Hence, after carefully reviews the extant literature, it is reasonable to conclude that they all fall within these common definitions: radical innovation 'arises because prevailing knowledge gets transformed', whereas incremental orientations are 'a result of refining prevailing knowledge' (Tushman & Aderson, 1986). Simply put, the nature of incremental innovation is to reinforce prevailing market structure and conserve existing competencies whereas, radical approaches disrupt existing technological designs and product development methods, and therefore, demands for new skills knowledge and technical expertise are inevitable (Abernathy & Clark, 1985).

The issue of should new product development (NPD) be radical or incremental oriented has long been debated (Abernathy, 1978; Porter, 1986; Tushman & Adersen, 1986; Abernathy & Clark, 1985). The infamous ideology of 'creative destruction' that was first theorized in the 1940s warrants that new technical breakthroughs can uplift firm's competitive advantage in the marketplace but with the expense of 'killing' the old methods of doing (Schumpeter, 1942). While Schumpeter's theory of innovation has contributed valuable knowledge to innovation management, Abernathy and Clark's (1985) transilience map of innovation is equally accredited. Their empirical findings suggest that the 'creative destruction' that promotes innovation as unified phenomenon appeared to be otherwise as they found out that not all innovations lead to disruption, destroy or a complete obsolete of past practice.

Since then, periodically, this topic has been a subject of interest by researchers that saw outpouring a never-ending story of such studies alike. Historically, most products in the markets are being developed from the platform of incremental orientations and only a handful of firms that are truly embraced on development of product 'newness' (Booz, et al. 1982). Hence, NPD that is new to the world, apparently, is a rare phenomenon. This is much to do to its strategic development and implementation, parting away from its existing product knowledge development. In theory, such a strategy sounds fair enough for most firms, if not all, to go along since product's benchmarking has been a common exercise in many types of products' development (Rudder, 2003; Balm, 1996; Rudolph, 1995). That, in turn, logically explain why product line extension appears to be the favorable strategic choice to go with when engage into NPD.

### **Market Orientations**

Kotler (1988: 17) states that 'the key to achieving organizational goals consists in determining the needs and wants of the target markets and delivering the desired satisfactions more effectively and efficiently than competitors'. Evidently, the notion of putting customer first can be found in the early years of Drucker's (1954: 37) work that goes 'it is the customer who determines what a business is' but equally stresses the important of customer creation. Since then, there have been e of the growing interests on market orientation studies in both theoretical and empirical development in the past few years (Narver & Slater, 1990; Slater & Narver, 1994; Kohli & Jaworski, 1990; Jaworski & Kohli, 1993; Kohli et al. 1993; Selnes et al. 1997; Deshpande & Farley, 1998; Harris & Ogbonna, 1999), only recently by the work of Narver et al. (2004) that entails the importance of seeking customers future needs, and thus, a second dimension of market orientations called proactive market orientation (MOPRO) was introduced. Previously, market orientation has always been measured unidimensional through either one of these three versions of instruments called N-S (Narver & Slater, 1990), MARKOR (Kohli et al., 1993) and MORTN (Deshpande & Farley, 1998).

Therefore, in this study, with the incorporation of MOPRO into our proposed research structural model, solution to seek customer creation is able to be substantiated in relation to NPD (Narver et al. 2004). In fact, after a closer review in the literature, this notion of customer creation had indeed been advocated in literature decades ago (Drucker, 1954; McGee & Spiro, 1988) and, as far as it is known, no attempt has been made to bridge this gap until recently by Narver et al. (2004). One of the possible explanation to this is because of the marketing concept itself is rather vague and yet to get precise clarity of exposition, which lead to the confusion surrounding the market orientation (McGee & Spiro, 1988). Others have suggested that market orientation is grounded in the marketing concept and is generally considered the extent to which an organization has implemented the concept (Kohli & Jaworski, 1990). Past researches appear to support this proposition by stressing the commercial success of new products depend on how well the market opportunity has been identified, analyzed, and incorporated into the product design (Cooper, 1983; Lilien & Yoon, 1988; Dougherty, 1990; Tuominen et al. 2004).

