

CONSUMER RESISTIVITY TO INNOVATION: A NEW APPROACH TO INNOVATIVE RESISTANCE AND CONSUMER CHARACTERISTICS

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Abstract

Resistance is one of the most frequent reasons for limiting or delaying the diffusion of innovations, and it can result in market failure even when innovations are successful. Consumer characteristics, or psychological traits of consumers, how they perceive innovation in relation to that particular product, and the innovation characteristics, which include the outcome and effects of innovation, continue to be the most significant influences on how quickly consumers adopt new technologies. The conceptual framework presented in the current study, based on Ram's Model of Innovative Resistance and the Technological Acceptance Model (TAM), explains the key elements of consumer resistance to innovation and consumer characteristics. Both a literature review and a quantitative investigation using a structured questionnaire are used to explore this concept. A consumer resistance model is created as a result of these collaborative efforts. Finally, the authors highlight various pertinent theoretical and strategic consequences and propose future study directions.

Keywords: Innovation, Consumer Resistance, Innovation Adoption, Digital Innovation, Consumer Behaviour, Consumer Attributes.

1. INTRODUCTION

Long term success and expansion of businesses depend heavily on innovation which has been nicknamed the "lifeblood" of most companies. This is especially true in today's complex and dynamic industries, as well as in these challenging economic times. Despite the success of inventions, market failure may occur if their dispersion is stymied or delayed. One of the major factors inhibiting or delaying the transmission of innovations appears to have been ignored in the academic literature in this case: consumer resistance. Despite the fact that the novel product might offer a wide range of advantages and improved functionality, research have shown that consumers are frequently less than enthusiastic about a variety of new products. The findings of earlier studies suggest that businesses introducing unique items or technologies should take consumer opposition more seriously. (Glasmeier, 2010) Since it can inhibit or delay consumer adoption, consumer resistance is nevertheless crucial to the success of innovation. It has been recognised as one of the main reasons for the failure of the innovation market and as a valuable resource for information essential to the efficient deployment and promotion of innovation.

Adoption will be slowed and the idea will probably fail if resistance cannot be overcome. Business must first comprehend consumer resistance, its origins, and the factors that influence it in order to become much more effective in their improvement efforts and find solutions to increase competitiveness, productivity, and profitability. Numerous factors continue to affect how innovations are adopted by consumers, but the most crucial ones continue to be the traits of the consumers themselves, particularly their psychological characteristics, how they view innovation in relation to a given product, and the characteristics, results and the effects of the innovation itself.

Consumers' resistance to innovation, as a possible marketing aspect, will aid corporations' indifferent approaches to product design and development in order to assure the success of innovation in the market.

Despite this, numerous studies have been conducted by researchers to address this problem by examining various elements to understand the causes of consumers' resistance to novelty. Meanwhile, the concept of innovation resistance in innovative product management has been somewhat underutilised. (Ram & Sheth, 1989; Tansuhaj, Gentry, John, Manzer, & Cho, 1991)

In keeping with the preceding statement, adoption and diffusion study how innovations spread in the market from the moment of invention, whereas innovation resistance focuses on why customers are hesitant to adopt newness. Many research have generally been successful in identifying the factors that prevent customers from embracing change. For instance, a lot of investigations evaluated consumer behaviour and their intents to adopt the new product by using consumer traits and innovation features as the primary predictors.

Many research have generally been successful in identifying the factors that prevent customers from embracing change. For instance, a number of researches evaluated consumer behaviour and their intentions to adopt the new product using consumer traits and innovation features as the primary predictors (Mohtar & Abbas, 2015; Ram & Sheth, 1989). On the other hand, other researchers assessed the impact of "innovation attributes" (characteristics) towards innovative products, particularly from the perspective of the customer, using the Ram model (Brown, Cajee, Davies, & Stroebel, 2003; He, Duan, Fu, & Li, 2006; Holak & Lehmann, 1990; Liao, Liu, & Cheng, 2015; Tan & Teo, 2000).

In addition, a number of study looked into how consumer traits affected their intention to adopt new technologies (Han, Mustonen, & Seppänen, 2006; Harkke, 2006; Lu, Yu, Liu, & Yao, 2003), and some of them incorporate additional variables into the technology acceptance model (Koivumaki, Ristola, & Kesti, 2006; Constantiou & Damsgaard, 2006; Fang, Chan, Brzezinski, & Xu, 2005). So, it is necessary to investigate further the causes of customers' resistance to innovation. In order to analyse the elements influencing consumer resistance to innovation, this research article applies the idea of resistance to innovation and consumer innovativeness.

