


## Article

# Investigating the Determinants and Barriers of Purchase Intention of Innovative New Products

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**Abstract:** The purpose of this study was to examine the purchase intention of innovative new product (e.g., Galaxy Fold) by integrating behavioral reasoning theory (BRT) to the theory of reasoned action (TRA) and theory of planned behavior (TPB) to test the relative influence of reasons for and reasons against adoption on purchase attitude and purchase intention of Korean consumers. A quantitative research method via an online survey was conducted to test the proposed hypotheses. The sample of the study was 242 Korean consumers who participated in the online survey. Structural equation modeling was conducted by using AMOS 21.0 to test the proposed relationships. The findings showed that value for changes positively related to the reasons for adoption and negatively related to reasons against adoption. Reasons for adoption (e.g., relative advantage, compatibility, simplicity) have a significant positive effect on the purchase attitude, and reasons against adoption (e.g., price barrier, performance barrier, usage barrier) have a significant negative effect on the purchase attitude. Finally, purchase attitude has a significant positive relationship to the purchase intention of innovative new product. The findings of this study offer significant theoretical and managerial contributions in the context of sustainable innovative new product development.

**Keywords:** behavioral reasoning theory; reasons for adoption; reasons against adoption; innovative new product; sustainable innovative new product development



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## 1. Introduction

The emergence of industry 4.0 has accelerated the process of new technologies incorporation to the businesses. This disruption of new technologies became instrumental to innovations in every industry. One of such drastically transforming industries is the smartphone industry. The smartphone industry is going through radical as well as incremental innovations. Whenever there are incremental or radical innovations, then the users of the new products have obstacles in terms of acceptance of the innovation which eventually affect the sustainable new product development. In the prior literature, the major stream of research on sustainable new product development focused on innovation adoption and innovation acceptance.

Researchers have used diffusion of innovation (DOI) to explain the antecedents of the innovation adoption. Similarly, theories such as the technology acceptance model (TAM) [1] and the theory of reasoned action (TRA) [2] were used. These models were focusing more on the adoption of the technologies. However, traditional DOI studies have been widely criticized for neglecting factors that lead to consumer resistance to innovations [3,4]. Therefore, some of the researchers have argued to conduct a study to understand the factors for user's resistance of the new innovation [5]. The purpose of this study is to examine the factors for both resistance and adoption of the innovative new product to the purchase attitude and purchase intention in a single framework. To be more specific, this study will explore consumer's "reasons for adoption" and "reasons against

adoption” of innovative new products on purchase attitude and purchase intention in an integrated manner based on the behavioral reasoning theory.

The findings of this study contribute to innovation adoption and innovation resistance in the context of sustainable innovative new product development. This study also contributes to DOI literature by exploring the influence of context-specific reasons such as relative advantage, compatibility, simplicity as well as price barrier, performance barrier, and usage barrier to the purchase attitude of an innovative new product. The findings of this study will also provide insights to the practitioners to leverage the context-specific reasons of adoption and sustainable innovative new product development.

## 2. Literature Review

### 2.1. Innovative New Products

Companies always strive to create or establish something new and innovative to sustain their competitive advantages and their current shares in the industry. To achieve these objectives, companies generally adopt two different approaches to innovation: radical innovation and incremental innovation.

Radical innovation refers to a new technology (products) which is significantly different from the existing technologies and offers more and substantial benefits [6,7]. Such type of innovation produces dramatic changes in the overall paradigm of the industries. On the other hand, incremental innovation is not about extensively huge changes. Firms that innovate incrementally tend to do so just a little bit at a time, exploiting existing technology and focusing on cost or features improvement in existing products, services, processes, organizations, and/or methods whose performances have been enhanced or upgraded [8]. An innovative new product is a type of incremental innovation that is new to the customers as well as the company in terms of their value-added improvement to the existing products.