Indeed, Narver et al. (2004) refinement of the measures of market orientations by adding the domain characteristics of proactive market orientation alongside with the existing measurements of responsive market orientation provides insights into the development of the concept. In this context, they defined the latter orientation as an attempt 'to discover, to understand, and to satisfy the expressed needs of customer' and the former one attempts 'to discover, to understand, and to satisfy the latent needs of customers'. They continue that this newly developed measures of market orientation is more meaningful and significantly to the explanation of new product success.

### **THEORETICAL BACKGROUND AND HYPOTHESES**

Based on the above literature, an adopted theoretical framework of Mifli's (2014) work was comprehended. Theoretically, Mifli (2014) argued that all new products would undergo some forms of development process either based on radical or incremental approaches. Each of these approaches known to be conceived differently but both shares a common goal that was to innovate a new product that is able to sustain competitively in a given marketplace, and subsequently gain market shares (Tushman &

O'Reilly, 1996). Relative to radical product orientation, most new products developed within organizations are based on incremental orientation (Booz et al., 1982; Rudder, 2003; Rudolph, 1995). Therefore,

**H1:** There is a strong proximity between incremental innovation orientation and new product development than radical innovation orientation.

In view of this notion, categorically, most firms appeared to exploit existing knowledge base competencies rather than to explore new ones in relations to new product innovation (C.-R. Li et al. 2010). Review in the literature suggests that such a notion has been well discussed in March (1991) and Gupta's et al. (2006) works, arguing that both orientations recline on learning anticipations rather than the existence or nonexistence of learning. Indeed, regardless of which orientations of innovation management that plays a dominant role in product innovation, it is without doubt that such a conceptualization of product innovation orientations spurs NPD to different directional outcomes. As such, NPD, which is based on incremental innovation orientation, theoretically, conceives innovation generations (learning that are acquired) along the concept lead-time, and some modifications are made within the original concept of the product. While the other one conceives innovation generations (as new learning acquired) along the concept lead-time and implements a new product, which is away from the original concept (Cheng & Van de Ven, 1996).

### The Mediating Role of Market Orientations

Mediation is defined as a situation when the predictor (innovation orientations), first, has a significant influence on the mediator (market orientations); second, the mediator has a significant influence on the criterion variable (NPD), and finally, the predictor has a significant influence on the criterion variable in the absence of the mediator (Barron & Kenny, 1986). Such an investigation is justified on the ground that the conceptualization of both innovation orientations and market orientations is embedded within the contextual of strategic management orientations. This assertion is synthesized based on recent studies, which indicated that radical and incremental orientations are reflections of the concurrent applications of market orientations, namely responsive and proactive (Narver et al. 2004; Elite & Subramaniam, 2004). Narver et al. (2004) postulate that 'a market orientation, whether responsive or proactive, should be the foundation for a business's innovation efforts'. This conceptualization implies that a new product attains and sustains supremacy in a given marketplace only by superior learning and meeting customer needs. In a similar conjecture, identification and capitalization of emerging markets and business opportunities relate to managerial adaptability of 'know-how', which in turn relates to a change of organizational strategic postures (Chakravarthy, 1997), as in this case, NPD is contingent to this manner. Hence, the following hypotheses are forwarded:

**H2a:** There is a significant relationship between innovation orientations and market orientations

**H2b:** There is a significant relationship between market orientations and NPD

**H2c:** Market orientations mediates the relationships between innovations and NPD

## METHODS

### Measures, Reliability, and Validity of the Constructs

In this study, exiting measures of research instrument adopted from Mifli et.al (2017) on the seven stages of concept development was used. As for the innovation orientations and market orientations constructs, existing validated research instruments were adopted. Salavou and Lioukas's (2003) bi-polar semantic differential measurement scales were adopted for innovation orientations where minimal adjustments were made in this study. This type of research instrument scale was deemed appropriated and had been previously used to measure product innovation orientations (Abernathy & Clark, 1985), where the characteristics of both incremental and radical orientation were paired side-by-side using a 7-point scale. Finally, the measurement scales of market orientations developed by Narver et al. (2004) encapsulating both proactive (MOPRO) and responsive (MORTN) dimensions were also adopted, using a 5-point Likert scales. These measures deemed highly appropriated in view of the relationships between market orientation and product innovation being strategically operationalized internally either based on current market demand (responsive) or an exploration of future customers' needs (proactive) (Narver et al. 2004; Drucker, 1954; McGee & Spiro, 1988).

The research instrument was then piloted through interviewer-completed survey, adopting a judgment sampling technique that was deemed appropriated for this pilot study to obtain information from the 'expert' personnel that included restaurant operators and chefs cum owners (Sekaran, 2000). The piloted data then underwent purification, particularly to the newly developed questionnaires using Statistical Package for Social Science (SPSS Ver. 19), to enhance and determine its reliability and factorial structures (Hair et al. 2010). Purification of each of the multi-item scales measuring variables was factor-analyzed in order to assess their factorial validity, which is also a form of construct validity (Allen & Yen, 1979). Finally, all the variables that were successfully purified through EFA were retained and used in the subsequent statistical analysis. In this final stage, seven items of the nine original versions of Salavou and Lioukas' (2003) by-polar semantic differential 7-point scales were retained to represent innovation orientations construct. As for the higher order latent construct of market orientations, which was adopted from Narver et. al (2004), four of the seven items of MORTN and two of the four MOPRO items were retained to represent the characteristics of responsive and proactive respectively using a five-point Likert scales ranging from 'strongly agreed' to 'strongly disagreed'. As for the higher order latent construct of concept development that were developed in this study, a 5-point Likert scales were used ranging from 'very often' to 'never' for the latent variables of idea generation and pre-marketing, and 'very important' to 'not at all important' and 'strongly agree' to 'strongly disagree' for business analysis and product testing and design respectively.

Finally, the demographic variables of the subjects, such as gender, age groups and education levels, and business information, such as business tenure, and restaurant types were also measured.

**ANALYSIS AND RESULTS**

Smart-PLS was used to assess the hierarchical model of concept development in order to estimate the parameters in the outer and inner structural theories. The application of nonparametric boot-strapping (Chin, 1988; Tenenhaus et al. 2005; Wetzels et al. 2009) was then applied with 5000 replications (Hair et al. 2014) to obtain the  $\tau$  value and standard errors (*se*). As explained earlier, the HOC of concept development was estimated through repeated indicators (or manifest variables) method as advocated by Lohmoller (1989).

**Measurement of reflective outer models**

In assessing the structural outer model, all the structural links among constructs were drawn and path weighting scheme was set in the PLS algorithm settings (Chin, 2010). The preliminary evaluation of the reflective outer models is shown in Table 1. Subsequently, the structural outer model was reassessed of its goodness of measures. Loadings and cross loadings of the respective outer models were compared and all the items measuring each of the respective constructs and latent variables loaded highly and loaded lower on the opposite thus confirming construct validity. Additionally, the structural outer model was also assessed of its convergent validity and discriminant validity. The results, presented in Table 2, indicate the measures of the constructs/latent variables were theoretically related where most items loading values were higher than the cut-off value of 0.7 (Hulland, 1999; Hair et al. 2012) and significant at  $p < 0.01$ .

