

# Threats to New Product Innovativeness and the Effects of Supplier Influence Processes

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## Abstract

Innovation can be best described as the adoption of an idea or behaviour pertaining to a product, service, device, system, policy or programme that is new to an organization. Many companies nowadays develop and pursue innovative new products as a strategic move to gain competitive share in the market, and many do so by launching new products before competitors moving in. However, to produce innovation effectively, they need support from various operating sections and one of the main sections comes from suppliers. Because managers are always confronted with competitive pressures from newly developed products by rivals, collaborative efforts with experienced suppliers can help companies develop new products more efficiently, especially to cut costs and reduce time to develop new product. Innovative new products from major players in the industry can also have a potential detrimental impact on profitability. To deal with this situation, the authors will discuss how the role of supplier influence can minimize this problem. A model and several propositions are introduced to illustrate potential effects between relevant research variables. First, the relationships between all independent variables (threats to innovation and supplier influence) and new product innovativeness were examined. Second, the study assesses whether greater supplier influence would positively moderate the domain relationships. The study advocates that supplier influence is an issue of paramount importance for practitioners in most industries and is an essential element in the marketing mix that impacts directly on revenue. This study contributes to both theoretical and practical perspectives.

**Keywords:** New Product Innovation, supplier influence, threats, price sensitivity, time constraints, complexity, decision making

## 1. Introduction

What is New Product Innovation (NPI)? Perhaps, many organizations will define it as an opportunity for growth and development in business or an additional profit for a company. In a common business setting, managers are always confronted with competitive threats pressure from newly developed products by major rivals (Adams & Boike, 2004). This gives them pressure to come out with innovative new products to compete. Many companies would generally prefer to minimize their risk by investing in R&D when it comes to dealing with new product development. Alternatively, getting suppliers involved is one of the key factors in determining the success of the NPD. However, an open question remains; what will be the consequences or important factors when it comes in dealing with suppliers? Later part of this introduction will develop further in what are the problems and the gap of this study.

A number of academic researchers have defined NPI as a critical matter to maintain firm competitiveness among rivals (Leifer et al., 2001; Cooper, 2000; Schumpeter, 1934). While, Peter Drucker (1985), the father of innovation management, specified that NPI will help entrepreneurs as it provides an opportunity to serve and take advantage of trade—innovation as a key learning principle and would lead to proficient operating organizations. There are several reasons why the pursuit to developing innovative new products is necessary. First and foremost, launching new products ahead of competitors will help to increase a company's market share or segments in their market. Day (1994) & Srivastava et al. (2001) described that firms will get benefits from a market-oriented product innovation process and create customer value through new products. An Internet source from Wikipedia (2013) further described that with new product development, it not only helps to maintain the share but to grow their market share in a competitive settings. Another example will be Cola war. In 2006, Indra

Nooyi, PepsiCo's CEO stated that "And we have to modify our products" and seeks to refocus Pepsi in order to gain their market share in Cola soft drinks (<http://www.investimentu.com>). Utterback (1994) further described that product innovation is generally higher in early stages while the process innovation grows in importance in later stages. More precisely, as stated by Kuester et al. (1999, p. 90) "Threatening moves, such as new product introductions have a potentially negative impact on profitability of other players in the industry. . .", and from this they conclude that ". . . counter moves must be expected." Finding appropriate reactions to such threats is necessary to defend the market shares and to sustain profits while further determining the success of newly developed products.

This paper focuses on new product innovation. Camisón Zornoza et al. (2004) described the term innovation as capturing the newness of an idea and attempts to improve organizational performance. A further statement described by Damanpour and Gopalakrishnan (2001, p. 47) defined innovation as "*the adoption of an idea or behavior pertaining to a product, service, device, system, policy or programme that is new to the adopting organization*". There has been little work to understand new product innovation, especially in transition economies (Kuester et al., 1999; Song & Di Benedetto, 2008). In view of the knowledge gap, the authors narrow down the research and select Malaysia to examine how threat to innovation and supplier influence may affect new product innovation. Specifically, a theoretical framework is introduced to assess the supplier influence as the moderator towards the effects of price sensitivity, time constraints, info exploratory, and complexity in decision making, on product innovativeness.