### 2.2. Innovation Adoption

Consumer response to innovation is one of the major areas of interest in the literature of marketing. Marketing scholars have long sought “to describe, explain, and predict how consumers respond to innovation” (Hauser et al., 2006, p. 688) [9]. Rogers (2003) argued about the innovation adoption process as “the process through which an individual or other decision-making unit passes from first knowledge of an innovation, to forming an attitude toward the innovation, to a decision to adopt or reject, to implementation of the new idea, and to confirmation of this decision” [10].

In general, diffusion of innovation (DOI) studies are classified into consumer innovation adoption [10] and consumer resistance [4]. Thus, in this way, researchers have investigated the adoption and resistances by using different theories in previous studies. To understand those theories, in the next section we will discuss the theory of reasoned action, the theory of planned behavior, and behavioral reasoning theory.

### 2.3. TRA and TPB

In the prior literature, researchers have used theory of reasoned action (TRA) and theory of planned behavior (TPB) to understand the adoption of the new technology. Primarily, the foundations of these theories are in the social psychology and behavioral studies. TRA considers that the behavior of the performer is always in control. To be very specific, TRA is based on the proposition that an individual’s behavior is determined by the individual’s behavioral intention to perform that behavior, which provides the most accurate prediction of behavior [2]. Specifically, behavioral intention is the outcome of two predictors: one’s attitude toward the behavior and the other is subjective norm.

Attitude toward the behavior is defined as “a person’s general feeling of favorableness or un-favorableness for that behavior” [11]. Subjective norm is defined as a person’s “perception that most people who are important to him think he should or should not perform the behavior in question” [11]. Moreover, this model suggests that intentions are the immediate antecedent of behavior [12] and intentions fully mediate the impact of

attitude towards the behavior and subjective norm on behavior, and partially mediate the impact of perceived behavioral control [13].

An alternative approach to predicting intentions and behavior that is widely used in consumer behavior research is the TPB [12,13]. It proposes three independent predictors of intention which are attitude towards the behavior, subjective norm, and perceived behavioral control [12–15]. Perceived behavioral control comprises of beliefs and perceived facilitation. Control belief is the perception of the availability of the required resources. Perceived facilitation is one’s assessment of the importance of those resources to the achievement of outcomes [16]. The difference between TRA and TPB is that the TPB has incorporated the perceived behavioral control as predictors to the behavior intention which can be affected by control beliefs. Both theories considered that human beings are rational and they always make a decision based on the systematic analysis of the available information.

#### 2.4. BRT

Behavioral reasoning theory (BRT) is a novel way to understand the innovation adoption by considering both the reasons for adoption and reasons against adoption are discussed in a single framework. Westaby (2005) proposed BRT, which investigates both the reasons for and reasons against factors in a single framework [17]. Researchers used this theory to understand innovation adoption and resistance [5,18–20].

According to this theory, context-specific reasons serve as an important linkage between people’s beliefs, global motives, intention, and behavior [17]. Reasons are defined as “specific subjective factors people use to explain their anticipated behavior and can be conceptualized as anticipated reasons, concurrent reasons, and post hoc reasons” [17]. Individuals need reasons to explain their behavior. Westaby (2005) categorized reasons into two groups, such as “reasons for” and “reasons against” the behavior [17]. The “reasons for” and “reasons against” performing the behavior is conceptually distinct and has been conceptualized as “to subsume pro/com, benefit/cost, and facilitator/constraint” (Westaby, 2005 p. 570) [17]. Claudy et al. (2015) used BRT framework in the context of service and product innovation (car sharing/micro-wind turbines) and identified the reasons for and reasons against in a single framework [5]. Similarly, Westaby et al. (2010) also validated the distinct nature of reasons for and reasons against in the decision-making literature [20]. Table 1 indicates studies that used BRT as theory.