**Table 1: Results of Preliminary Evaluation of the Reflective Outer Models**

Constructs/ Latent Variables	Original Items	Label Items	Loadings	Deleted Items
<i>Innovation orientations</i>	Less new product	1-7 More new products	IO1 0.591	
	There is a strong emphasis on marketing of true and tried menu products	1-7 There exists a very strong emphasis on the development of new and innovative products	IO2 0.029	Deleted
	Owing to the nature of the environment (saturated), it is best to explore gradually via cautious, incremental behavior	1-7 Owing to the nature of the environment (saturated), wide-ranging acts are necessary to achieve the restaurant's objective	IO3 0.050	Deleted
	Typically, we adopt a cautious, wait & see posture in order to minimize the probability of making costly decision	1-7 Typically, we adopt a bold, aggressive posture in order to maximize the probability of exploiting potential opportunities	IO4 0.741	
	Changes in menu products have been mostly of minor nature	1-7 Changes in menu products have usually been radical	IO5 0.385	
	We are very seldom the first business to introduce new products	1-7 Very often we are the first business to introduce new products	IO6 0.812	
	We typically seek to avoid competitive clashes, preferring a 'live-&-let live' posture	1-7 We typically adopt a very competitive, undo-the-competitors' posture	IO7 0.884	
<i>Proactive</i>	Continually rediscover customer additional needs that are unaware		PO1 0.998	
	Constantly innovate new menu even at the risk of making current menu obsolete		PO2 0.156	Deleted
	<i>Responsive</i>	Strategy for competitive advantage is based on understanding customer need	RO1 0.827	
		Customer satisfaction is measured frequently	RO2 0.906	
	Customer satisfaction is measured systematically	RO3 0.724		
	Evaluate customer taste or experience of our products and services	RO4 0.764		
<i>Idea generations</i>	Culinary magazines		IDE1 0.959	
	Cooking books		IDE2 0.951	
	Meeting to discuss market trends		BA1 0.754	
<i>Business analysis</i>	Pre-testing in selected market		BA2 0.530	
	Value perception		BA3 0.767	
<i>Testing &amp; Design</i>	To convert the concept into operational entity, testing and design is required		TES1 0.905	
	Testing and design are performed by in-house specialist team		TES2 0.871	
	By introducing new product, design of new production process is required		TES3 0.820	

<i>Pre-marketing</i>	Regular customer				TES4	0.702	
	Customer survey				PRE1	0.060	Deleted
	In-house panel				PRE2	0.653	
	Market survey				PRE3	0.893	
Constructs	Measurement Items	Loadings	SE <sup>1</sup>	t <sup>1</sup>	CR	AVE	
<b>Innovation Orientation</b>	INO1	0.679	0.254	2.674	0.882	0.604	
	INO4	0.780	0.243	3.203			
	INO5	0.597	0.178	3.349			
	INO6	0.890	0.226	3.946			
<b>Proactive</b>	INO7	0.895	0.368	2.433			
	PRO1	1.000	n/a	n/a	1.000	1.000	
<b>Responsive</b>	RES1	0.828	0.054	15.227	0.882	0.653	
	RES2	0.905	0.044	20.684			
	RES3	0.720	0.104	6.938			

Items labeled IO2, IO3, PO2 and PRE1 were deleted in accordance to Hair's et al. (2010) threshold value for loadings at 0.50 as significant.

In addition, the Average Variance Extracted (AVEs) and Composite Reliability (CRs) values for all the constructs and latent variables of concept development were also found to exceed the threshold values of 0.5 and 0.7 respectively (Bagozzi & Yi, 1988; Hair et al. 2010) thus confirming strong evidence of convergent validity. Comparison between the AVE values and the squared correlations among constructs/latent variables was also used to measure the constructs discriminant validity and found each of the constructs was highly related to its own measures than with others (See Table 3). With these results, the structural outer models, therefore, can be validly and reliably confirmed of its theoretical relationships.

**Assessment of the Second-Order Constructs**

The second-order construct for both concept development and market orientations were measured by modeling each of the latent variables' coefficients to the second-order construct (Chin, 2010). Accordingly, these latent variables, representing 11 (2x3x4x2) and 5 (1x4) indicators (manifest variables) of both constructs that were pulled together as the reflective measure in Smart-PLS for statistical model and the results were shown in Table 4.

