

**CONSUMER RESISTANCE TO INNOVATION DUE TO PERCEIVED RISK:
RELATIONSHIP BETWEEN PERCEIVED RISK AND CONSUMER
RESISTANCES TO INNOVATION**

SHAHIMI BIN MOHTAR
MAZHAR ABBAS

*School of Technology Management and Logistics,
Universiti Utara Malaysia, Kedah, Malaysia*

ABSTRACT

The purpose of this paper is to study the relationship between consumer resistance to innovation like smartphone and perceived risk. This study was conducted by using self-administered questionnaire to seek the consumer behavior and their attitude towards innovation. This study indicates the significant positive causal relationship between resistance to innovation and perceived risk by consumers. The choice of research methodology and sampling technique minimized the sampling limitations in the study. This study contributed to the existing body of knowledge as well as in the current market. It gives the idea to the marketer and producer to enhance their product features to reduce the resistance to innovation.

Keywords: Perceived Risk, Resistance to Innovation, Smartphone

INTRODUCTION

According to International Telecommunication Union (ITU, 2009), mobile technology is acting as a key driver for rapid information communication technology (ICT) growth in many regions to the world. As a result, the growth in wireless and mobile communications worldwide has significantly changed the way individuals communicate access and share information (Sultan, Rohm, & Gao, 2009). According to the Zone Fox, 2013 projection about mobile technology four years from now, 5.1 billion people will be mobile phone users around the globe- almost 1 billion more mobile users than the 4.3 billion people worldwide using them now. Asia, the region that will see the most growth, is already home to the most mobile phone users. Some 2.4 billion people there use mobile phones, a figure projected to grow to 2.9 billion by 2017.

The Telecom sector all around the world, especially in Pakistan has experienced a tremendous growth in the last few years up till 2012. However this pace reduced significantly in 2013, due to the heavy taxes imposed by the caretaker and the new government. The industry registered a total mobile subscriber base of 122.127 million in March 2013, which was the strongest net addition since November 2012 (Iqbal, 2013).

The latest technology shift in mobile phone innovations is towards a mobile device consolidating all consumer electronic gadget, like MP3 player, camera, Internet

(computer), GPS and even TV. A new stock phrase "SMARTPHONE" (marketing-friendly term) represents this widely known PDA-Cell phone combination (PDA-Phone combo) with multifold functions defining a radical innovation in mobile phone industry (Park & Chen, 2007). Smartphone manufacturers have been unable to increase the market shares by simply reducing the prices, so the price itself may not be the main reason for its low market share. Nokia corporation interim report 2013, states that Nokia group net sales for the first half of 2013 decreased 22% year by year.

This situation leads us to a new significant aspect and mainly ignored aspect of innovation challenges, i.e. consumer's resistance. Such as the Smartphone's represent "radical innovation" it faces more consumer's resistance than "incremental innovation" (Garcia et al., 2007; Heiskanen et al., 2007). Consumers who create resistance to innovation are mostly non-adopters and constitute major part of the consumer. These consumers have a strong potential for supplying valuable information necessary for the development, implementation, and to the commercialization of innovation, and it should be given more attention in the research studies (Laukkanen et al., 2008).

In the managerial perspective, to study consumers' resistance to innovation is very important and very useful. Resistance understanding will help companies design/develop new products in order to ensure the success of a product on the market, and will help reduce the high failure rate. Once the firms face the consumers' resistance to their innovations, they can examine the underlying causes of the resistance, and be better able to design strategies for coping with critical and important factors of resistance (Ram, 1987). Discuss the factors that affect the resistance of consumers to Smartphones can provide its manufacturers/distributors with useful information on these important factors that affect consumers' behavior toward innovation.

RESEARCH QUESTION

What are the causal relationship between perceived risk and consumer resistance to innovation?