This study has two main objectives. First, to introduce several propositions to assess whether the relationships between all independence variables have an impact on new product innovation. Second, to examine the moderating role of team empowerment process (i.e., supplier influence) on the relationship between the independence variables and new product innovativeness. This paper is conceptual or exploratory in nature and aims to provide a guideline for future empirical research hence enable entrepreneurs to have an in-depth understanding of supplier influence towards new product innovation. We hope to reduce the knowledge gap by explicitly taking supplier influence into account.

## 2. Literature Review

Product innovation can be best described as a process of organizational learning and knowing that guide the learning organization. With the effectiveness and efficiency of the knowledge, it will then enhance the innovation to be good products. Researchers like Wright and Clark (1992) believe that participating in a role in the new product project will transform the organization in many ways such as uncertainty in customer demand, technological advances or adaptation gain competitive turbulence. On the contrary, Clark and Fujimoto (1991), claimed that NPD involves greater difficulties in coordination, in the evaluation of design trade-offs and in the simplification of design steps. Subsequently, critical product design specifications may push the limits of manufacturing process capabilities. As quoted by King and Penleskey (1992), a new product development may even create a negative impact on project development time if suppliers delay their activities or reluctant to be more corporate with the in house NPD team. Therefore, it leads more chances for failures. Pisano (1992) claimed that poor NPI will cause many fatal results and eventually cost millions of dollars in rebuilding the tools, wastage of labour and many others.

There are some advantages and disadvantages of having suppliers involving in creating a new product per say. For instance, McGinnis and Vallopra (1999) found that purchasing managers believe supplier involvement resulted in better perceived quality of new products, in addition to improvements in time and reduction in costs. While, Swink (1999) believes that better product manufacturability will lead to better outcomes such as faster development time, lower production unit costs, and better reliability and overall product quality. On the contrary, Hartley et al. (1997) found that, despite positive buyers' perceptions about supplier contributions to product development, supplier involvement had little practical influence on overall project technical success. Timing is another main stream that takes into account the dynamic nature of R&D projects, which provides further insights of the resulting strategic effects while focuses on the adoption of new technology, technological competition, and the optimal timing (Hoppe & Lehmann-Grube, 2005; Doraszelski, 2003; Reinganum, 1989). Although there are some significant studies on the threats to new product innovation, there has been little focus to develop such model. This gives us the opportunity to come out with the proposed framework to illustrate the effect on suppliers influence.

Table 1. Key empirical research in threats in product innovation: a summary

Author(s)	Data and Sample	Variables and Measures	Methodolog(ies)	Major Findings
Marcos A.M. Primo & Susan D. Amundson (2002)	38 NPD projects in five companies in the electronics industry	DV: model depicts the linkages between supplier relationship variables IV: three NPD outcomes in our model: project development time; project costs, and product quality, represented by an index composed by the eight product quality dimensions	Bivariate correlations and regression analysis	43.7% of the observed variance in supplier involvement. Increases variance in supplier involvement will have addition of technical difficulty and is highly significant. Thus, in projects requiring new technological capabilities, the importance of supplier quality control is a predictor of supplier involvement is diminished.
Morgan Swink (1999)	A survey of 91 completed NPD projects representing a variety of manufacturing industries.	DV: Product cost goal achievement, Product quality goal achievement, Many product design changes IV: Peak full time workers, Number of technical specialties, Percent new designs, Influence of suppliers	Regression analyses	Using factor scores achieves the same objective as mean-centering the raw scores, thus reducing the potential effects of multicollinearity. disadvantage to using factor scores is an increase in error due to off-factor loadings
Pilar Carbonell and Ana Isabel Rodriguez (2006)	1650 Spanish manufacturing Firms from July and August of 2003. total of 178 complete questionnaires	DV: new product's performance IV: firm size, firm's NPD resources, project newness and development costs	Seven-point multi-item scales; confirmatory factor analysis using AMOS	In comparing early (first quartile) and late (fourth quartile) respondents, no significant differences emerged in the mean responses on any of the constructs. Together these results suggest that industry bias and non response bias were not a major problem.
Michael Song & C. Anthony Di Benedetto (2008)	173 radical innovation project	DV: Supplier involvement IV: new venture commitment, new venture relative power & qualification of supplier abilities	Hierarchical regression analysis	Found a direct relationship between achieved level of involvement and performance. Also to better understand supplier involvement in radical innovation development by new ventures