**Table 2: Psychometric Properties of the Outer Models**

<sup>1</sup> A nonparametric bootstrapping (Chin, 1988; Tenenhaus et al. 2005; Wetzels et al. 2009) applying with 5000 replications (Hair et al. 2014) was performed to obtain the empirical t-statistic (t) and standard errors (se) values.

<b>Idea Generation</b>	RES4	0.767	0.100	7.697		
	IDE1	0.959	0.066	14.592	0.954	0.912
	IDE2	0.951	0.070	13.561		
<b>Business Analysis</b>	BA1	0.798	0.097	8.266	0.783	0.551
	BA2	0.589	0.133	4.419		
	BA3	0.818	0.096	8.544		
<b>Testing &amp; Designs</b>	TEST1	0.903	0.204	4.431	0.879	0.650
	TEST2	0.867	0.129	6.736		
	TEST3	0.819	0.205	4.003		
	TEST4	0.599	0.131	4.581		
<b>Pre-Marketing</b>	PRE2	0.675	0.186	3.636	0.758	0.615
	PRE3	0.880	0.224	3.933		

All item's loadings were significant at  $p < 0.01$

**Table 3: Inter-correlations of the Latent Variables for the First-Order Constructs**

	1	2	3	4	5	6	7
<b>1. Business Analysis</b>	<b>0.551</b>						
<b>2. Idea Generation</b>	0.108	<b>0.912</b>					
<b>3. Innovation Orientations</b>	0.393	0.244	<b>0.604</b>				
<b>4. Pre-Marketing</b>	0.000	0.126	0.007	<b>0.615</b>			
<b>5. Proactive</b>	0.058	0.020	0.000	0.007	<b>1.00</b>		
<b>6. Responsive</b>	0.034	0.062	0.226	0.017	0.011	<b>0.653</b>	
<b>7. Testing &amp; Designs</b>	0.022	0.299	0.001	0.193	0.002	0.001	<b>0.650</b>

Diagonals (in **bold**) represent the average variance extracted (AVE) while the other entries represent the squared correlations

**Table 4: Higher-order Constructs and Its Association with First-Order Latent Variables**

Relationships	Mean ( <i>M</i> )	Standard Error ( <i>SE</i> )	Path Coefficient ( <i>β</i> )	Explained Variance ( <i>R</i> <sup>2</sup> )	Statistic ( <i>t</i> )	No. of Items
<b>Concept Development -&gt; Business Analysis</b>	0.885	0.034	0.883	0.784	25.753	3
<b>Concept Development -&gt; Idea Generation</b>	0.767	0.079	0.757	0.573	9.604	2
<b>Concept Development -&gt; Pre-Marketing</b>	0.646	0.162	0.668	0.446	4.111	2
<b>Concept Development -&gt; Testing &amp; Designs</b>	0.802	0.064	0.799	0.639	12.416	4
<b>Market Orientations -&gt; Proactive</b>	0.920	0.033	0.924	0.853	28.257	1
<b>Market Orientations -&gt; Responsive</b>	0.984	0.006	0.984	0.968	176.506	4

All path coefficients were significant at  $p < 0.01$

#### Testing the Linear Structural Theory

First, to appropriately measure the structural theory, the predictive power of the linear structural model was carried out by linking the latent variable of innovation orientations and concept development. The results of the PLS algorithm analysis, a statistical measurement tool that emphasis predictive accuracy of explained variance (Hair et al. 2014), indicated that an *R* square value at 0.222 was obtained. Hence, categorically, in term of its predictive accuracy, it was found to be weak based on Hair et al. (2014) assessment of *R*<sup>2</sup> values of 0.20 (weak), 0.50 (moderate) and 0.75 (substantial) as only 22.2 % explained variance yielded. A negative standardized coefficient value at - 0.471 was obtained at 99% significance level ( $B = -0.471, \tau=2.774, se= 0.170, p$

<0.01). Hence, **H1** was not supported based on the finding in this study as radical product orientation found to play a key role in shaping new menu innovation.