**Table 1.** Behavioral Reasoning Theory (BRT) as a Theoretical Framework in the Literature.

| Source                     | Study Purpose/Context  | Findings  |
|----------------------------|--|---|
| Westaby (2005) [17]        | This study developed and validated the new theory which is known as “behavioral reasoning theory” (BRT). Four studies were conducted to explore the proposed relationships of the framework. | Study 1 showed that reasons (for and against the behavior) were differentiated from global motives and they led to attitude and behavioral intention. Study 2 revealed that global motives and reasons predicted intentions. Study 3 discussed that reasons lead to intentions. Finally, Study 4 experimentally investigated and found that traditional belief and reasons predicted global motives and intentions. |
| Westaby et al. (2010) [20] | This study discussed the leadership decision-making by using BRT. The data of the study were collected from the senior executive level employees.  | The findings of the study validated BRT theory in the context of leadership decision-making.  |

Table 1. Cont.

| Source                     | Study Purpose/Context  | Findings   |
|----------------------------|--|--|
| Claudy et al. (2013) [19]  | Based on the BRT, this study investigated the adoption of solar-energy panels. Data of the study was collected from 254 homeowners in Ireland. | The findings of the study showed that adoption attitude led to adoption intention. The reasons for adoption predicted adoption attitude positively. Value alignment predicted the reasons for adoption negatively and reasons against adoption positively.   |
| Claudy et al. (2015) [5]   | Based on BRT, this study explored the adoption and resistance of car-sharing services and micro-wind turbines.                                 | The results showed that attitude led to the behavioral intention, reasons for adoption led to the adoption attitude, reasons against adoption led to the behavioral intention, and values predicted the reasons for adoption. Findings revealed that reasons for and reasons against are primary determinants of the attitude and intention. |
| Gupta & Arora (2017a) [21] | Based on BRT, this study explored the determinants and barriers of mobile shopping adoption.   | Also, value for openness to change has a positive effect on the reasons for adoption. The results showed that reasons for and reasons against have significant effect on the m-banking adoption. In addition, value for openness to change has a significant positive effect on the reasons for adoption.                                    |
| Gupta & Arora (2017b) [22] | Based on BRT, this study explored consumer's adoption of m-banking.  |  |

### 3. Conceptual Framework and Hypotheses

The conceptual framework of the study integrates BRT to TRA and TPB to understand the purchase intention of an innovative new product (e.g., Galaxy Fold) in the Republic of Korea. More specifically, values for change, reasons for adoption, and reasons against adoption are taken from BRT and purchase attitude and purchase intention are taken from TRA and TPB. Figure 1 shows the research model of the study.

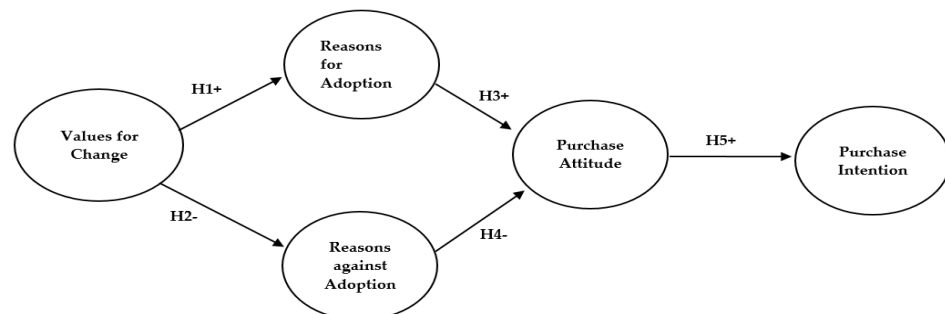


Figure 1. Research model.