LITERATURE REVIEW

Consumer Resistance to Innovation

Consumer resistance to innovation is an important case in the research. In the literature a less number of studies focused the role of resistance in the course of product and services adoption. In the psychological point of view resistance is conceptualized that it is aversive motivational form, it is originated when someone perceived his freedom is threatened and leading to understand and deed in terms of action in the direction of recovering the susceptible freedom (Brehm, 1966; Brehm and Brehm,1981). Regarding the resistance to innovation Ram and Sheth, (1989) expressed the subsequent definition "resistance to innovation offered by the consumer towards an innovation, either because it possess potential changes from a satisfactory status quo or because it conflicts with their beliefs structure". Resistance to innovation by the consumer discloses this one in diverse procedure.

Majority of the time consumer resist towards innovation passively. Consumers always resist to innovation without seeing these types of innovation for adoption. Literature differentiates number of passive resistance drivers which are in the direction of innovations. First, the passive resistance is a result of consumer's habits (Bagozzi and Lee, 1999). According to the Sheth, (1981) habit term is defined as "the single most powerful determinant in generating resistance". Habit is usual predisposition attempt for the status quo and uniformity, instead to change the old behavior into accepted new behavior (Cherney, 2004; Gourville, 2005). The bias about the status quo gives the understanding to the consumers for value and benefits of the product they have more than the new ones. Furthermore, new product compare with the old product which they have already own. Consumers think the perfection compare to the products they previously own like as gains in addition treat all deficiencies like as losses. Consequently all losses should equal to the gains or advantages, the prospective losses from the selection of innovative products consider seriously than the prospective gains or advantages (Kahneman and Teversky, 1979; Teversky and Kahneman, 1991). Additionally the other determinant of passive resistance is excess of the information to the consumers because of the huge information to the consumers are uncovered or unprotected to (Herbig and Kramer, 1994). According to the Malhotra, (1984) and Keller and Staelin, (1987) they claim that if consumer use the information in the short time then in this capacity the information will become burdened for the consumers. The burden of information frequently happens when consumer feel the innovation changes very fast (number of substitutes of products available) and it is very problematic for the consumer to consolidate all of the information in addition make the comparisons among the available substitutes (Hirschman, 1987).

On the other side according to the Bagozzi and Lee, (1999) innovation can be resist by consumer actively. In the case of active resistance, consumers not decides to select the new product after a long time when they assess the innovative products and when innovation has happened. In the past literature Kleijnen et al., (2009) differentiate three different kinds of active innovation resistance which having the series from lowest extreme or active to most deep or active: like rejection, opposition and postponement. When postponement influence happens even though consumer do not having any negative assessment for the innovation as such, consumer may try to delay the adoption or selection of the product or innovation, for instance consumer waiting for the best situations for the selection or adoption of product more appropriate. Kleijnen, et al., (2009) exhibit the main economic reasons (e.g. Price) the actual cause of the postponement is the conflict of consumer with the current usage method of the product.

The second one is rejection indicated a significant reluctance to select or adopt the innovation (Rogers, 2003). Rejection happens when the current belief and structure of consumer clash with the innovation as well as when negative image of innovation developed in the mind of consumers also the outcome of rejection in the field of innovation (Ram and Sheth, 1989). Furthermore, the extent of perceived risk associated with the usage of innovative product is another hurdle that endorses the rejection in the field of innovation (Ram and Sheth, 1989). Perceived risk signifies the consumer's personal observation of the ambiguity regarding the concerns and results of the selection

or adoption of the innovative product (Ostlund, 1974). According to the Stone and Gronhaug, (1993) Risk is a multidimensional concept made from numerous sorts of losses: financial, physical, performance, psychological, social, time or accessibility losses. Consequently, an innovation not even encounters the rejection; nevertheless it reminds the consumers to occupy the best step by step planning to inhibit the innovation such as complaint or rejecting (Penaloza and Price, 1993; Kozinets and Handelman, 1998). So this kind of resistance is called opposition (Kleijnen et al., 2009). Frequently all of these social reactions curtail with the consumer consideration about the existing business applies and societal influence on the innovation (Herrmann, 1993).