**Testing the Mediating Effect**

A mediation analysis was performed to establish, if indeed, market orientation mediates the relationships between innovation orientations and concept development. With the inclusion of the mediator in the structural theory, the value of the  $R^2$  increased to 0.629, indicating the predictive accuracy of the structural theory increased to a moderate level from a weak model found previously. The results of this mediation analysis are shown in Table 5. With these results, it can be concluded that **H2a** and **H2b** found an evidence of support at 95 percent significant level.

**Table 5: Results of Path Coefficients, Standard Errors and  $\tau$  – Statistics of the Structural Model**

Paths in Research Model	( $\beta$ )	(se)	$\tau$ - statistics	$\rho$ value
Innovation orientations → Market orientations (a)	-0.365	0.230	1.660	0.050**
Market orientations → Concept development (b)	0.718	0.116	6.161	0.000*
Innovation orientations → Concept development (c)	-0.216	0.129	1.666	0.050**

\*Significant at  $\rho < 0.01$ ; \*\*significant at  $\rho < 0.05$  based on a single tailed test

Note: A nonparametric bootstrapping applying 5000 replications as recommended by Hair et al. (2014) was performed to obtain the  $t$  statistic values of path coefficient and standard errors (se).

Based on these results, the value of the variance accounted for ( $VAF$ ) was calculated using the following formula  $VAF = \frac{a \times b}{a \times b + c}$  to determine the estimate size of the indirect effect absorbed on path c that was reduced to  $\beta = -0.216$  from  $\beta = -0.471$  in previous linear structural relationships (Aker et al. 2011). A negative value of  $VAF$  at  $-0.477$  was obtained, indicating a partial mediation (Hair et al. 2014). Therefore, **H2c** can be confirmed that there is a support of partial mediation of market orientations (responsive) between innovation orientations and concept development.

$$VAF = \frac{a \times b}{a \times b + c} = \frac{-0.365 \times 0.716}{-0.365 \times 0.716 + (-0.216)} = -0.477$$

Following this result, the  $f^2$  effect size was undertaken to determine the effect size of the mediator variable by removing each one of the latent variables of the mediator variable alternately from the structural equation. Effect size  $f^2$  is defined where  $R^2_{included}$  model and  $R^2_{excluded}$  model are the  $R$  squares provided on the endogenous (dependent) latent variable when the predictor latent variable is used or omitted in the structural equation respectively (Chin, 2010). Reporting effect size  $f^2$  has been long advocated in research literature as indispensable when presenting empirical research findings since it facilitates the interpretation of substantive, as opposed to the statistical, significance of the research result (Cohen, 1988). Hence, the change in  $R^2$  value was used to estimate the effects of the two latent variables represented market orientation by accounting for the relationship between the exogenous variables and endogenous variables based on Cohen’s (1988) assessment of  $f^2$  effect size of 0.02 (small), 0.15 (medium) and 0.35 (large). The formula is presented below along with the results of the calculations. The results of the calculations indicated that the  $f^2$  effect sizes for responsive market orientation was found to be medium, while proactive market orientation found to be no effect size.

$$f^2_{Responsive\ market\ orientation\_Concept\ development} = \frac{R^2_i - R^2_e}{1 - R^2_i} = \frac{0.674 - 0.634}{1 - 0.674} = 0.123$$

$$f^2_{Proactive\ market\ orientation\_Concept\ development} = \frac{R^2_i - R^2_e}{1 - R^2_i} = \frac{0.674 - 0.684}{1 - 0.674} = -0.031$$

Predictive relevance  $Q^2$  was also performed to ascertain the predictive relevance of the mediating effect between the relationship of innovation orientations and concept development. Stone-Geisser’s  $Q^2$  refers to predictive sample reuse technique developed by Stone (1974) and Geisser (1975), using blindfolding procedures (Tenenhaus et al. 2005) to obtain the cross-validated redundancy (CV-Red) and cross-validated Communality (CV-Com), which is readily available in SmartPLS. Stone-Geisser’s  $Q^2$  widely used to provide a prediction of the endogenous latent variable’s indicators in a structural model, represents a synthesis of function fitting and cross validation, which fits the PLS-SEM path modeling approach ‘like hand in glove’ (Wold, 1982).

