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## **Factors Influencing Consumers' Evaluation and Adoption Intention of Really-New Products Or Services: Prior Knowledge, Innovativeness and Timing of Product Evaluation**

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# Factors Influencing Consumers' Evaluation and Adoption Intention of Really-New Products or Services: Prior Knowledge, Innovativeness and Timing of Product Evaluation

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## ABSTRACT

This paper empirically examines factors influencing consumers' evaluation and adoption intention of really new products. Combining construal level theory with literature on new product evaluation and adoption, we found an asymmetry in the conditional importance of benefit and cost, both as mediators and as antecedents of adoption intention. As mediators, consumer innovativeness does not affect perceived cost, but leads to greater perceived benefit and greater adoption intention. As antecedents, cost is important only if the adoption is highly beneficial, but benefits remain important regardless of cost. Finally, we found that the salience of costs increases as the temporal distance decreases, whilst the salience of benefit remains constant. We discuss implications for marketing of really new products.

## INTRODUCTION

A number of individual, social, and product factors have been shown to be related to the adoption of new products (Rogers 1995; Gatignon and Robertson 1985). However, most existing studies in marketing have focused on incrementally new products, examining the effects of adding new product features to existing products on product evaluation or brand choice (see Nowlis and Simonson 1996; Brown and Carpenter 2000; Mukherjee and Hoyer 2001). Until recently, we have little knowledge of the higher risk, higher reward realm of really-new products (Moreau, Lehman, and Markman 1997; Urban, Weinberg, and Hauser 1996). Really new products are important sources of growth for many companies. From a consumer perspective, really new products are innovations that defy straightforward classification in terms of existing product concepts (Gregan-Paxton and Roedder John 1997; Moreau, Markman and Lehman 2001). As Hoeffler (2003) has shown, consumer uncertainty can make pre-purchase consumer tradeoffs highly labile, making it difficult for firms to estimate adoption intention for really-new products using conventional methods.

This paper intends to fill this important gap by investigating a number of personal, situational and product factors that may particularly affect adoption intention of really-new products or services. Firstly, the adoption intention of a new product is predicted to differ systematically between consumers with varying level of product knowledge, consumer innovativeness and perceived newness. Secondly, really new products or services promise greater benefits (i.e. desirability) than incrementally new products or services, but consumers are uncertain of the utility of those benefits and anticipate that they will have to change their behavior to attain potential benefits (i.e. feasibility) (Hoeffler 2003; Alexander, Lynch, and Wang, in press). Drawing on Libermann and Trope (1998)'s theory about differences in mental representation of the desirability vs. feasibility of an action in the present vs. the future, we examine the salience of benefit and cost in consumers' evaluation of really new products or services along varying temporal distance (i.e. whether they are evaluating a new product for an immediate adoption or a future adoption).

We use a new mobile feedback service as the stimuli for our study. We chose the mobile feedback service because it was a really new service, and it was not yet available in the market when the field

studies were carried out, so the condition of high uncertainty and the manipulation of time frame would be assured. In Study 1, we tested the effect of product knowledge, innovativeness and perceived product newness on adoption intention either directly or mediated by perceived benefit and cost. In Study 2, we tested the relative effects of perceived benefit and cost of the new service on adoption intention, and in study 3, we tested the differential effect of temporal distance (i.e. in six months vs. tomorrow) on the salience of benefit and cost considerations. We find:

1. The effect of consumer innovativeness on adoption intention is significant both directly and indirectly via perceived benefit; whereas the effect of product knowledge on adoption intention is significant only indirectly via perceived newness.
2. The effect of perceived newness on adoption intention is significant.
3. The effect of perceived benefit on adoption intention is significant; whereas the effect of perceived cost on adoption intention is only significant when perceived benefit is relatively high.
4. The greater the temporal distance from product evaluation to actual adoption, the greater the effect of perceived benefit and the less the effect of perceived cost on adoption intention; whereas the smaller the temporal distance from product evaluation to actual adoption, the greater the effect of perceived cost on adoption intention.