#### 3.1. Values for Change and Reasons

Values are motivational constructs, which refer to desirable goals individuals strive to attain [5,23]. In the prior literature of innovation adoption, studies on BRT showed that values for change have a significant positive (negative) relationship on the reasons for (against) adoption [5,21,22,24]. Sivathanu (2018) argued that values for changes have a positive (negative) relationship to the reasons for (against) adoption in the context of the internet of things, wearable for elderly healthcare [24]. Similarly, Claudy et al. (2015) argued that value for change has a positive relationship to the reasons for adoption and negatively related to the reasons against the adoption of wind turbines and car-sharing services [5]. In line with these findings, we propose that value for change likely has a positive effect on reasons for adoption and a negative effect on reasons against the adoption of innovative new products. Thus, we hypothesize:

**Hypothesis 1 (H1).** Consumers' values for change will positively influence their "reasons for" innovative new product adoption.

**Hypothesis 2 (H2).** *Consumers' values for change will negatively influence their "reasons against" innovative new product adoption.*

### 3.2. Reasons and Attitudes

Reasons are specific cognitions and represent the subjective probability that a specific factor is part of the person's behavioral explanation set [17]. Under the reasons theory, a person will get a justification defense for explaining the behavior [25] and reasons can influence the formation of attitude [26]. In the prior literature, the relationship between reasons and attitudes are well established. Researchers have found that reasons play a role in the predictor of attitude formation for behavior. For instance, Claudy et al. (2015) showed that reasons for (against) have a significant positive to the attitude towards adoption (purchase) in the context of both products and services [5]. Ryan and Casidy (2018) found a positive (negative) relationship between reasons for (against) on the attitude towards organic foods [27]. In line with the above findings, we propose that reasons for (against) have a positive (negative) relationship to the attitude toward innovative new product purchases. We thus hypothesize:

**Hypothesis 3 (H3).** *Consumers' "reason for" innovative new product adoption will positively influence their purchase attitude.*

**Hypothesis 4 (H4).** *Consumers' "reason against" innovative new product adoption will negatively influence their purchase attitude.*

### 3.3. Attitudes and Intentions

The relationship between attitude and intention is well established in the prior literature. Different studies have found attitude as antecedent to the behavioral intention. TRA [2] and TPB [11] have also validated this relationship in various contexts. More specifically, Armitage and Conner (2001) have conducted a meta analytic study and found that intentions contribute to 27% variance in behavior [14]. Similarly, Sheeran (2002) found that 28% of the variance in behavior is explained by intentions [28].

Attitude which represents a person's evaluation can be defined as "a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor" (Eagly and Chaiken, 1993, p. 1) [29]. According to the theory of reason action [2], theory of planned behavior [2], and the technology acceptance model [1], attitude is a strong predictor of intention. Extant research in mobile technologies [30] or mobile commerce [31] confirms the positive relationship between attitude and adoption intention. Researchers also found a positive relationship between attitude and purchase intention in a banking context [32–35]. Based on these findings, we infer that the attitude towards innovative new product purchase will influence their purchase intention. Hence, we hypothesize that:

**Hypothesis 5 (H5).** *Consumers' purchase attitude will have a positive effect on purchase intentions.*

## 4. Method and Research Design

### 4.1. Sample and Data

Data was collected through online survey firm (H-Research) in Republic of Korea. H-research keeps the largest number of panels [36] of total 2,882,065 respondents. On our request, the research firm contacted their panel and collected data. After eliminating outlier and missing data, 242 questionnaires have undergone to explore the proposed relationships of the framework. Among the respondents who participated, 116 (47.9%) were males, 126 (52.1%) were females. The sample of the study reflects diversity in-terms of education, age, and professions. Specifically, the largest number of the respondents was from 30 to 39 years of age (32.6%). Based on education, 164 (67.8%) were university graduates followed by high school students 58 (18.2%). Similarly, based on profession, the largest percentages of the respondents were white-collar workers 89 (36.8%). Table 2 shows

demographic characteristics of the respondents in detail.