These kinds of consumer resistance to innovation lead to series as of combines responses such as, boycotts, to consumers individual response, as like consumer complaining attitude, bad word of mouth or changing attitude of the consumers (Hirschman, 1970). Consequently this research studying the diffusion of innovation from another perspective, observing the resistance attitude of consumers becomes the result of certain sorts of resistance. Hence results from the previous studies suggested that pre-adoption attitude of the consumer might be different from the post adoption attitude of the consumers (Patsiotis, Hughes, and Webber, 2013). At last another cause of the consumer resistance to innovation is traditional barrier (Chemingui and Lallouna, 2013).

Perceived Risk

The idea of risk is critical to numerous issues or problems, including economy, management and public services fields (Yang and Zhang, 2009). In the perspective of smartphone adoption, perceived risk is equally supposed to have impact on the intention of consumer to use the gadgets as well as other devices. Perceived risks were revealed as a key component of purchaser, seller relations (Dowling and Stalin 1994; Mitchell, 1992; Taylor, 1974).

Bauer (1960) initially presented perceived risk theory with clarifying consumer's behavior that perspective the consumer's behavior a risk-taking behavior. As expressed by Bauer, (1967) early definition of perceived risk is a mixture of unpredictability and reality of conclusions. Besides, Cox and Rich (1964) have contended that perceived risk comprises of two viewpoints which are uncertainties and results. As indicated by Taylor (1974), the essential issue of purchaser's behavior is the decision circumstance. Because of the aftereffect of a decision which just could be known later on, customers, in this manner, need to face with unpredictability or risk of that result.

Taylor (1974) then confirms that perceived risk is a basic portion of consumer behavior. Numerous specialists have operationally characterized vulnerability regarding an individual's probabilistic conviction (Dowling, 1986). Moreover, Dowling (1986) proclaims that the idea of perceived risk is one of the most persevering in the theories of human decisions. Yeung, Yee, and Morris, (2010) Their analysis exposes brand, data and quality certification as influential risk-diminishing methods to decrease customer observation of food hazard and consequently to encourage consumers by probability throughout a period worried about microbiological dirtying in chicken meat.

Relationship between Perceived Risk and Consumer Resistance to Innovation

Gronhaug's, (1993) defined perceived risk as the subjective expectation of loss. Meanwhile Mitchell et al., (1999) gives the theory on perceived risk. According to their theory perceived risk theory has great potential when explaining how a perceived risk directly influences purchase intention, which is usually referred to as a successful indicator for forecasting the actual purchasing decision. In recent times Im et al. (2008) stated that perceived risk or uncertainty affects people's confidence in their decisions.

With regard to adoption and non-adoption behavior of consumer particularly resistance towards innovations is multifaceted phenomenon which is also influenced by consumers' awareness of the perceived risk of adopting an innovation (Shoemaker and Shoaf, 1975). Consumers often experience many uncertainties about the adoption of innovations, especially with regard to performance Garcia and Atkin, (2002), and consequently assume the likely outcome of innovation usage to be negative (Martinko et al., 1996). It is consumers' evaluation of the likelihood of these negative outcomes which constitutes their perceived risk. Literature has defined several forms of risks, of which physical, economic, functional, and social risk have been mentioned in relation to consumer resistance (Bredahl, 2001; Ram and Sheth, 1989; Saba et al., 2000).

Physical risk associated to the consumer explanations about the potential losses to any valuable goods or a few individual might for the reason of the innovation (Klerck and Sweeney, 2007). Economic risk concerned to the cost (in universal logic) of an innovation. Functional risk related to any uncertainty about the innovation performance. Finally, social risk concerns that consumer emotional state about the social atmosphere like reference group will provide or acknowledge their selection or adoption of the products.