Variables in the adoption of new products have been extensively examined, including consumer innovation. As a result, this conceptual paper investigates how Consumer resistance to innovation is influenced by various factors of consumer characteristics like motivation and perceived risk; and other factors like relative advantage and compatibility.

This study of smartphone resistance, which is based on consumer traits and innovation, can advance the field of innovation research by bringing a fresh set of data/knowledge on how customers react to more advanced mobile technology. Manufacturers and marketers would eventually be in a better position to anticipate consumer responses to and interactions with new products, enabling them to lessen or overcome consumer resistance.

2. REVIEW OF LITERATURE AND HYPOTHESIS DEVELOPMENT

2.1 Resistance to Innovation

Consumers' responses to innovations are still characterised by their antagonism to them, either because they pose a danger to the status quo or because they go against their core values. Resistance to innovation has been termed as one of the most vital success criterion for adoption, and adoption has been portrayed as the result of overcoming resistance. Resistance and adoption are still seen as the two extremes of a spectrum of responses to innovation.

Direct rejection, postponement, or denial are the three possible consumer reactions to resistance (Kräuter & Faullant, 2008). Based on the findings, we can illustrate the idea of consumer resistance. Consumer delaying of technology adoption is still referred to as postponement. The only thing it does is "allude to delaying the adoption decision till later." (Wang, Dou, & Zhou, 2008) Even if they continue to embrace the innovation, it is typically the consequence of certain circumstances, such as waiting for the right moment, developing the necessary skills, or making sure the product works as intended. Postponement may take the form of acceptance or rejection that occurs after a specific amount of time. "Protesting the invention or seeking extra information after the trial" remains what resistance means.

Although it is a type of rejection, the customer is still willing to give the concept a try before rejecting it. Most importantly, a customer's dissatisfaction can prompt them to look for sufficient evidence to support approval. On the other side, when consumers realise an innovation is still not suitable for them, they may reject it based on prior knowledge of the innovation.

Outright resistance to a product from customers continues to be the strongest. (Lassar, Manolis, & Lassar, 2005) After a large number of consumers reject an innovation, manufacturers usually alter, iterate, or change the idea before reintroducing it to the market. The innovation might be disregarded if it continues to be unsuitable, difficult, harmful, or unfeasible in other ways. There are both passive and active rejections, with passive rejection taking place when an invention is never really accepted or executed and active rejection taking place when an idea is explored but eventually rejected.

Two psychological notions that have been studied and presented in relation to the psychology of innovation resistance have been praised as being particularly helpful in understanding the phenomena. These psychological dimensions include perceived risks connected with adopting innovations as well as current product routines and behaviour. Ram developed a comprehensive model of innovation resistance by building on this concept and going into deeper detail about it.

2.1.1 Ram's Method

This model states that three sets of traits—perceived innovation characteristics, consumer characteristics, and propagation mechanism characteristics—continue to have an impact on innovation resistance. (Midgley & Dowling, 1993) The Rams model of innovation resistance has been extensively used to gauge consumer resistance to various advancements and is still a useful tool for studying innovation resistance.