Following the blindfolding procedure set in SmartPLS, an omission distance was specified in accordance to guideline of which should not be the division of the number of observation used in the model estimation and the distance must be an integer (Hair et al. 2014). Hence, with 71 observations obtained in this study, an omission distance of  $D = 5$  was chosen, and the endogenous construct of concept development was specified to be analyzed in blindfolding. Based on the blindfolding algorithm analysis performed in SmartPLS, the predictive relevance  $Q^2$  of innovation orientations, as a direct exogenous variable, and the mediator, as an indirect exogenous variable, on concept development obtained a value of 0.244, which was above zero, thus providing support of predictive relevance in regard to the respective path models. In order to ascertain the effect size of the path models,  $q^2$  effect size was also assessed. The base formula for the calculation is similar to  $f^2$  deployed earlier, where, instead of the  $R^2$  values, the CV-Red  $Q^2$  values of the predictive relevance were used as inputs. The summary of the results based on the computations are shown in Table 6.

**Table 6: Results of the  $q^2$  Effect Size**

Paths in Research Model	$\beta$	$Q^2_{included}$	$Q^2_{excluded}$	$q^2$	Effect <sup>+</sup> Size
Innovation orientations → Concept development	-0.216	0.244	0.229	0.020	Small
Market orientations → Concept development	0.718	0.244	0.072	0.228	Medium

<sup>+</sup>In accordance to Cohen's (1988)  $f^2$  effect size assessments of 0.02(small), 0.15(medium) and 0.35(large)

## DISCUSSION AND CONCLUSION

Despite the importance of innovation orientations in shaping new product development (NPD), study in this connection receives little attention in hospitality industry (Jones & Wan, 1992). Generally, one of the key essences to the development of new products is to ensure of its sustainability in the marketplace. Yet, in the foodservice industry, 'me-too' products, which is a 'copy-cat' act of existing popular products within the marketplace, is often too rampant in this industry (Jones & Wan, 1992). In theory, this scenario can make the market highly competitive and if new products novelty is not enforced, inevitably, the given market will reach to its saturation point. A point that could see a trade of similar product concepts offered in that market which in due course will lead to a depletion of market shares gain.

The notion of innovating new products based on market orientations either through customer based (responsive) or product based (proactive) is well supported theoretically (Narver et al. 2004; Ettlé & Subramaniam, 2004; Kohli & Jaworski, 1990, 1993; Narver & Slater, 1990). New products that are developed based on proactive orientation are known to be radically oriented as opposed to responsive orientation that inclined to the incremental orientations. With these theoretical evidences, hypothesis **H2c** was forwarded to determine the size of the mediation effects that absorbed the direct relationship between innovation orientations and concept development.

The initial path coefficient of the direct c relationships was found significant at 99% significance level ( $B = -0.471$ ,  $t = 2.774$ ,  $se = 0.170$ ,  $p < 0.01$ ). Nevertheless, with the inclusion of the mediator variable, the path coefficient of the indirect c<sub>i</sub> relationships found to be diminished to -0.216 but still found significant at 90 percent significance level. Evidently, this suggests that the radical innovation orientation that played a key role in shaping new menu innovation previously is no longer dominantly practiced as responsive market orientations gained momentum in shaping the new menu development ( $B = 0.718$ ;  $t = 6.161$ ;  $p < 0.01$ ;  $f^2 = 0.123$ ;  $q^2 = 0.228$ ). A confirmation of the both  $f^2$  effect size and predictive relevance of  $q^2$  values at 0.123 and 0.228 respectively found to be at a medium level further support of less radical NPD involved. The value of the *VAF* at -0.477 confirmed that there was a partial mediation of responsive market orientations, thus supported **H2c**, as the indirect effect of c<sub>i</sub> was still found significant at 90 percent significance level.