## PRIOR KNOWLEDGE, CONSUMER INNOVATIVENESS, PERCEIVED NEWNESS AND ADOPTION INTENTION OF REALLY NEW PRODUCTS

Consumer product knowledge has two major components: familiarity and expertise (Alba and Hutchinson 1987). Familiarity is defined as the number of product-related experiences that have been accumulated by the consumer. Expertise is defined as the ability to perform product-related tasks successfully. The perceived newness of a product service refers to its originality, novelty and uniqueness as perceived by individuals (Dahl, Chattopadhyay, and Gorn 1999). In this paper we intend to study the links between product knowledge, perceived newness and adoption intention of really new products. Really new products are innovations that defy straightforward classification in terms of existing product concepts and are unrelated to direct or in-direct consumer experiences (Gregan-Paxton and Roedder John 1997). Therefore, the familiarity element of product knowledge is likely to be extremely low for all consumers (including both experts and novices). The expertise element of product knowledge on the other hand is expected to assist consumers in more accurately assessing the novel functionality and uniqueness of a really new product. Therefore, we reason that individuals with great product knowledge will be able to understand and appreciate better the newness of a really new product compared to those with little product knowledge. We hypothesize that:

- H1:* Product knowledge is significantly and positively related to perceived product newness.
- H2:* Perceived product newness is positively and significantly related to adoption intention.

Research on consumer innovativeness focuses on the characteristics that differentiate consumers by the speed or willingness with which they adopt new products (Hirschman 1980). Drawing on Manning, Bearden and Madden's (1995) work, consumer innovativeness in this paper refers to the desire to seek out new product information and new product experience. Really new products create new product categories, consumer learning involves developing preferences for new products that are unrelated to direct or indirect consumer experience (Robertson 1971; Nabih, Bloem and Poiesz 1997). Therefore we hypothesize that:

- H3:* Consumer innovativeness is positively and significantly related to perceived benefit.
- H4:* Consumer innovativeness is positively and significantly related to adoption intention.

### PERCEIVED BENEFIT, PERCEIVED COST AND ADOPTION INTENTION OF REALLY NEW PRODUCTS

Consumers who buy a really new product or service expect that the benefit they receive from the product or service exceeds the cost of obtaining the new product or service. When evaluating a new product or service for possible adoption, consumers weigh the benefit against the cost of adoption, and if the perceived benefit outweighs the perceived cost, consumers are more likely to adopt. However, we know little about the specific effect of benefit-cost interaction on consumers' adoption intention.

Construal level theory (CLT) suggests that the costs of adopting a new product or service (e.g. monetary cost, learning effort, time commitment) are construed as low-level, subordinate aspects of the new product or service, whereas the benefits of adopting a new product or service (e.g., that which enables one to do new things) are construed as high-level, superordinate aspects of the new product or service. The subordination of low-level construal aspects to high-level construal aspects entails an asymmetry in the conditional importance of these two types of aspects (Eyal, et al. 2004). This asymmetry suggests that the importance of such low-level aspects depends on the value of the high-level aspects more than the importance of the high-level aspects depends on the value of the low-level aspects. For example, when considering the possible adoption of a new product or service, feasibility considerations are important only if the adoption is desirable, but desirability remains important whether feasibility is high or low. Desirability of a new product or service would thus result from the perceived benefits of adopting the new product or service, whereas feasibility would be derived from the perceived costs of adopting the new product or service. Thus, given a context of a really new service to be evaluated for possible adoption, it is hypothesized:

- H5:* Perceived benefit is significantly and positively related to adoption intention.
- H6:* Perceived cost is significant and positively related to adoption intention only when perceived benefit is relatively high.