In previous research Bredahl, (2001) found that perceived risk with regard to the harmful, health related effects of genetically modified food negatively affect consumer evaluation of these foods innovations. Ram and Sheth, (1989) suggest a negative relationship between perceived risk and resistance. Another study Saba et al. (2000) found that perceived risk with regard to the harmful, health related effect of genetically modified food negatively affect consumer behavior with regard to these food innovations.

Furthermore Ganiere et al., (2004) noted that perceived risk with regard to the harmful, health related effects of genetically modified food causes consumer to oppose these innovations. Another Concern that the innovation will be a waste of economic resources Dhebar (1996) Suggest that particularly high-tech innovations often require high investments which makes consumers worry reluctant to spend such amounts of money as they worried about how well spend this money really is on a long-term basis. According to Ram and Sheth (1989) model conducted a study there is a negative relationship between economical risk and resistance. Szmigin and Foxall (1998) Consumers postpone adoption until they feel they can afford the innovation. Woodside and Biemans (2005) Suggests that perceived risk leads to rejection. Similarly Woodside and Biemans (2005) Suggests that perceived risk leads to rejection to innovation. Fain and Roberts (1997) conducted a study on high tech innovation. The result of this study shows that there is

negative relationship between perceived risk and resistance, particularly for high-tech innovations.

Kim et al., (2005) conducted a study on online purchasing tickets. The result of this study shows that there is significant relationship between perceived risk and innovation. Another study conducted by Aldas-Manzano et al., (2009) on internet banking with regard to adoption of new technology. The results of this study suggest that perceived risk is strong predictor of consumer non adoption behavior towards new technology. In the same year Ozdemir & Trott, 2009 conducted a study on consumer response to new technology in internet banking. The result of this study points out that there is no strong influence of perceived risk on innovation as compare to habit, strive for consistency and status quo. Recently Anna and Bee, (2010) conducted a study on e-filling system.

According to their study resistance is a normal consumer response that has to be overcome before adoption may begin. The results of this study shows that with regard to rejection of innovation, perceived risk would be worthwhile to considerer the problems that consumers encounter with technologies. But according to Dunphy and Herbig, (1995); Aggarwal et al., (1998); Yiu Chi et al., (2007) there is significant positive relationship between perceived risk and rejection of innovation encounter with technologies especially in the context of smartphone.

Pervious mainstream literature shows and verify the relationship and effect of perceived risk on intention related to consumer behavior in various fields such as electronic commerce e.g. Crespo et al.,(2009); Kim et al., (2008); Park & Jun, (2003); Belkhamza and Syed Azizi, (2009), e-filling system (Anna and Bee,2010), purchasing tickets on-line (Kim et al., 2005), purchasing via mail order Simpson and Lakner, (1993), and Internet banking Aldas-Manzano et al., (2009); Ozdemir and Trott, (2009). On the other side of the perceived risk associated with the financial, performance, and security risks were found to be significant in the case of smart phones. Following the mainstream literature on the perceived risk and consumer behavior towards innovation Yiu Chi et al., (2007), Dunphy and Herbig, (1995), Aggarwal et al., (1998) found a positive relationship in the context of a smart phone. From above literature there is contradiction between the relationship among perceived risk and innovation so this call for further research related to innovation especially in Smart phones.



Figure 1
Proposed Framework

Following hypothesis are proposed:

H1: There is relationship between perceived risk and consumer resistance to innovation

RESEARCH METHODOLOGY

In order to test the hypothesis, a survey was conducted with students in Pakistan. In the questionnaire, the measurement items for the variables were measured based on a 6-point Likert scale, and the measurement items for the variables were proven to be reliable and valid in preceding studies and were adjusted accordingly to suit this particular study. Statistical software like SPSS, Smart-PLS will use to carry out statistical analysis to meet the desired objectives of this study. The reliability reports of perceived risks are according to Smith and Milberg, (1996) having six-items in his study and reliability report was 0.87. Chen and Gillenson, (2004) six-item adapted for measurement through Smith, et al., (1996) with reliability 0.93. Furthermore Bomil Suh, (2003) established a six-item for measurement with reliability at 0.94. On the Chen, et al., (2004); Smith, et al., (1996); Bomil Suh, (2003): Chen, (2008) done their work with minor revision as well as he used seven-item for measurement with reliability at 0.79. so for the suitability for the measurement of items adapted from (Yang, 2005 ; Chang and Chen, 2005 ; Brown, Cajee, Davies, & Stroebel, 2003 ; Holak and Lehmann, 1990). Perceived risk having six-items by six-point liker scale adopted from the previous measurement by five-pint Likert scale with reliability at 0.854.