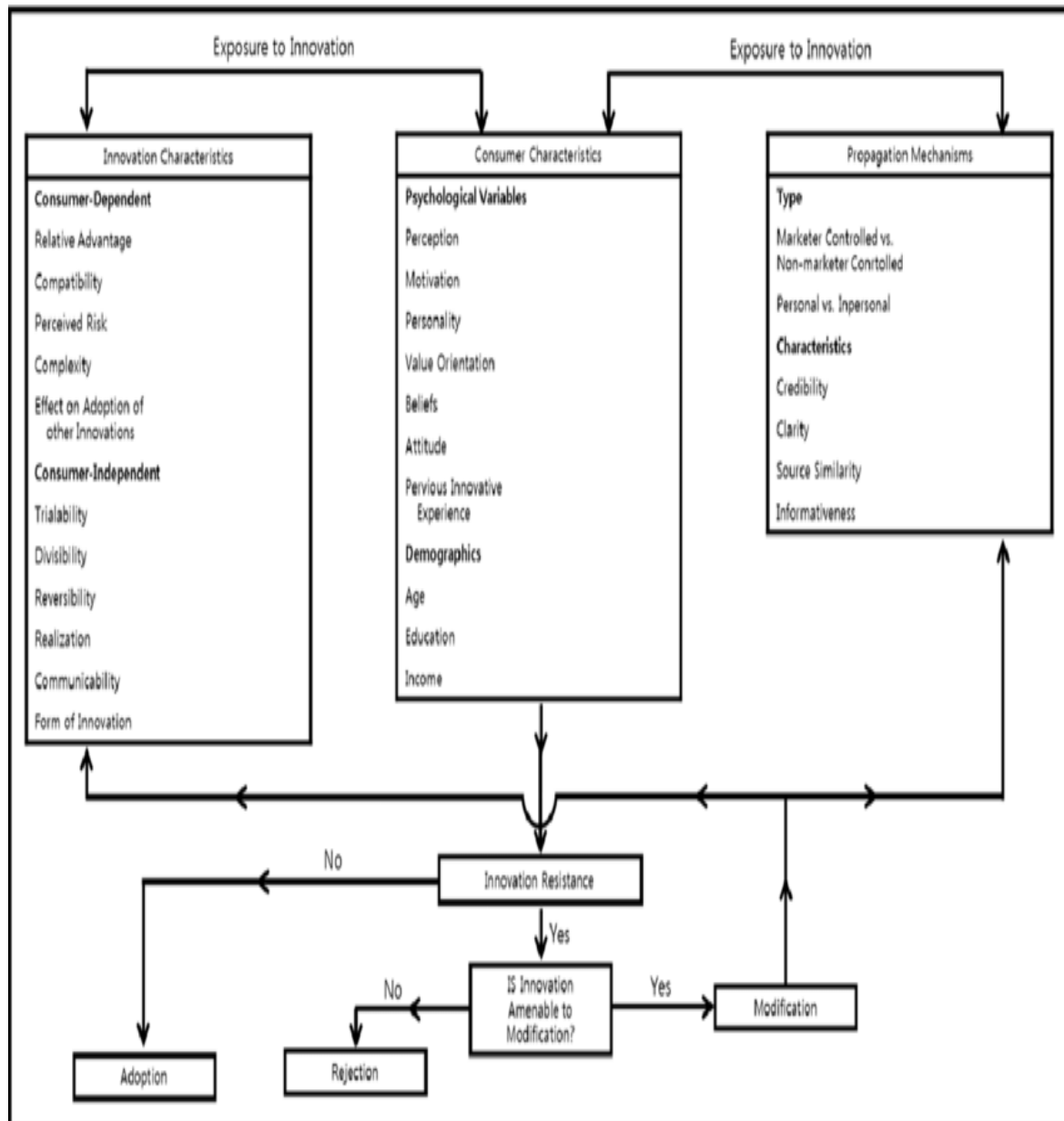


Figure 1: Ram's Model of Innovation Resistance

2.1.2 Yu and Lee

By Yu and Lee, Ram's idea of innovation resistance was improved (1994). They made a distinction between opposition to innovation and impediments to innovation. (Woodside & Biemans, 2005) According to Yu and Lee, the characteristics of innovation and customers in this Ram's model continue to be the key drivers of consumer resistance to innovation.

Although the propagation mechanism does not lead to consumer resistance to innovation, it does serve as a social impediment to the spread of innovation. They argued that only innovation and customer attributes in Ram's strategy generate innovation resistance.