### TEMPORAL DISTANCE AND TIME-DEPENDENT CHANGES ON THE RELATIVE EFFECTS OF BENEFIT AND COST ON ADOPTION INTENTION

In deciding to adopt a new product or service, individuals often construct arguments in favour of the action as well as arguments against the action. Such arguments may be made a short time or a long time before actually performing the action as well. What is perhaps under-emphasized in the new product/service adoption literature is how time may systematically influence how individuals value the worth of losses and gains in a new product/service evaluation context. For example, in one conceptualization of a potential systematic temporal influence, the time-and-outcome valuation (TOV) model put forth by Mowen and Mowen (1991), valuations occurring long before an outcome are hypothesized as leading to psychological valuations of gains that are greater than psychological valuations of losses. Similarly, CLT suggests that, because *benefits* constitute a higher level of construal than *costs*, the temporal distance from a future action should differentially influence the salience of benefit and cost considerations. More specifically, it predicts that benefits should be relatively more salient than costs in decisions regarding an action occurring in the distant future relative to the same action occurring in the near future. Because distant future actions are construed at a higher level than are near future actions, benefits become more salient as temporal distance from the action increases, whereas costs become more salient when temporal distance decreases. Therefore, when people think about the possible adoption of a new product or service in the distant future—say, in six months' time, they tend to construe the action of adoption at a higher level, that is, at the level associated with *benefits*, which in turn should positively affect their adoption intentions. However, if individuals think about the possible adoption of a new product or service in the very near future—say, tomorrow, they tend to construe the action of adoption at a lower level, that is, at the level associated with costs, which in turn should adversely affect their adoption intentions. Therefore, in the context of a really new service to be evaluated for possible adoption, it is hypothesized:

- H7:* For those who consider adopting a new service in six months' time, the effect of perceived benefits on adoption intention will be greater than the effect of perceived costs on adoption intention.
- H8:* The effect of the perceived benefit on adoption intention will be greater among individuals considering acquiring a new service in six months' time than among individuals considering acquiring the new service tomorrow.
- H9:* The effect of perceived costs of adopting a new service on adoption intention will be greater among individuals considering acquiring the new service tomorrow than among individuals considering acquiring the new service in six months' time.

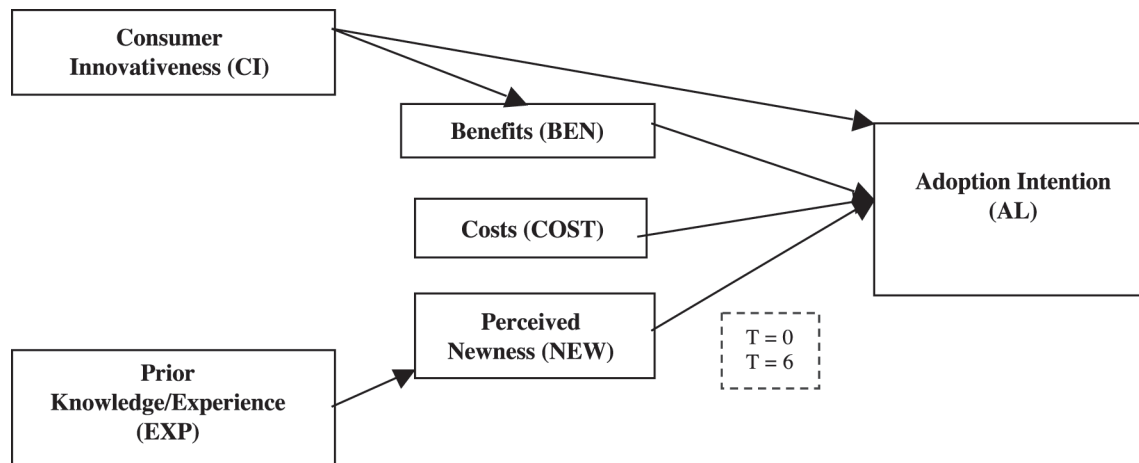
A conceptual model of summarizing the research hypotheses concerning the factors influencing consumers' product evaluation and adoption intention of really new products or services is shown in Figure 1.

### EMPIRICAL STUDIES METHODS

#### Samples and procedures

In order to test our research hypotheses, we obtained permission from a new mobile feedback service provider in the UK to use

**FIGURE 1**  
Model Representing Hypothesized Relationships among Key Variables



the company's newly developed mobile feedback service as the stimuli for our study. We chose the mobile feedback service because it was a new service not yet available in the market, so the manipulation of time frame would be assured. In the study, 220 undergraduate students enrolled in a year-long marketing module were then invited to participate in a survey in which they were given a 230-word description of the new service and were then asked to evaluate the service for possible adoption as well as provide some personal information. The description of the really new service is shown below:

“Collecting feedback from customers, employees and general publics on issues of importance such as service quality, customer satisfaction, are essential for organizations and government bodies. However, with today's busy lifestyle, collecting feedback from a large group of people has become increasingly difficult and challenging. The Mobile Feedback Service makes it easier for people to actively participate in group surveys using their existing mobile phone whenever and wherever they are. That is, the Mobile Feedback service is a way for you to be an active participant in two-way mobile feedback. It enables you to easily give your on-the-go feedback to anyone asking for your input or comments regarding any activity in which you are involved. Individuals (friends, associates, co-workers) can send to your mobile phone multiple-choice question surveys or open-ended question surveys, where you can then text your replies with minimal effort. Those initiating the surveys can then send to your mobile phone summaries of the collective feedback obtained from everyone participating. Of equal importance is the fact that the Mobile Feedback service allows you to create an initiate your own mobile feedback surveys at any time. That is, you can create surveys involving multiple-choice or open-ended questions and send the surveys to any number of individuals with whom you associate. As a result, those individuals can then easily provide you with “on-the-go” feedback that you can then review in summary form at any time”.

Each survey participant was randomly assigned one of two conditions: a near term condition (i.e., tomorrow) or distant time

condition (i.e., six months). Survey instructions therefore stated, “When answering the following questions imagine you will have the new service available to use *tomorrow*” or, alternatively, “When answering the following questions imagine you will have the new service available to use in *six months' time*.” To encourage participation, a raffle ticket number was attached to each questionnaire, and there was a prize of £50 in cash given out to one lucky winner immediately after they completed the questionnaires. 178 usable questionnaires were returned, resulting in a response rate of 80.9%.

### Measures

Where possible, existing measures were used for all variables of interest including the likelihood of adoption (AL), perceived benefits (BEN), perceived costs (COST), perceived product newness (NEW), consumer innovativeness (CI), and product knowledge (EXP). The survey instrument was pre-tested for face validity and reliability. The resulting items were measured on 7-point Likert scales. A summary of the constructs, measurement scales and sources is shown in Table 1.

All variables in the survey were operationalized using multi-item measures. To assess the reliability of the constructs, coefficient alphas were calculated for all variables. Correlations between items were examined for each construct in order to refine the scale further and ensure internal consistency and reliability. Thus, where appropriate, scale items were reduced where inter-correlation coefficients were relatively low and where construct reliabilities were improved by removing them. After refining the scales, co-efficient alpha estimates were calculated as 0.888 for AL, 0.812 and 0.764 for BEN and COST, respectively, and 0.69, 0.903, and 0.886 for NEW, CI, and EXP, respectively. Alpha levels for each of the factors exceeded the acceptance level of 0.7 (Nunnally 1978). Hypotheses were subsequently tested by examining the association between these variables, where multiple regression analyses were performed using SPSS using data from the questionnaires either in combination, where all the data for the two time conditions (tomorrow and in six months' time) were used, or separately (split into two data sets based on the time condition) depending on the hypothesis under examination.

## RESULTS AND ANALYSIS

### Study 1: Prior knowledge, consumer innovativeness, perceived newness and adoption intention for really new products or services

To test H1, the effect of product knowledge (EXP) on perceived newness (NEW) was examined using combined data set. A significant association was found between EXP and NEW, with significance of 0.030 and an  $R^2$  of 0.030. These findings support H1, where prior product knowledge is positively and significantly related to perceived Newness. To test H2, the effect of perceived newness (NEW) on adoption intention (AL) was examined using combined data set. A significant association was found between NEW and AL, with significance of 0.000 and an  $R^2$  of 0.104. This supports H2, where perceived Newness of a product or service will positively and significantly influence its adoption intention.

To test H3, the effect of consumer innovativeness (CI) on perceived benefit (BEN) was examined using combined dataset. A significant association was found between CI and BEN, with significance of 0.022 and an  $R^2$  of 0.034, which supports H3 as consumer innovativeness positively and significantly influences consumer's perceived benefits of the product or service.

To test H4, the effect of consumer innovativeness (CI) on adoption intention (AL) was examined using combined dataset. A significant association was found between CI and AL, with significance of 0.000 and an  $R^2$  of 0.087. This also supports H4, as consumer innovativeness is positively and significantly of influence relative to likelihood of adopting the new product or service.

