

Consumer Decision to Upgrade Smart Phones: The Mediating Effects of the Fear of Product Obsolescence

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Abstract

With increasing requirements for better functions, performance and appearance of smart phones, consumers upgrade their smart phones more frequently than before. The pursuit of upgrading may provide many market opportunities, as well as great business risks, to firms. In line of the research streams in replacement behavior, this study focuses on consumers' decision of upgrading smart phones.

The framework of this research stems from the rationale of consumer psychology and the corresponding hypotheses are proposed. We analyzed the data collected in China for hypothesis testing. Our findings show that consumers' personal traits (conformity and need of uniqueness) positively influence the intention to upgrade smart phones. The fear of product obsolescence also exerts a partial mediating effect on the trait-intention relationship.

Key words: Fear of product obsolescence, Intention to upgrade products, Mediating effect.

Track: Consumer Behavior

1. Introduction

Technological advancements change the world and smart phones are an essential part of modern life. China is no exception. China boasts 89% of the smart phone penetration rate in 2018. In consumers' product replacement decisions, upgrade refers to a consumer's second or later time purchase of an improved version of a product, which implies the notion of product performance improvement (Kim & Srinivasan, 2009). In 2018, 66% of Chinese consumers were willing to upgrade their smart phones within one year, and 32% of them would do so even within half a year.

In the use of consumer durables, fear of obsolescence reflects appreciation about making a purchase today because the product will be outdated tomorrow (Higgins & Shanklin, 1992). Consumers of conspicuous durables, like smart phones, may make purchase decisions based not only on product attributes, but also on the purchase decisions made by other consumers in the market. Existing literature used to explore durable purchase decision without distinguishing between first-time and replacement purchases. Few, if any, studies that explore consumer upgrade decisions recognize the fact that consumers may make their repurchase decisions out of affective reasons. This research adds consumer's affective psychology in the cognitive mechanism underlying upgrading decisions.

2. The Model of This Research

The rationale of this research mainly stems from optimal distinctiveness theory, in which the need to differentiate oneself from others and the countervailing need to assimilate oneself with others drive the quest for social identity (Brewer, 1991). It has long been recognized that social influence plays an important role in purchasing behavior. Among manifestations of social influence, conformity results from the opposition of the other group members to an individual's views. In a consumption setting, conformity refers to "a change in consumers'

product evaluations, purchase intentions, or purchase behavior as a result of exposure to the evaluations, intentions, or purchase behaviors of referent others” (Lasca & Zinkhan, 1999). In contrast, consumers’ need for uniqueness is aroused and competes with other motives in situations that threaten the self-perception of uniqueness according to the theory of uniqueness (Snyder & Fromkin, 1977).

Cooper (2004) found that fear of obsolescence plays an important role in consumer decisions, especially with respect to life spans of household appliances. He further distinguished three forms of product obsolescence: psychological obsolescence, economic obsolescence, and technological obsolescence. Psychological obsolescence originates from subjective changes in product perceptions with respect to status achievement, fashion, and aesthetic quality. Economic obsolescence occurs because of financial factors that cause existing products to be considered no longer worth keeping. Technological obsolescence is caused when the functional qualities of the products are inferior to newer models. In the consumer behavior context, fear may increase systematic processing because such affective state may increase the perceived negative consequences of an incorrect purchase judgment and subsequently requires careful scrutiny for more confidence and accuracy in the judgment. The mediation of obsolescence fear in upgrading decisions is justified in that a positive monotonic relationship exists between fear arousal and persuasion and that increases in fear are consistently associated with increases of the recommended action.

3. Research Hypotheses

People with high need for uniqueness derive intrinsic satisfaction from the perception that they are unique, special, and separable from the masses (Fromkin & Snyder, 1980; Snyder, 1992). A desire for social distinction via unusual products influences consumer affect involved in new product adoption and variety-seeking behavior. Consumers with high need for uniqueness are less likely to tolerate economic obsolescence in that they attribute less or

no value to existing versions or models and are inclined to conclude that old products are no longer worth keeping in use (Cooper, 2004). As such consumers are more attracted to the scarcity value of new products, they tend to be much more concerned with psychological obsolescence because products are purchased to communicate superiority to relevant social groups of the purchasers (Brucks, Zeithaml, and Naylor, 2000). Consumers with high need for uniqueness are particularly sensitive to the degree to which they are seen as similar to others and are most likely to acquire unique or scarce products that establish a sense of specialness (Snyder & Fromkin, 1977). Avoiding similarity refers to devaluing and avoiding the purchase of products or brands that are perceived to be commonplace, deepening and reinforcing consumers' fears of technological obsolescence.