### 3. Research Framework

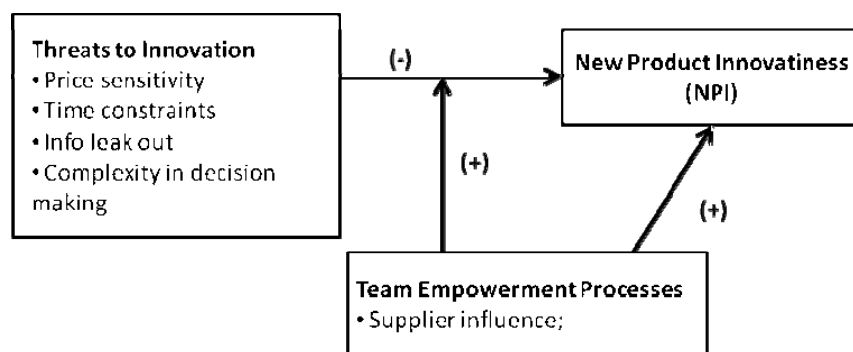


Figure 1. Model

The present study is considered to be exploratory. Figure 1 shows how the supplier influence plays an important role as the moderator between the independent variables and the dependable variable. Swink (1999) proposed a similar model and based on his research, NPD team integration involving suppliers and the cross functional integration in NPD process is important. Below is the definition for each variable.

*Price sensitivity.* Dodds and Monroe (1985) claim that pricing will affect people's predisposition to buy: the

higher the prices, the greater the perceived quality and therefore the higher the willingness to purchase, but also the higher the sacrifices and the lesser the preparedness to buy.

*Time constraints.* According to Nijssen et al. (1995) research, many studies show that under conditions of high market growth, limited product life cycle, and high price erosion, the introduction of a new product (six months late) will have a negative effect on cumulative profit of 17% to 35% over a 5 year period.

*Info leak out.* If the relationship within suppliers is not solid, information may be gathered by competitors, thus, may allow competitors to enter the market early.

*Complexity in decision making.* New unique designs are envisioned for a product, more design alternatives become available, more production uncertainties exist, and more product process fit issues must be addressed (Swink, 1999).

*Supplier influence.* Swinks (1998) claim that supplier involvement will enhance better integration between the internal and external communication barrier, hence likely leads to greater effectiveness in NPD process.

*Product innovativeness.* McCann and Galbraith (1981) described high product newness and technological uncertainty may create high degrees of equivocality on project teams.

### 3.1 The Direct Effects of Threat to Innovation

According to Decrop and Snelders (2004), some experts indicated that individual choice of decisions and focus on the estimation is one of the most prominent variables, which is related to price. Consumers will not wash their clothes more often just because the new detergent comes into the market. Therefore, when it comes to the selection of new products, it is important to know the company's direction from the activities involved and the prices compared with competitors before launching a product. Therefore, when price sensitivity is high, customers are likely to tolerate when price goes up. Alternately, when price sensitivity is low, lenders can afford to price for large gains in margin and grow overall profitability (<http://www.businessdictionary.com>). Bojanic (1996) argued that prices and quality are the two fundamental elements to form unique strategies to gain a competitive edge, therefore, researchers like Cooper et al. (2008) said that pricing decision are the toughest decisions to make in the marketing mix. Many managers are tagging their new products into premium price so that could lead to a higher profit than other competitors. Although researchers like Green (1992) stated that some customers willing to pay at a higher price but that doesn't mean that all willingness to do so. In this regards, manufacturers or sellers need to convince customers that higher prices are worth the financial sacrifices they will now incur. Therefore:

#### P1. Price sensitivity is associated with weaker NPI.

According to Bowen, Rostami & Steel (2010), some experts claimed that we need to understand whether past performance is a key driver of firms' innovative activity, and whether innovation today spurs superior future performance. The main concern is what will be happened if the takeoff time for a new product takes longer period than any other competitors' product? From past experience, numerous technologies has required more than a decade to takeoff while research done by Lehmann (1994) and Tellis (1994) mentioned that these new products span many years before they are succeeded in the market. Although, some may claim that recent years human lifestyles have changed due to the different life cycle. Question is, will a company take risk in R&D and develop a product that might harm their company? On the contrary, Gupta & Wilemon (1990) indicated that reducing production cost will eventually result in poorer design, product malfunction and less liability, thus, spend more money and time. Therefore:

#### P2. Time constraints in NPD are associated with weaker NPI.

For decades, many buying companies rely on suppliers to feed them information on NPD, however, what if there is no faith or trust in the relationship? A research work done by Jones et al. (1997), failure to discharge obligations will result in affecting the substantive network as well as reputation. At such, faithfulness in trust will not be gained and information will be led to other competitors who are dealing with the same products as the buying firms, hence, will result in poorer relationship between the buying firm and the supplier. Furthermore, competitors are easily access to the insider information about the uniqueness of the buying firm's NPD. Thus:

#### P3. Info leak out in NPD is associated with weaker NPI.

According to many researchers, some of the NPD will eventually failed due to the lack of support from the top management. Droge et al. (2008) said it is a turbulence environment where process is dramatically changed due to different opinion. In this circumstance, team members in NPD will feel confused and intensely anxious because they have no clear direction and no idea about what to proceed next (Akgun et al., 2006). A research

done by Lynn and Akgun (2001), claimed that new product goal set earlier may most likely experience several changes and corrections along the process. Therefore, with the attitude of the uncertainty change will lead to demotivate the team to move faster and eventually has little impact on innovation speed. Based on this discussion we propose that:

*P4. Complexity in decision making in NPD is associated with weaker NPI.*

*P5. Supplier influence in NPD is associated with stronger NPI.*

### *3.2 The Moderating Effects of Supplier Influence*

According to a research done by Clark (1989), a company will be benefited in term of time on getting the project in time which involved supplier while McGinnis and Vallopra (1998), added that, not only speed up the new product process but will better product quality and lower project costs. Both have shown the significant greater extent in the new product process. In light of this, Kessler (200) also found out that with the external ideas such as from supplier, it will reduce many unnecessary costs and time. This statement is also supported by Clark (1989) where he analyzed the NPD project in the automotive industry which had shown a significant effect on reducing time and cost. With respect to developing new products, Womack et al. (1990) also pointed out that suppliers are an important role in NPD, particularly in manufacturing firms where suppliers are not only giving ideas such as new product design to company but also helping in controlling cost and reducing time in processing. Although there are some previous researchers indicated that supplier influence may have some negative impact on NPD, Birou and Fawcett (1994) said all these are manageable if buyer and supplier relationship are built in the same way with appropriate levels of integration and performance. Therefore:

*P6. Greater supplier influence in NPD positively moderates the influence of price sensitivity.*

According to few researchers, supplier influence in an NPD will eventually reduce time, leakage of information, and financial burden to the company. Most of these suppliers have been dealing with past or related products and they are best to give advice or views when it comes to determine a new product price. As Rommel et al. (1995) has described that approximately 50% to 70% of product cost is determined in the development stage; therefore, NPD team will be able to source what will be the best price for the new NPD. In addition, greater supplier influence will lead them to be optimal partner in the company when a long term contract or more heavy duty for them to involve. Once they are in the picture, company will be able to get them as a co-development partner and eventually able to have a much clearer sign on determining on pricing a new product. Moreover, it helps to define sharpen market too. Therefore:

*P7. Greater supplier influence in NPD positively moderates the influence of time constraints.*

According to McGinnis and Vallopra (1999), many managers believed that supplier involvement in the NPD will result in better perceived quality and improvement in time consuming. This statement is also supported by Ragatz et al. (1997) where they analyzed 60 related companies that involved suppliers, which turned out to be positive in terms of time reduction. Swink (1999) had indicated a positive perception towards NPD, indicating that supplier influence will lead to faster development time and thus reduce costs. A study by Bonaccorsi and Lipparini (1994) stated that “timing of supplier involvement is also considered important”. Similarly, McGinnis and Vallopra (1999) quoted “Firms that develop successful new products involve suppliers in the process when they are needed, involve them at the stage of development needed, and involve them only to the extent needed”. Therefore:

*P8. Greater supplier influence in NPD positively moderates the influence of complexity in decision making.*

## **4. Critical Issues and Future Empirical Research (Conceptual/Methodological Concerns)**

### *4.1 Measurement*

A proposed questionnaire was designed in this study to measure the entrepreneurs' perceptions of threats in new product innovations towards suppliers' influence. This questionnaire consists of two parts. First part comprises demographic characteristics of all types of businesses involving in producing new products and the second part consists of suppliers' influence scales. Questionnaire form was designed in English to measure perceived suppliers' influence and new product development more precisely. Measures were derived from existing literature.