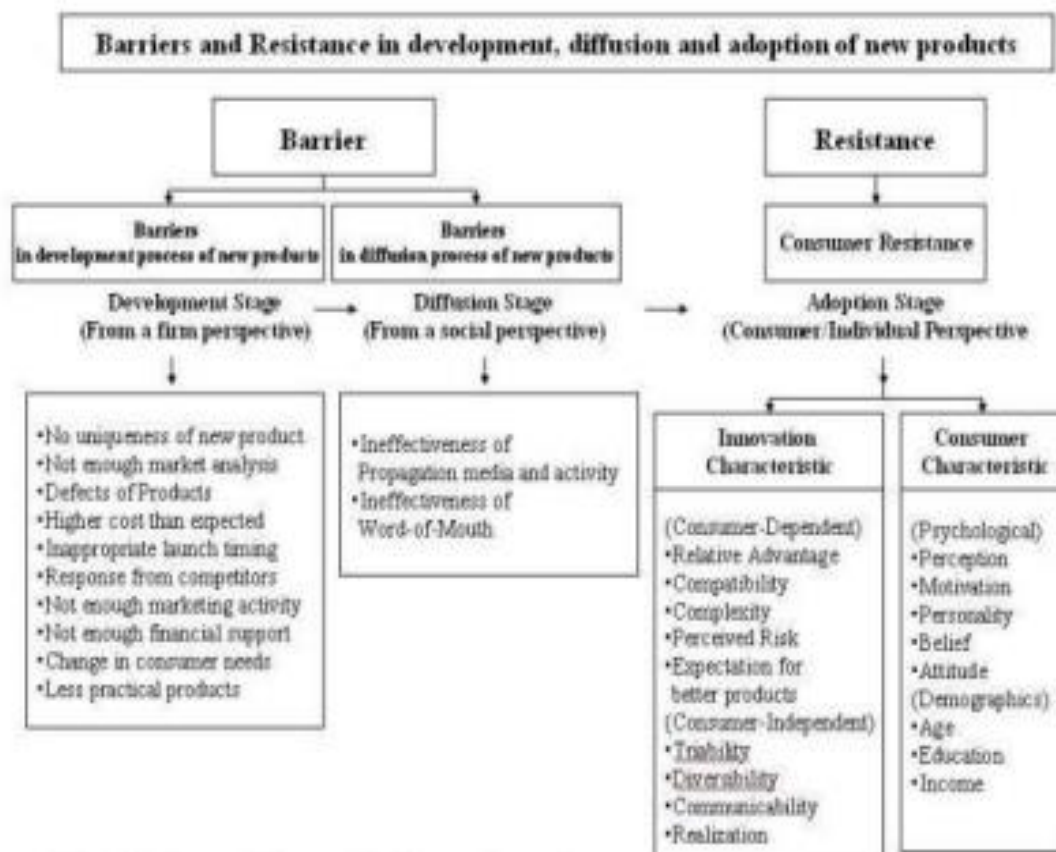


Figure 2: Yu and Lee's extension of Ram's Model of Innovation Resistance.

2.1.3 Technological Acceptance Model (TAM)

TAM claims that the intention to use new technology is influenced by the PU, or perceived usefulness. PEOU, or perceived ease of use of the technology, is an acronym. In order to gauge client resistance to computer systems, Davis proposed TAM, which he later employed. Later, researchers made considerable use of this model to analyse technology adoption behaviour and identify the variables influencing technological innovation adoption choices. TAM is still a segment of Ram's paradigm that emphasises technology advancement. PEOU continues to be derived from complexity, whereas perceived utility continues to be produced by a comparative advantage. (Bhattacharjee, 2002) Later, to explore how customers behaved towards new technological goods, researchers from diverse fields employed the concept of "self-efficacy" rather than perceived ease of use (PEOU) to examine Lee and Yu's model of innovation resistance.

2.2 Compatibility

Compatibility is the degree to which potential buyers perceive the new product to be consistent with their socio-cultural norms or consistent with their current beliefs, prior experiences, style, behavioural patterns, and desires. (Veryzer, 1998) The evolution of attitudes is still seen as a vital element in this context, and technological marketplaces continue to be particularly crucial. Even though most technological advancements benefit consumers greatly, "no necessity" is still a frequent justification used by a wide range of consumers for rejecting or not embracing new items.

In terms of innovation, there are still two compatibility dimensions to consider:

It may (1) refer to compliance with the ideals or norms of the potential adopters, or (2) it may refer to the adopters' current routines.

According to studies, compatibility has a significant and positive impact on consumers' intents to make purchases. If people continue to view an innovation as compatible, they are more inclined to learn about it and gather information about it. (Brown, Cajee, Davies, & Stroebe, 2003; Pijpers, Bemelmans, Heemstra, & Montfort, 2001) On the other side, older/existing products continue to have an impact on adoption rates; the more suitable older/existing products are, the less likely customers are to accept new products and, as a result, the higher their resistance. Nonetheless, it is vital to comprehend whether compatibility may be used as a component to explain why customers are resistant to innovation, hence the following hypothesis has been proposed for study:

H1: Compatibility has a significant inverse impact on consumers' resistance to innovation.