### Study 2: Perceived benefit, perceived cost and adoption intention of really new products or services

In testing H5, the effect of perceived benefits (BEN) on adoption intention (AL) was examined using the combined data set as well as the two separate data sets for each time condition. A significant association was found between BEN and AL in all three cases, with significance of 0.000 and an  $R^2$  of 0.127 for the combined data (tomorrow and in six months' time), significance of 0.001 and  $R^2$  of 0.142 for tomorrow, and significance of 0.002 and  $R^2$  of 0.117 for the six months' time condition. These findings clearly support H5, where the level of perceived benefits has a significant effect on adoption intention of a new product or service.

In testing H6, the effect of perceived costs (COST) on adoption intention (AL) was examined based on the relative level of the perceived benefits (BEN). To do that, the data set was sorted based on the level of BEN, whereby the two extremes of high and low BEN were examined for their influence on the association between COST and AL. When perceived benefits (BEN) are relatively high, the effect of COST on AL was found to be significant at 0.017, with an  $R^2$  of 0.153. However, when perceived benefits (BEN) are relatively low, the effect of COST on AL was found to be insignificant at 0.219, with an  $R^2$  of 0.053. This finding supports H6, as it shows that, perceived costs have a significant effect on adoption intention when perceived benefits are relatively high; but perceived costs have an insignificant effect on adoption intention when perceived benefits are relatively low.

### Study 3: Temporal distance and time-dependent changes on the relative effects of benefit and cost on adoption intention of really new products and services

To test H7, the data for the distant future condition (six months' time) was analysed. Results of the regression analysis indicates that the effect of perceived benefits (BEN) on adoption intention (AL) in six months' time is significant at 0.005 relative to the effect of perceived costs (COST), which itself is insignificant at

0.484, and where there is an  $R^2$  of 0.123 for the overall model. Thus, H7 is clearly supported where, for those who consider acquiring the new service in six months' time, the effect of perceived benefits is greater than the effect of perceived costs on adoption intention.

To test H8, regression analyses were run using the two separate data sets to compare the timing effect. The effect of perceived benefits (BEN) on adoption intention (AL) of a new product or service was significant for both the tomorrow and six months' time conditions (at 0.01 and 0.02). This result does not reflect a greater influence of perceived benefits on adoption intention among those individuals considering acquiring a new service in six months' time compared to those individuals considering acquiring the new service tomorrow.

In testing H9, regression analyses were performed using the two separate data sets for each time condition (tomorrow and six months time) to compare the influence of perceived costs on adoption intention. Results of the statistical analyses indicate that the effect of perceived costs (COST) on adoption intention (AL) is more significant for the tomorrow condition than the six months' time condition, with statistical significances of 0.020 and 0.156, respectively, and  $R^2$  values of 0.069 and 0.026 for the tomorrow and six months' time conditions, respectively. These findings clearly support H9, where perceived costs affect adoption intention of a new service in the nearer than the distant future. The results are summarized in table 2.

## DISCUSSION

Numerous studies have examined how variations in personal characteristics such as prior knowledge and innovativeness or social interactions such as word-of-mouth can influence people's evaluation or prediction of the benefits of a new product or service (Rogers 1983; Moreau, Lehmann, and Markman 2001; Greg-Paxton and Roedder John 1997). These personal and social factors help to explain why some people may evaluate a new product or service more positively than others. Yet, a positive evaluation of a new product or service itself may not lead to actual adoption. Indeed, marketers of new products or services have long attempted to understand why, despite having indications of positive intentions to adopt, some individuals fail to turn their stated intentions into actual purchases at the time when the opportunity arises to acquire or use the new product or service.

By combining construal level theory with literature on new product evaluation and adoption, this research makes several contributions. First, it provides additional evidence for the effect of individual characteristics such as prior knowledge and consumer innovativeness on adoption intention of really new products or services. It also provides evidence that consumer innovativeness does not affect perceived cost, but it leads to greater perceived benefit and greater adoption intention. Put it differently, when evaluating a new product or service for possible adoption, cost is not an important consideration for individuals with high innovativeness trait. Secondly, it shows that there exists an asymmetry in the conditional importance of benefit and cost considerations for adoption intention. Our results show that, when considering the possible adoption of a new product or service, cost considerations are important only if the adoption is desirable (i.e. high level of benefit), but benefit considerations remains important whether cost is high or low. Thirdly, the salience of cost considerations is found to increase as the temporal distance to anticipated adoption action decreases, whilst the salience of benefit considerations remain constant.