Innovation orientation, either radically or incrementally driven, is known to have strong correlation to product innovation process. Previous findings have all come to conclusion that most NPD are incrementally driven (Booz et al. 1983; Abernathy & Clark, 1985, Jones & Wan, 1992; Mifli, 2004). On the other hand, radical product development, which is commonly associated with transforming new knowledge to the development process, is rarely implemented (Booz et al. 1983; Jones & Wan, 1992). However, other researchers argue that relying on incremental product development, which is also referred to those products being developed based on responsive market orientation, is less competitive advantage since consumers' product preferences and acceptances are constantly changing and hence, proactive market orientation, which is synonymous to radical orientations of product innovation, is called upon (Narver et al. 2004). A recent study on entrepreneurship by Salavou and Lioukas (2003) indicated a significant evidence of risk taking undertaken by managers in their decision-making process. This finding suggests that, while most new products are incrementally produced, the engagement of riskiness in NPD appeared to support radical product orientation.

In this study, the finding of the linear structural theory indicated a negative coefficient path value of 0.471 with a  $t$  value at 2.774 and significant at  $P < 0.01$ , thus confirmed a support of radical product orientation. However, in reality, most business landscapes, if not all, are surrounded by different elements of external forces that may or may not be taken into consideration in decision making process (Enz, 2009). Hence, when a mediator variable of market orientation included in the structural theory, the declined of the c<sub>i</sub>  $B$  value to -0.216 suggests that the engagement of the new menu development has a significant correlation to responsive market orientation at  $p < 0.01$ . Simply put the apparent practices of discovering and understanding the expressed needs of the customers is concurrently applied along with minimal learning of new product concepts, and thus existing menu concept remains in-forced.

In the mid-1980s (Feltenstein, 1986), viable model of product innovation process in the foodservice industry was first introduced, and after almost a decade, resurfaced in hospitality literature in the mid-1990s (Mooney, 1994; Jones, 1996). These early models of menu innovation process were engaged through a stage-approach strategy similar to what was advocated in manufacturing and engineering industries (e.g. Booz et al. 1963, 1983; Kotler & Armstrong, 1991; Graf & Saguy, 1991; Urban & Hauser, 1993; MacFie, 1994; Fuller, 1994). Recent studies across different sectors in the restaurant industry appeared to further confirm the adoption of this stage-approach strategy in shaping new menu innovation process, but the number of stages and approaches at each stage along the process remains advocated differently (Mifli 2004; Ottenbacher & Harrington, 2007, 2008).



This study, therefore, has extended the existing theory of product innovation process in the foodservice industry by linking innovation orientations along with market orientations, as a mediator. Unlike in previous studies (Jones, 1996; Mifli, 2004; Ottenbacher & Harrington, 2007, 2008) that used qualitative methods to frame the stages of product innovation process, this study has successfully structured concept development, the first-stage of NPD process, as a second-order hierarchical construct, showing all four dimensions significantly associated to concept development. Empirically, the structural theory proposed in this study has successfully illustrated parsimony evidence by developing a higher-order reflective model of concept development using existing models in the literature. In line with the strength of PLS in explaining complex relationships (Hair et al. 2014; Chin, 2010), the use of PLS-SEM path modeling in this case has made it possible to advance the theoretical contribution of this study. As readily available in SmartPLS, estimating the higher-order latent constructs with the use of repeated indicators methods (as manifest variables) both measurement models and the structural model of this study confirm adequate results.

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