2.3 Perceived Risk

The risk was introduced as a new dimension here in the diffusion and adoption of innovation by researchers, and Sheth (1981) and Ram (1987) included it as another element determining customer resistance (Hahn, Johnson, Herrmann, & Huber, 2017) Customers might view more modern products and technologies as riskier. Consumers' willingness to adopt innovations is still significantly impacted by their assessment of risk. (Dowling & Staelin, 1994) Risk is still defined as the "consumer's subjective expectation of suffering a loss here in the pursuit of a desired goal" since it is still difficult to capture risk as an objective truth. Although perceived risk is still commonly mentioned as an innovation trait, many claim that perceived risk is more frequently a customer perception than a quality of innovation. Nonetheless, we have included perceived risk to the list of innovation characteristics based on the literature that is currently available. (Fang, Chan, Brezezinski, & Xu, 2014) The six key aspects of perceived risk identified by studies are still financial, performance, physical, temporal, social, and psychological dangers. To determine if perceived risk influences customers' resistance to innovation, the following hypothesis has been proposed:

H2: Perceived Risk has a significant positive impact on consumers' resistance to innovation.

2.4 Motivation

The concept of "motivation" relates to "goal-directed arousal," which fuels a consumer's desire. It involves internal mechanisms that provide behaviour authority and direction. (Melrose et al. 2015) The terms "power" and "direction" both describe the vigour, resolve, and concentration of the behaviour in question, whereas "direction" describes the behaviour's specific goal. Researchers distinguish between behaviour that is intrinsically and extrinsically driven. (Gefen, Karahanna, & Straub, 2003) Extrinsic and intrinsic motivation, which continue to be two types of drivers that elicit a particular outcome behaviour, are thus still the two categories of motivation. Here, the adoption of technology, perceived benefit, and felt enjoyment continue to be typical examples of extrinsic and intrinsic motivation, respectively. Extrinsic motivation is the practise of engaging in an activity for the sake of achieving other objectives, i.e., for the purpose of gaining other valuable outcomes, as opposed to engaging in the activity

for its own sake. (Wood, 2008) An example of this would be choosing to write a letter on a computer due to the activity's perceived value and anticipated advantages. To act only out of intrinsic motivation means to carry out an action because it is still fascinating, engaging, entertaining, etc. (Davis, Bagozzi, & Warshaw, 1992; Constantiou, Damsgaard, & Knutsen, 2006) It describes a desire to engage in an activity in order to gain a benefit resulting from the enjoyment of the action itself, such as displaying one's status and personality through the use of a product. Nonetheless it is crucial to comprehend whether motivation as factor influence consumer resistance to innovation, hence the following hypothesis has been proposed to research this:

H3: Motivation has a significant inverse effect on consumers' resistance to innovation.

2.5 Relative Advantage

The relative benefit of innovation is still the "degree to which an innovation remains viewed as being better/superior to the notion it supersedes". (Laukkanen, Sinkkonen, & Laukkanen, 2008) Also, this term has been cited. Examples of relative advantage include economic profitability, societal benefits, time savings, dangers avoided, and perceived usefulness (PU). Researchers found that customer resistance to innovation is negatively impacted by relative advantage, which continues to be a significant factor in this area. Studies found that the most crucial factor in determining whether or not customers will accept innovation is relative benefit. In this context, the perceived relative benefit of an invention continues to be favourably connected with the rate of adoption and negatively correlated with customer rejection. Here, relative advantage has an indirect effect on risk perception in addition to having a direct and negative impact on customer resistance. If a new product or service delivers considerable benefits, users may be willing to ignore any flaws in exchange for a lower predicted risk. Additionally, compatibility continues to have a positive influence on relative advantage while complexity continues to have a negative impact on it. (O'Connor, 2003) This is because a compatible product can be used successfully, increasing its relative advantage, whereas a complex product can be used ineffectively, decreasing relative advantage. Understanding how consumer resistance to innovation is impacted by relative advantage is vital, and this the following hypothesis has been put up to investigate this:

H4: Relative Advantage has a significant inverse effect on consumers' resistance to innovation.

3. METHODOLOGY

3.1 Participants and Procedure

An Indian population of consumers from the NCR region served as the sample population for the current study. The sample was gathered in order to fully comprehend the effects of comparative advantage, compatibility, perceived risk, and consumer motivation on resistance to innovation. The convenience sampling approach was applied to a cross-section survey design. Online self-administered questions floating via Google forms were used to collect the survey's data. In quantitative research, such online questionnaires are becoming more and more common (Van & Jankowski, 2006). 344 customers made up the study's sample size. Table 1 displays the sample's demographic breakdown. With the help of the SmartPLS 4 software, PLS-SEM was used to analyse the data.