### *4.2 Questionnaire*

The survey questions were developed from a series of general companies or organizations and informal interviews with suppliers from all kinds of businesses. A preliminary draft of the questionnaire (see Appendix B) was then pre tested on a small sample for content and face validity.

### 4.3 Data Collection

In order to obtain relevant data for the sample, we propose car wash centre because it provides (i) a large of pool of customer from different categories; (ii) they will have time for survey while waiting their car to be washed; (iii) customers will most likely answer questionnaires; (iv) chances of these customers are likely to be dealing or seeing new products in the market for the past 12 months; (v) convenient sampling as high traffic car wash contain customers from many different background such as sales related, government related and so forth.

Data should be randomly picked during office hours (try to gather white collar employees/employers) and during weekend (survey can be easily collected). Researchers should aim is to get a min of 300 responses for the actual data analysis. Only those who had been dealing or seeing new products in Malaysia in the past 12 months should be eligible to participate while their experiences are still fresh in their mind. To make a contribution to the literature, reserchers can use a convenience sample and customize the task so it would be relevant and meaningful to the target population. Calder et al. (1982) suggested that using a convenience sample is to examine the theoretical relationships rather than revealing population parameters with no intention to generalize all purchasers.

### 4.4 Plan for Data Analysis

In order to assess the data collected, researchers can use the multiple regression analysis to perform the hypotheses. Any correlation analysis must be mutated while the multi coleniality of each pair of hypothesis must be 0.8 or below. Each of the independent variables and dependent variables must be attributed to the supplier influences.

## 5. Discussion

It is important to link between new product innovation and supplier influences for researchers and practitioners in this study because with the result found, it will compile all the evidence for the threats for new product innovations. Furthermore, the relationships between new product innovation and supplier influence are not yet clear, due to the different models used and the different contexts applied (Theodorakis & Alexandris, 2008, p. 166). Finally, the strong relationship between supplier influence and buying companies is the prominent research stream and thus gives NPD an important area for research.

## 6. Limitation and Further Research

Although this study has provided relevant and interesting insight with regard to the effort of supplier influence towards new product innovation, it is important to recognize limitations associated with this study. First, the variables were randomly selected and conceptualized in this study. As a consequence, the model may not be able to represent entrepreneurs' attitude and behavior in general. Secondly, since we suggest convenience sampling method, the findings may not be able to be interpreted as a proof of a causal relationship, moreover generalized to a wider population, rather lending support to the propositions. Thirdly, the time frame given was too short and was not able to collect data for hypothesis testing. Future empirical research should expand on this study by taking samples from different locations in cities with different environment to gain more precise and valuable information.

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## Appendix A

### Conceptual Framework Measurement Constructs

Variables	Sources
Price Sensitivity (Independent Variable)	Price plays in a consumer's evaluation of product alternatives is multidimensional, and they distinguish between the reduction of wealth because of high prices (prices as a constraint), and the information on product quality these high prices convey (Erickson and Johansson, 1985)
Time Constraints (Independent Variable)	Demirag and Tylecote (1992) found that more than 90% of UK finance directors considered that financial markets concentrate mainly on short-term earnings and share price performance.
Info Exploratory (Independent Variable)	Companies can learn from one another to increase their knowledge stock by the relationship learning. In the Chinese context, "guanxi" is as well as relationship, found to be important for business trust in the Chinese social connections (Farh, Tsui, Xin, & Cheng, 1998).
Complexity in Decision Making (Independent Variable)	Complexity is considered a fundamental source of difficulty (Clark and Fujimoto, 1991; Griffin, 1993; Meyer and Utterback, 1995)
Supplier Influence (Moderator Variable)	Suppliers are playing increasingly important roles in NPD as manufacturing firms outsource more new product design and manufacturing activities (Womack et al., 1990; Clark and Fujimoto, 1991; Ragatz et al., 1997)
New Product Innovation (Dependent Variable)	Innovation has long been recognized as critical to maintaining firm competitiveness (Leifer et al., 2001; Cooper, 2000; Schumpeter, 1934).