**Table 2.** Demographic Characteristics of Respondents.

|           | Demographics        | Frequency      | Percentage |
|-----------|---------------------|----------------|------------|
| Gender    | Male                | 116            | 47.9       |
|           | Female              | 126            | 52.1       |
| Age       | 20 s                | 35             | 14.5       |
|           | 30 s                | 79             | 32.6       |
|           | 40 s                | 67             | 27.7       |
|           | 50 s                | 36             | 14.9       |
|           | ≥60 s               | 25             | 10.3       |
| Education | High school         | 58             | 24.0       |
|           | Bachelors           | 164            | 67.8       |
|           | Masters             | 20             | 8.2        |
|           | White color         | 89             | 36.8       |
|           | Housewife           | 29             | 12         |
|           | Professional        | 23             | 9.5        |
|           | Technology/Engineer | 21             | 8.7        |
|           | Inoccupation        | 19             | 7.9        |
|           | Students            | 13             | 5.4        |
|           | Job status          | Sales/services | 12         |
|           | Self-employment     | 9              | 3.7        |
|           | Public servant      | 7              | 2.9        |
|           | Research position   | 6              | 2.5        |
|           | Temporary job       | 6              | 2.5        |
|           | Others              | 8              | 3.7        |
|           | Total               | 242            | 100        |

#### 4.2. Measurement

The measurement items of all the constructs were taken and adapted from the prior literature. We used the elicitation method proposed by Wastaby (2005) [17]. According to this method, the consumers were asked about the reasons for adoption and reasons against adoption. Based on this method, the consumers have reported relative advantage, compatibility, and simplicity as reasons for adoption, and value barrier, performance barrier, and usage barrier as reasons against adoption. The respondents used a five-point Likert scale ranging from 1 to 5, where 1 stands for strongly disagree and 5 stands for strongly agree to answer the given survey questions. Relative advantage was measured by three items, adapted from Tan and Teo (2000) [37]. Compatibility was assessed by three items taken from Ram (1987) [38]. Simplicity was measured by four items adapted from the study of Laukkanen et al. (2007) [39]. Similarly, price barrier was measured by three items, each taken from Joachim, Spieth, and Heidenreich (2018) [40]. Performance barrier was measured by three items, each taken from Joachim et al. (2018) [40]. Usage barrier was measured by four items, each taken from Joachim et al. (2018) [40]. Value for change was measured by three items taken from the study of Claudy et al. (2015) [5]. Purchase attitude and purchase intention were measured by three items each taken and adapted from the study of Fishbein and Ajzen (1975) [2]. Appendix A shows the measurement items of the all the constructs in details.

#### 4.3. Common Method Bias

Before formally conducting the analysis of the data, we checked the common method bias. To assess the common method bias, we used Harman's single-factor method. As recommended, we added all the items of constructs in a single factor without selecting any rotation. The findings revealed that the total variance explained on single factor is 38.5%, which is less than 50% of the cutoff and thus confirms the absence of common method bias.



## 5. Results

### 5.1. Reliability and Validity of Measurements

In this study, we have two second order constructs which are “reasons for adoption” and “reasons against adoption.” In order to check the reliability and validity of the indicators, we separately conducted confirmatory factor analysis (CFA) for “reasons for adoption” and “reasons against adoption” by using AMOS 21. To be very specific, the reasons for adoption comprise three constructs which are relative advantage, compatibility, and simplicity. Similarly, reasons against adoption also comprise of three constructs such as price barrier, performance barrier, and usage barrier.

The fit indices of both models satisfied the recommended cutoff values. Results showed that for reasons for adoption  $\chi^2 = 37.74$  (df = 32,  $p < 0.01$ ),  $\chi^2/df = 1.18$ , RMR = 0.02, RMSEA = 0.02, IFI = 0.99, TLI = 0.99, CFI = 0.99, whereas reasons against adoption  $\chi^2 = 39.19$  (df = 32,  $p < 0.01$ ),  $\chi^2/df = 1.22$ , RMR = 0.02, RMSEA = 0.03, IFI = 0.99, TLI = 0.99, CFI = 0.99. Summary of the results are shown in Tables 3 and 4 in detail.