3.2 Measures

The independent variables i.e., Relative Advantage, Compatibility, Perceived risk, Motivation and dependent variable i.e., Consumer resistance to innovation along with demographic variables such as age, gender, and level of education were measured in the study. Both the independent variables and the dependent variable were measured by taking help via survey questions developed by (Brown, Cajee, Davies, & Stroebel, 2003), (Fornell & Larcker, 2018) and (Kleijnen, Lee, & Wetzels, 2009).

4. DATA ANALYSIS AND FINDINGS

4.1 Discriminant and Convergent Validity

The outer measurement model of the study was assessed to confirm the reliability and validity of the measurement model as stated by (Hair J. F., Sarstedt, Ringle, & Gudergan, 2017) Several criteria such as Cronbach's alpha and Composite reliability were also evaluated. As can be seen in Table 2, the internal consistency i.e Cronbach's Alpha of all variables ranged from 0.819 to 0.892 which were in acceptable range. The reliability of the model was also established as the outer loadings of the variables were all above 0.70. Finally AVE values were all over 0.50 which is the lowest acceptable threshold needed to prove convergent validity.

Table 2: Outer Loading Measurement

| | Mean | SD | Outer Loading | VIF | Alpha | rho_a | rho_c | AVE |
|---------------------|------|------|---------------|-------|-------|-------|-------|-------|
| Relative Advantage | | | | | 0.829 | 0.831 | 0.898 | 0.746 |
| READ 1 | 3.25 | 1.33 | 0.869 | 1.921 | | | | |
| READ 2 | 3.44 | 1.24 | 0.849 | 1.826 | | | | |
| READ 3 | 3.28 | 1.41 | 0.873 | 1.958 | | | | |
| Compatibility | | | | | 0.882 | 0.882 | 0.911 | 0.629 |
| COMP 1 | 3.30 | 1.28 | 0.802 | 2.029 | | | | |
| COMP 2 | 3.10 | 1.29 | 0.788 | 1.944 | | | | |
| COMP 3 | 3.23 | 1.28 | 0.756 | 1.71 | | | | |
| COMP 4 | 3.25 | 1.30 | 0.801 | 1.991 | | | | |
| COMP 5 | 3.32 | 1.29 | 0.804 | 2.09 | | | | |
| COMP 6 | 3.28 | 1.29 | 0.807 | 2.061 | | | | |
| Motivation | | | | | 0.819 | 0.823 | 0.881 | 0.649 |
| MOTI 1 | 3.31 | 1.29 | 0.869 | 1.926 | | | | |
| MOTI 2 | 3.25 | 1.32 | 0.849 | 1.854 | | | | |
| MOTI 3 | 3.51 | 1.17 | 0.873 | 1.835 | | | | |
| MOTI 4 | 3.23 | 1.22 | 0.743 | 1.552 | | | | |
| Consumer Resistance | | | | | 0.897 | 0.905 | 0.917 | 0.582 |
| RESIS 1 | 2.98 | 1.04 | 0.774 | 1.918 | | | | |
| RESIS 2 | 2.98 | 1.03 | 0.796 | 2.331 | | | | |
| RESIS 3 | 2.92 | 0.98 | 0.707 | 1.642 | | | | |
| RESIS 4 | 3.04 | 1.11 | 0.763 | 1.894 | | | | |
| RESIS 5 | 3.03 | 1.03 | 0.743 | 1.827 | | | | |
| RESIS 6 | 3.01 | 0.98 | 0.656 | 1.525 | | | | |
| RESIS 7 | 3.11 | 1.01 | 0.784 | 2.187 | | | | |
| RESIS 8 | 3.12 | 1.17 | 0.864 | 2.847 | | | | |
| Perceived Risk | | | | | 0.892 | 0.907 | 0.92 | 0.696 |
| RISK 1 | 3.28 | 1.19 | 0.762 | 1.998 | | | | |
| RISK 2 | 3.28 | 1.25 | 0.866 | 2.495 | | | | |
| RISK 3 | 3.18 | 1.23 | 0.852 | 2.382 | | | | |
| RISK 4 | 3.27 | 1.37 | 0.838 | 2.305 | | | | |
| RISK 5 | 3.25 | 1.31 | 0.85 | 2.271 | | | | |

Furthermore, to examine the discriminant validity of the model two more criteria, Heterotrait-Monotrait (HTMT) and Fornell–Larcker criterion were evaluated as shown in Table 3. The degree of the variance among two theoretically connected ideas is determined by discriminant validity (Hair J. F., Sarstedt, Hopkins, & Kuppelwieser, 2014). HTMT values were less than the threshold value of 0.90 as suggested by (Hair J. F., Sarstedt, Hopkins, & Kuppelwieser, 2014). Also, the bold highlighted diagonal AVE square root’s values were higher than their corresponding construct correlation coefficient which implied discriminant validity for all constructs.