## Appendix B

### Sample Questionnaire (Measures and Scale)

#### Section 1 (Price Sensitivity)

Think about the PRICE that you are going to pay! For each statement, please circle the number that best describes how much you agree or disagree with each statement. Indicate the degree to which you agree with each statement by using the following scale:

1 = Strongly Disagree; 2 = Disagree; 3 = Somehow disagree; 4 = Neither agree nor disagree; 5 = Somehow agree; 6 = Agree; 7 = Strongly Agree



No.	Items	Strongly Disagree					Strongly agree	
		1	2	3	4	5	6	7
1	If I had enough money, I will go for the best for my new product	1	2	3	4	5	6	7
2	If I am lack of money, I will source for lower grade for my products	1	2	3	4	5	6	7
3	If the price is out of my expectation, I will forget about developing new product	1	2	3	4	5	6	7
4	If company insist of developing new products, where there are similar products in the market, I will advice accordingly, the good and the bad	1	2	3	4	5	6	7
5	If company insist of developing new product, I will follow instruction by following the order	1	2	3	4	5	6	7
6	If price is not high for developing new products, I will go for bulks items	1	2	3	4	5	6	7
7	If price is high for developing new products, I will go for minimal quantity	1	2	3	4	5	6	7

## Section 2 (Time Constraints)

No.	Items	Strongly Disagree					Strongly agree	
		1	2	3	4	5	6	7
1	Time is money, thus need to rush to come out with new product	1	2	3	4	5	6	7
2	If time is limited, OEM will be the best solutions to solve the NPI	1	2	3	4	5	6	7
3	Always rush for launching a new product, in order to capture the market share and faster than other competitors	1	2	3	4	5	6	7
4	Determination and controlling of time are the best solution	1	2	3	4	5	6	7

## Section 3 (Info Exploratory)

No.	Items	Strongly Disagree					Strongly agree	
		1	2	3	4	5	6	7
1	If competitors ask for any information, I will not lead to them a single one	1	2	3	4	5	6	7
2	I will not entertain to any potential 'clients' asking for too details information, however, I will said it is a company policy for private and confidential	1	2	3	4	5	6	7
3	Once I have left the company, I shall be professional and not sharing important information with new company	1	2	3	4	5	6	7
4	Detailed information shall be only share among the top management and not to all employees	1	2	3	4	5	6	7

## Section 4 (Complexity in Decision Making)

No.	Items	Strongly Disagree							Strongly agree
		1	2	3	4	5	6	7	
1	Sometimes it is hard to make decision as too many top guys giving their opinion	1	2	3	4	5	6	7	
2	Frequently received last minute changes due to uncertainty from top management	1	2	3	4	5	6	7	
3	When an existing head left, a new head came, will always change their ideas	1	2	3	4	5	6	7	
4	Decision is not firm, always want to be the BEST in the market	1	2	3	4	5	6	7	

## Section 5 (New Product Innovativeness)

No.	Items	Strongly Disagree							Strongly agree
		1	2	3	4	5	6	7	
1	I will identify what products the market wants	1	2	3	4	5	6	7	
2	I will evaluate the feasibility of developing and manufacturing a product with these features	1	2	3	4	5	6	7	
3	I will assess the required investment, time and risks of the product concept.	1	2	3	4	5	6	7	
4	I will test the product with customers before launch	1	2	3	4	5	6	7	
5	Sales and communication plans are executed when new products are being launched in the markets.	1	2	3	4	5	6	7	
6	I will select customers for testing market acceptance	1	2	3	4	5	6	7	

## Section 6 (Supplier Influence)

No.	Items	Strongly Disagree							Strongly agree
		1	2	3	4	5	6	7	
1	Knowledgeable and Experience about the product	1	2	3	4	5	6	7	
2	Willingness to share their past experience	1	2	3	4	5	6	7	
3	Suggest new ideas to your company	1	2	3	4	5	6	7	
4	Not willing to share their past/current customers' information	1	2	3	4	5	6	7	
5	Talks optimistically aka Talk sense	1	2	3	4	5	6	7	
6	Talks on ethic about new products	1	2	3	4	5	6	7	

**Section 7 (Demographics and Targeted Audience)**

Please tell us a little more about yourself, please cross "X" into the relevant box provided.

**1. Gender**

Male  Female

**2. Race**

Malay  Chinese  Indian  Others

**3. Occupation**

Executive level  Non Executive level

**4. Industrial**

FMCG  F & B  Marketing  Telco  
 Service  Banking  Manufacturing Others: \_\_\_\_\_

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