**Table 3.** Results of Confirmatory Factor Analysis of Reasons for Adoption.

| First Order Construct | 2nd Order Construct       | Items             | Loadings ( $\beta$ ) | Cronbach's $\alpha$ | Composite Reliability (CR) | Average Variance Extracted (AVE) |      |
|-----------------------|---------------------------|-------------------|----------------------|---------------------|----------------------------|----------------------------------|------|
| Reasons for adoption  | Relative Advantage (0.85) | RA1               | 0.86                 | 0.88                | 0.88                       | 0.71                             |      |
|                       |                           | RA2               | 0.86                 |                     |                            |                                  |      |
|                       |                           | RA3               | 0.81                 |                     |                            |                                  |      |
|                       | Compatibility(0.82)       | CO1               | 0.92                 | 0.93                | 0.93                       | 0.81                             |      |
|                       |                           | CO2               | 0.93                 |                     |                            |                                  |      |
|                       |                           | CO3               | 0.85                 |                     |                            |                                  |      |
|                       | Simplicity (0.72)         | Simplicity (0.72) | SI1                  | 0.90                | 0.94                       | 0.94                             | 0.79 |
|                       |                           |                   | SI2                  | 0.91                |                            |                                  |      |
|                       |                           |                   | SI3                  | 0.87                |                            |                                  |      |
| SI4                   |                           |                   | 0.88                 |                     |                            |                                  |      |

$\chi^2 = 37.74$  (df = 32,  $p < 0.01$ ),  $\chi^2/df = 1.18$ , RMR = 0.02, RMSEA = 0.02, IFI = 0.99, TLI = 0.99, CFI = 0.99.

**Table 4.** Results of Confirmatory Factor Analysis of Reasons against Adoption.

| First Order Construct    | 2nd Order Construct        | Items                | Loadings ( $\beta$ ) | Cronbach's $\alpha$ | CR   | AVE  |      |
|--------------------------|----------------------------|----------------------|----------------------|---------------------|------|------|------|
| Reasons against adoption | Price Barrier (0.74)       | PB1                  | 0.93                 | 0.92                | 0.92 | 0.80 |      |
|                          |                            | PB2                  | 0.86                 |                     |      |      |      |
|                          |                            | PB3                  | 0.89                 |                     |      |      |      |
|                          | Performance Barrier (0.78) | Pe1                  | 0.86                 | 0.93                | 0.93 | 0.82 |      |
|                          |                            | Pe2                  | 0.93                 |                     |      |      |      |
|                          |                            | Pe3                  | 0.92                 |                     |      |      |      |
|                          | Usage Barrier (0.69)       | Usage Barrier (0.69) | UB1                  | 0.84                | 0.94 | 0.94 | 0.79 |
|                          |                            |                      | UB2                  | 0.90                |      |      |      |
|                          |                            |                      | UB3                  | 0.95                |      |      |      |
| UB4                      |                            |                      | 0.87                 |                     |      |      |      |

$\chi^2 = 39.19$  (df = 32,  $p < 0.01$ ),  $\chi^2/df = 1.22$ , RMR = 0.02, RMSEA = 0.03, IFI = 0.99, TLI = 0.99, CFI = 0.99.

In order to assess the validity of the proposed model, the maximum likelihood method was used by performing confirmatory factor analysis (CFA) through AMOS 21. The results which are shown in Table 5 indicate that measurement model fits to the data well such as  $\chi^2 = 507.53$  (df = 369,  $p < 0.01$ ),  $\chi^2/df = 1.37$ , RMR = 0.03, RMSEA = 0.04, IFI = 0.98, TLI = 0.97, CFI = 0.99. All the standardized loadings were above 0.70 and the average variance extracted (AVE) is greater than 0.50, which confirm the reliability of the measurement items [41,42].