Table 3: Discriminant Validity (HTMT and Fornell-Larcker Criterion)

| HTMT | | | | | | Fornell-Larcker Criterion | | | | |
|-------|-------|-------|-------|-------|------|---------------------------|--------------|--------------|--------------|--------------|
| | COMP | RESIS | MOTI | RISK | READ | COMP | RESIS | MOTI | RISK | READ |
| COMP | - | - | - | - | - | 0.793 | - | - | - | - |
| RESIS | 0.681 | - | - | - | - | -0.614 | 0.763 | - | - | - |
| MOTI | 0.776 | 0.683 | - | - | - | 0.662 | -0.59 | 0.806 | - | - |
| RISK | 0.447 | 0.449 | 0.455 | - | - | -0.403 | 0.415 | -0.4 | 0.834 | - |
| READ | 0.824 | 0.687 | 0.818 | 0.384 | - | 0.706 | -0.597 | 0.675 | -0.342 | 0.863 |

4.2 Structural Model Assessment

The suggested model was evaluated upon confirming that it has acceptable reliability and validity. Furthermore, to assess the Model’s quality three criteria were judged which are Coefficient of determination (R^2), F^2 And Q^2 . As can be seen in Table 4, value of R^2 i.e., 0.477 lies in the moderate range. Secondly the effect size (F^2) showed weak effect, the effect of COMP on RESIS was 0.054 (weak), effect of MOTI on RESIS was 0.038 (weak), effect of RISK on RESIS was 0.035 (weak) and the effect size for READ on RESIS was 0.041 (weak).

Table 4: R-square and F-square values

| Construct | R-square | R-square adjusted | F square RESIS |
|-----------|----------|-------------------|----------------|
| COMP | | | 0.054 |
| RESIS | 0.477 | 0.471 | |
| MOTI | | | 0.038 |
| RISK | | | 0.035 |
| READ | | | 0.041 |

Finally, Q^2 values as shown in Table 5 were all above zero which depicts predictive relevance.

Table 5: PLS Predict

| | Q^2 Predict | PLS-SEM_RMSE | LM_MAE |
|---------|---------------|--------------|--------|
| RESIS 1 | 0.321 | 0.861 | 0.614 |
| RESIS 2 | 0.212 | 0.912 | 0.7 |
| RESIS 3 | 0.228 | 0.864 | 0.695 |
| RESIS 4 | 0.287 | 0.94 | 0.728 |
| RESIS 5 | 0.251 | 0.896 | 0.721 |
| RESIS 6 | 0.164 | 0.9 | 0.731 |
| RESIS 7 | 0.237 | 0.882 | 0.714 |
| RESIS 8 | 0.409 | 0.901 | 0.722 |

Table 6: Hypotheses Results

| Hypothesised Path | Original Sample | Sample Mean | STDEV | T statistics | P values | Results |
|-------------------|-----------------|-------------|-------|--------------|----------|----------|
| Direct Path | | | | | | |
| H1: COMP -> RESIS | -0.257 | -0.256 | 0.062 | 4.151*** | 0 | Accepted |
| H2: RISK -> RESIS | 0.151 | 0.154 | 0.053 | 2.857*** | 0.004 | Accepted |
| H3: MOTI -> RESIS | -0.208 | -0.209 | 0.053 | 3.902*** | 0 | Accepted |
| H4: READ -> RESIS | -0.224 | -0.225 | 0.056 | 3.976*** | 0 | Accepted |