PRELIMINARY ANALYSIS

Confirmatory Factor Analysis

For the valuation of construct validity of the factors of the study, factor analysis was executed. This all is theory driven approach. The motive behind the confirmatory factor analysis is to identify the questions or variable have same underlying factors and some variables have less correlation with other variables. CFA is very important to choose the right questions or variables for the measurement of the factors. According to DeCoster, (1998) recommended a large sample size minimum 150 for the execution of CFA (Hair et al 2006).

Table 1
Summary of Confirmatory Factor

	CR	PR
CR1	0.98	0.218
CR10	0.94	0.131
CR11	0.94	0.131
CR8	0.98	0.218
PR3	0.17	0.802
PR4	0.15	0.779
PR5	0.13	0.799
PR6	0.14	0.730

Reliability Analysis

To identify the reliability of the data, reliability analysis has been done by using SPSS. This analysis is used to evaluate the internal consistency of the perceived data and it ranges from 0 to 1. Cronbachs Alpha basically were used to calculate the internal consistency of the data. 1 is closer value of the Cronbachs Alpha and values closer to 1 greater the internal consistency of the variables. According to the George & Mallery (2003) given the rule of thumb $\alpha > 0.9$ – Excellent, $\alpha > 0.8$ – Good, $\alpha > 0.7$ – Acceptable, $\alpha > 0.6$ – Questionable, $\alpha > 0.5$ - Poor and $\alpha < 0.5$ – Unacceptable. It is also important that the value of Alpha partially depends upon the number of items or questions in the scale. So it is noted that more the number of questions/variables less will be the consistency.

Table 2
Cronbach’s alpha scores for variables

Construct	Cronbachs Alpha
CR	0.9718
PR	0.7828

Descriptive Findings

The below given table representing the descriptive results from the collected data on the basis of 200 observations or sample.

Table 3
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
PRISK	200	1.17	6.00	4.0483	.89052
CR	200	1.55	5.82	3.9882	.77773
Valid N (listwise)	200				

Descriptive analysis of collected empirical data in the above given table represents that majority of the respondents have perceived risk as increased the consumer resistance to innovation. Both having positive relationship as perceived risk increase consumer resistance to innovation also increase.

DATA ANALYSIS

For this study analysis of data was carried out using the Statistical Package for Social Sciences version 21 and SmartPLS 2.0 M3.

Table 4
Correlations

		PRISK	CRESISTANCE
PRISK	Pearson Correlation	1	.363**
	Sig. (2-tailed)		.000
	N	200	200
CRESIS TANCE	Pearson Correlation	.363**	1
	Sig. (2-tailed)	.000	
	N	200	200