These results are important to marketing strategists who analyse consumer behavior in an attempt to understand how benefit and cost are evaluated, and how timing of such evaluation may

**TABLE 1**  
Constructs and Measurement Scales Used in Analyses

Variable	Construct	Measurement Items (7-point scale used for each)	Scale Reliability	Measurement Scale Source
Newness	NEW	Compared to other services that are currently available, the new mobile feedback service that will become available (time condition) is... 1. Usual                      Unusual 2. Unique                    Ordinary 3. Commonplace          Original	0.69	Dahl, Darren W., Amitava Chattopadhyay, and Gerald J. Gorn (1999)
Benefits	BEN	When I have the mobile feedback service available to use (time condition)... 1. This service will offer me a number of specific benefits. 2. This new service will provide me with many benefits. 3. There will be clear and obvious benefits associated with this new service.	0.812	Hoeffler, Steve (2003)
Costs	COST	When I have the mobile feedback service to use (time condition)... 1. The new service is likely to involve considerable effort to learn how to use. 2. The new service is likely to take a fair amount of time to learn how to use.	0.764	Hoeffler, Steve (2003)
Prior Knowledge/ Experience	EXP	1. Rate your knowledge of mobile messaging 2. Please describe your familiarity with mobile messaging 3. Please rate your level of experience in using mobile messaging	0.886	Alba, Joseph W. and Wesley Hutchinson (1987)
Consumer Innovativeness	CI	Please indicate how well you agree with the following statements about yourself: 1. I often seek out information about new products and brands. 2. I like to go to places where I will be exposed to information about new products and brands. 3. I like magazines that introduce new brands. 4. I frequently look for new products and services. 5. I seek out situations in which I will be exposed to new and different sources of product information. 6. I am continually seeking new product experiences. 7. I take advantage of the first available opportunity to find out about new and different products.	0.903	Manning, Kenneth C., Bearden, William O and Thomas J. Madden (1995)
Adoption Intention	AL	1. How interested would you be in subscribing to the new mobile feedback service after it is available (time condition)? 2. What is the likelihood that you will be one of the early subscribers of this new service after it is available (time condition)?	0.888	New scale specifically developed for the new mobile feedback service

differentially affect adoption intentions and purchase actions. Understanding the factors that influence adoption intention for a new product or service can help marketers decide on the segmentation and positioning strategies and the timing of conducting effective market research studies and whether they may resort to time-based advertising strategies.

There are several limitations to this research. One of the main limitations is the data. While useful and benefiting from a high response rate, it uses a student sample and is based on a single

product category, i.e. telecommunications service. Further research should extend the scope to studying several product categories, and should preferably include both really new products and incrementally new products to ascertain that the findings are generalizable in a broader context.

The single hypothesis rejected in the current research also opens the door for further examination of the relative strength and weakness of benefit measure in future research. Testing the benefit-temporal distance relationship using a different measure that ex-

**TABLE 2**  
Summary & Validation of Hypotheses

	Hypothesis	Support	Significance	R <sup>2</sup>
H1	EXP-NEW	Supported	0.030	0.030
H2	NEW-AL	Supported	0.000	0.104
H3	CI-BEN	Supported	0.022	0.034
H4	CI-AL	Supported	0.000	0.087
H5	BEN-AL Combined Data Set At t=0, At t=6	Supported	0.000 0.001 0.002	0.127 0.142 0.117
H6	COST-AL When BEN is high When BEN is low	Supported	0.017 0.219	0.153 0.053
H7	BEN-AL COST- AL (At t=6)	Supported	0.005 0.484	0.123
H8	BEN-AL At t=0, At t=6	Rejected	0.001 0.002	
H9	COST-AL At t=0, At t=6	Supported	0.020 0.156	0.069 0.026

poses the abstractness of the psychological value to consumers of perceived benefits may provide further insights in future temporal research on new service/product evaluation and adoption.

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