Note: STDEV: Standard Deviation, ***: p<0.005

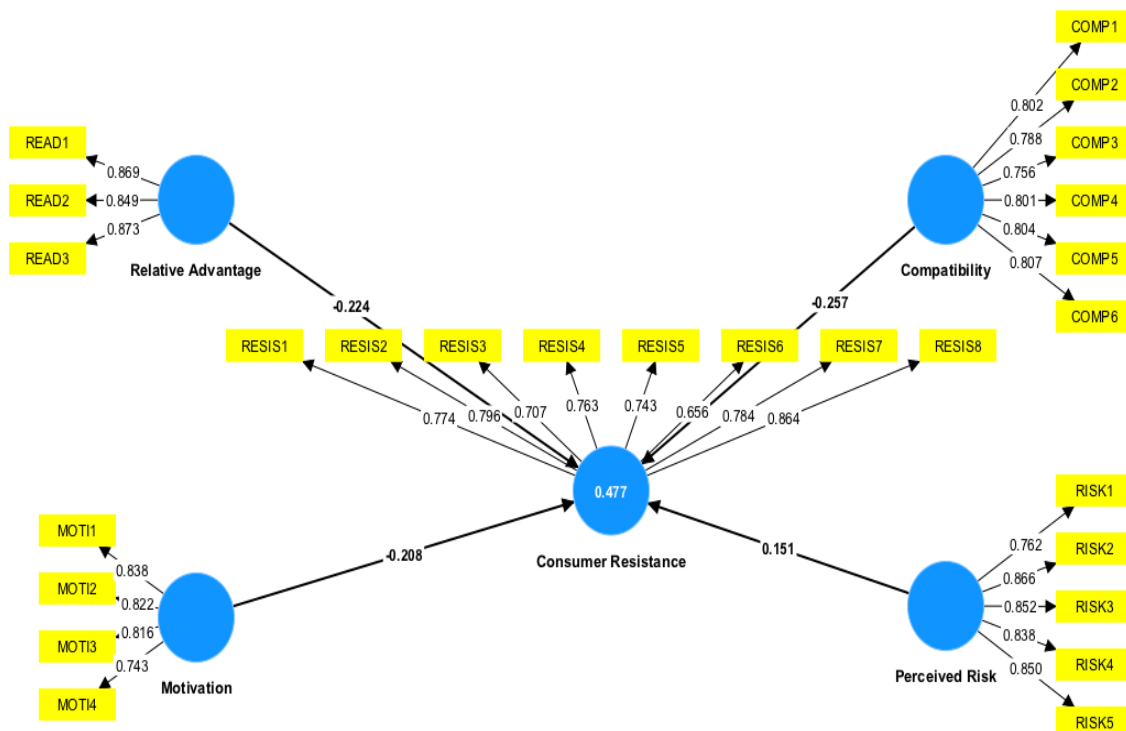


Figure 3: Structural Model

5. DISCUSSION

Long-term business survival and growth depend heavily on innovation, which has been nicknamed the "lifeblood" of most companies, particularly in today's complex and dynamic industries and during challenging economic times. The present study evaluated the Consumer resistance to innovation and the reasons or factors behind it, i.e., Motivation, Compatibility, Relative Advantage and Perceived Risk. The finding of the current study help in furthering the literature on Consumer resistance to innovation and various factors behind it. All the four hypotheses were supported. The main findings supported results of earlier research which depict a direct positive correlation between perceived risk and consumer resistance to innovation and a direct inverse correlation between motivation, compatibility, relative advantage and consumer resistance to innovation. This depicted that when consumers feel that they have a relative advantage while using the they have a relative advantage, innovative smartphones, they reciprocate with accepting these innovations. Similar is the case with motivation and compatibility. However, when the consumers feel like there is a risk associated with new innovative smartphones the tend to postpone, resist to accept and simply reject the innovation.

5.1 Implications

Despite the success of inventions, market failure may result from a bottleneck or delay in their distribution. One of the major factors inhibiting or delaying the transmission of innovations in the academic literature seems to have been consumer reluctance. Even though the novel product may bring several benefits and increased functioning, research have revealed that buyers remain often less than enthused about a variety of new products. It has been recognised as one of the main reasons why the innovation market fails as well as a valuable source of information essential to the efficient deployment and promotion of innovations. Adoption will be slowed and the invention will likely fail if resistance cannot be overcome. Businesses must first comprehend customer resistance, its origins, and the factors that influence it in order to become much more effective in their improvement efforts and find solutions to increase competitiveness, productivity, and profitability. The most significant of these aspects are still the qualities of the consumer, specifically their psychological makeup, how they view innovation in relation to the particular product, and the traits, results, and effects of the innovation.

5.2 Limitations

The current research is not without limitations. Firstly, a self-reported questionnaire containing all constructs was utilised which can lead to common method bias. Future studies can be longitudinal so as to further understand the relationships. The sample population serves as a limiting factor as it was from NCR region in India. Further, mediating role of generation or age group and gender can be studied to understand how they affect consumer resistance to innovation. Other factors such as self-efficacy, complexity and attitude towards present can also be studied as per TAM and Ram's model.

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