** . Correlation is significant at the 0.01 level (2-tailed).

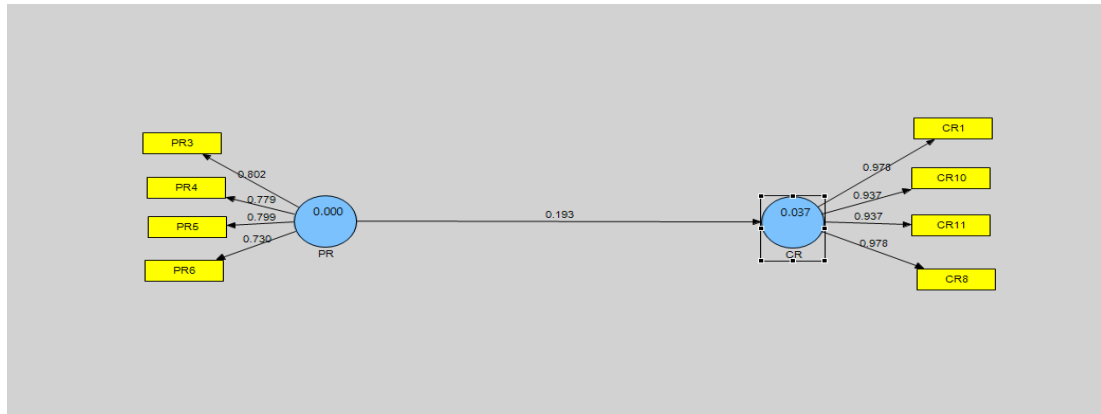


Figure 1
Research Model

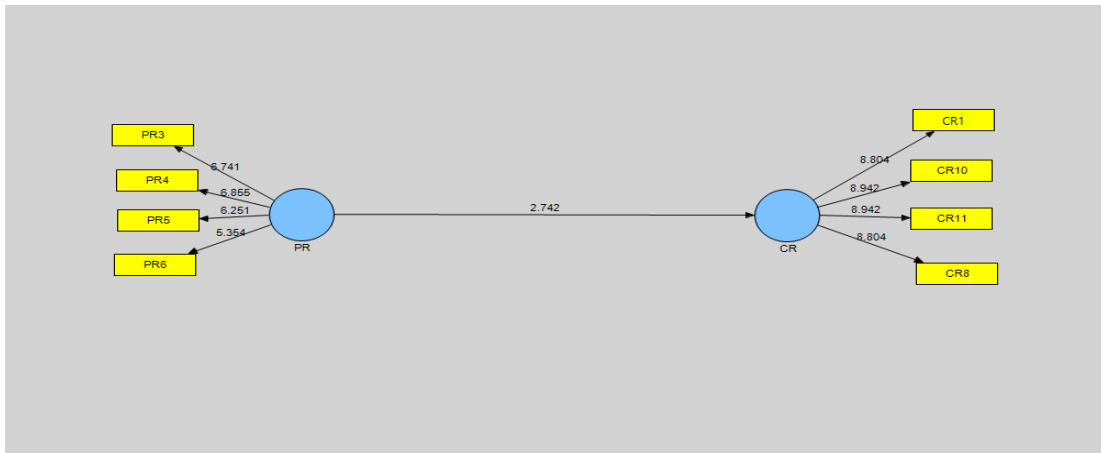


Figure 2
Research Model

RESULTS DISCUSSION

Table 5
Summary of Standard Error Analysis

Hypothesized Path	Path Coefficient	Standard Error (STERR)	T Value	P Value	Decision
PR -> CR	0.2125	0.0703	2.7415	0.003	Significant

***: $p < 0.001$; **: $P < 0.01$, *: $P < 0.05$

Above table 5 and figure 1 and 2 shows that the support of hypothesis in the study relationship between perceived risk and consumer resistance to innovation from previous literature has constantly represented significant and positive relationship between perceived risk and consumer resistance to innovation (Dunphy & Herbig, 1995; Aggarwal et al., 1998; Yiu Chi et al., 2007). The value of Pearson Correlation is .363 and t-value 2.742 from bootstrap in SmartPLS 2.0 M3 which shows that higher the perceived risk, higher the consumer resistance to innovation. So author can state that there is positive causal relationship between consumer resistance to innovation (Smartphone) and perceived risk. So greater the perceived risk will greater the consumer resistance to innovation.

CONCLUSION

On the basis of research question and objective of the study here concluded results empirical data results support the hypothesis. The higher the perceived risk will higher the consumer resistance to innovation (Smartphone) by students. Throughout this study concluded that resistance to innovation having positive and significant relationship between consumer resistance to innovation and perceived risk.

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