H1. The greater consumers' need for uniqueness, (a) the greater their fear of economic obsolescence, (b) the greater their fear of technological obsolescence, and (c) the greater their fear of psychological obsolescence.

Consumers with great need for uniqueness may purchase and replace products because they want to experience novel and different things to satisfy their desire for novelty and stimulation (Lee & Crompton, 1992). To a large extent, they prefer to the newest generation and/or new-styled products and discontinue the use of old-fashioned ones to avoid similarity to others because their success in creating distinctive self images and social images is often short lived (Tian, Beraden, and Hunter, 2001).

H2. The greater consumers' need for uniqueness, the greater their intention to upgrade products.

Deutsch and Gerard (1955) distinguished two types of interpersonal influences: informational and normative influences. The former occurs when an individual accepts information from others as evidence about reality, whereas the latter occurs when the individual conforms to expectations of another person or group.

Consumers with high susceptibility to normative influence may suffer from greater fear

of economic obsolescence. An old durable product becomes economically obsolete when consumers attribute little or no value to an existing version or model and conclude that it is no longer worth keeping in use (Cooper, 2004). As conformity seems to be more visible in the consumption of conspicuous consumer durables, consumers are prone to worry about economic obsolescence (Cripps & Meyer, 1994), especially in the eyes of others.

Consumers who are wary of technological obsolescence tend to sense the pressure to keep up with technological changes. It is logical that the conformity of consumers through informational influence tends to heighten the extent to which they are anxious about technological obsolescence because they have a penchant for always owning the newest and/or the best and resort to the state-of-the-art level of performance of a product as the point of reference when judging product utility. Likewise, consumers' susceptibility to informational influence may lead consumers to great fear of psychological obsolescence. Conformity through informational influence helps consumers with such greater fear behave in ways appropriate to the various reference groups that comprise their social networks, and thus fit into important social situations and interact smoothly with these reference groups (Grewal, Mehta, and Kardes, 2004).

H3: The more likely consumers conform to others, (a) the greater their fear of economic obsolescence; (b) the greater their fear of technological obsolescence and (c) the greater their fear of psychological obsolescence.

In a product evaluation context, information from knowledgeable others and/or inferences based upon the observation of the behavior of others may lead individuals to an increase in their knowledge about the product under consideration. Normative influence occurs when people conform to social norms, please others, get their approval, and avoid criticism and rejection as a result of the desire to receive rewards from others, such as monetary rewards, social status, and support for one's self-concept (Simonson & Nowlis, 2000). Consumers are more susceptible to others especially in the consumption that can

indicate their identity, status and ideology. It is accordingly predicted that:

H4: The more likely consumers conform to others, the greater their intention to upgrade products.

Economic obsolescence occurs when consumers attribute little or no value to the existing version or model of an old durable product and conclude that it is no longer worth keeping in use, according to the cost of new replacements or the expense of repair work (Cooper, 2004). If consumers are concerned about economic obsolescence, they may well seek to maximize tangible rewards and/or minimize punishments. Their purchase decisions are usually framed as a gain above the current level of utility or as an attempt to avert a loss in pre-period utility (Cripps & Meyer, 1994). Accordingly, a decrease in monetary costs for buying new durable products may ease off, to some extent, the extent to which the consumers render their current possessions economically obsolete.

H5: As consumers' fear of economic obsolescence increases, they are more likely to upgrade high-technology consumer durables.

For consumers anxious about technological obsolescence, they may have a penchant for always owning the newest and/or the best and resort to the state-of-the-art level of performance of a product as the point of reference when judging utility (Cripps & Meyer, 1994). The fear of technological obsolescence can stimulate purchase because keeping pace with technological developments is often more satisfying than waiting for possible price reductions (Higgins & Shanklin, 1992). Consumers with technological obsolescence fear tend to emphasize the quality benefit of upgrading to higher-quality products, lowering consumer resistance to innovations.

H6: As consumers' fear of technological obsolescence increases, they are more likely to upgrade high-technology consumer durables.

The fear of psychological obsolescence rises as long as consumers perceive the old product to be unfashionable so that they are no longer attracted to or satisfied by it. Logically,

consumers holding the psychological obsolescence fear tend to place a greater emphasis on the benefits specific to aesthetic appeals or symbolic value (Cooper, 2004). Buying a new product can enhance the consumers' self-perception of being smart or good shoppers and increase shoppers' prestige and achieving higher social status or group affiliation, e.g., becoming a recognized smart shopper or a market maven.

H7: As consumers' fear of psychological obsolescence increases, they are more likely to upgrade high-technology consumer durables.

4. Research Design

An online survey was employed to acquire the data needed for testing the hypothesized model. The respondents in the research are consumers in China who possess smart phones, and they were solicited to complete a questionnaire. The use of online survey is justified for its low cost advantage, quick response, and reliable data quality. After a series of snowball data collection, 470 usable questionnaires were secured for the subsequent data analysis.

The measures for the constructs that compose the research hypotheses were honed by following Churchill's (1979) approach. The final instrument consisted of six measures of interest. A series of confirmatory factor analyses was conducted to purify the reflective multi-item scales that remained after initial item-to-total correlation analyses and exploratory factor analyses. The construct validation results in all measurement scales with Cronbach's coefficient alphas greater than .80. Such results indicate acceptable reliability and unidimensionality (Nunnally, 1978).

The hypotheses are tested using regression analyses. The construct validation produces six finalized reflective measures, which were incorporated into regression models for subsequent hypothesis testing. Following Baron and Kenny (1986), the regression model 1 is established by regressing need for uniqueness and conformity on three forms of fear of product obsolescence. The results show that both need for uniqueness and conformity

positively influence fear of economic obsolescence (H1a ($\beta=0.118$, $p<0.05$) and H3a ($\beta=0.315$, $p<0.05$)), fear of technological obsolescence (H1b ($\beta=0.167$, $p<0.05$) and H3b ($\beta=0.231$, $p<0.05$)), and are validated. The regression model with as dependent variable is significant, and fear of psychological obsolescence (H1c ($\beta=0.170$, $p<0.05$) and H3c ($\beta=0.332$, $p<0.05$)).

The regression model 2 is established by regressing need for uniqueness and conformity on the intention to upgrade, with consumer satisfaction as the control variable. Model 2 is significant ($R^2=0.184$, F value = 36.257 ; $p<0.05$) and H2 ($\beta=0.404$, $p<0.05$) and H4 ($\beta=0.404$, $p<0.05$) are both confirmed. Need for uniqueness and conformity, have positive effects on product upgrading intention.

The regression model 3 is established by regressing need for uniqueness, conformity and three forms of fear of product obsolescence on the intention to upgrade, with consumer satisfaction as the control variable. Model 3 is significant ($R^2 = 0.193$, F value = 19.725 , $p < 0.05$). The comparison between Model 2 and Model 3 demonstrates a partial mediation model, with positive relationships of need or uniqueness and conformity with product upgrading intention; a negative relationship of the fear of economic obsolescence with product upgrading intention; a positive relationship between the fear of technological obsolescence and the intention to upgrade; no relationship of the fear of psychological obsolescence with product upgrade intention.

The regression model 4 is established by regressing three forms of fear of product obsolescence on product upgrade intention, with consumer satisfaction as the control variable. Model 4 is significant ($R^2=0.046$, F-value = 6.594 , $p < 0.05$). H5 ($\beta=-0.137$, $p>0.1$) is disconfirmed , while H6 ($\beta=0.255$, $p < 0.05$) and H7 ($\beta=0.106$, $p<0.1$) are confirmed.

5. Conclusion

The findings of this research confirm that two competing mindsets driven by needs for

uniqueness and conformity not only coexist but also simultaneously impose impacts on fear of product obsolescence as well as the intention to upgrade. In today's technological environment, consumers need to make a series of decisions of whether to retain an incumbent model or replace it with a new one that better meets his or her evolving needs and tastes. This research is to contribute to the literature on the decision of consumers' upgrading purchases by building theoretical connections to both cognitive evaluation and affective responses.

The research findings may offer several managerial guidelines for managing and launching consumer high-technology products. From the marketer's perspective, understanding consumers' upgrading behavior is essential to product planning. Product managers of high-tech companies would like to know what fraction of consumers would upgrade to the new product and improved versions, and how fast (or how late). Marketers may thereby help consumers to manage the transitions between generations: to offer a migration path. Future research may try to extend the findings to a business marketing context in that the need to manage upgrade options can be especially sensitive for business customers.

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