**Table 5.** Results of Confirmatory Factor Analysis.

| Latent Variable     | Items | Loadings ( $\beta$ ) | Cronbach's $\alpha$ | CR   | AVE  |
|---------------------|-------|----------------------|---------------------|------|------|
| Value for change    | VC1   | 0.92                 | 0.93                | 0.92 | 0.80 |
|                     | VC2   | 0.91                 |                     |      |      |
|                     | VC3   | 0.85                 |                     |      |      |
| Relative Advantage  | RA1   | 0.85                 | 0.88                | 0.88 | 0.71 |
|                     | RA2   | 0.86                 |                     |      |      |
|                     | RA3   | 0.81                 |                     |      |      |
| Compatibility       | CO1   | 0.78                 | 0.93                | 0.93 | 0.76 |
|                     | CO2   | 0.92                 |                     |      |      |
|                     | CO3   | 0.91                 |                     |      |      |
| Simplicity          | SI1   | 0.90                 | 0.94                | 0.94 | 0.79 |
|                     | SI2   | 0.91                 |                     |      |      |
|                     | SI3   | 0.87                 |                     |      |      |
|                     | SI4   | 0.88                 |                     |      |      |
| Price Barrier       | PB1   | 0.93                 | 0.92                | 0.92 | 0.80 |
|                     | PB2   | 0.86                 |                     |      |      |
|                     | PB3   | 0.89                 |                     |      |      |
| Performance Barrier | Pe1   | 0.86                 | 0.93                | 0.93 | 0.82 |
|                     | Pe2   | 0.93                 |                     |      |      |
|                     | Pe3   | 0.92                 |                     |      |      |
| Usage Barrier       | UB1   | 0.84                 | 0.94                | 0.94 | 0.79 |
|                     | UB2   | 0.90                 |                     |      |      |
|                     | UB3   | 0.95                 |                     |      |      |
|                     | UB4   | 0.87                 |                     |      |      |
| Purchase Attitude   | AT1   | 0.78                 | 0.82                | 0.82 | 0.61 |
|                     | AT2   | 0.80                 |                     |      |      |
|                     | AT3   | 0.76                 |                     |      |      |
| Purchase Intention  | IN1   | 0.87                 | 0.94                | 0.94 | 0.84 |
|                     | IN2   | 0.96                 |                     |      |      |
|                     | IN3   | 0.93                 |                     |      |      |

$\chi^2 = 507.53$  ( $df = 369$ ,  $p < 0.01$ ),  $\chi^2/df = 1.37$ ,  $RMR = 0.03$ ,  $RMSEA = 0.04$ ,  $IFI = 0.98$ ,  $TLI = 0.97$ ,  $CFI = 0.99$ .

Similarly, the construct-level reliability or convergent validity measured by two different approaches: Cronbach's coefficient alpha and composite reliability. The results show that Cronbach's alphas and composite reliabilities were greater than the threshold cutoff of 0.70 [43].

The square roots of Average Variance Extracted (AVE) are higher than the correlation between each construct, which revealed the discriminant validity of the scale [42]. Table 6 shows the correlation among the constructs and the square roots of AVE in bold at the diagonal.

**Table 6.** Correlation and with Square roots of Average Variance Extracted (AVE) at the Diagonal.

| Variables              | 1           | 2           | 3           | 4           | 5           | 6           | 7           | 8           | 9           |
|------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1. Relative advantage  | <b>0.84</b> |             |             |             |             |             |             |             |             |
| 2. Compatibility       | 0.72        | <b>0.87</b> |             |             |             |             |             |             |             |
| 3. Simplicity          | 0.61        | 0.60        | <b>0.89</b> |             |             |             |             |             |             |
| 4. Price barrier       | −0.26       | −0.26       | −0.29       | <b>0.89</b> |             |             |             |             |             |
| 5. Performance barrier | −0.30       | −0.35       | −0.38       | 0.58        | <b>0.90</b> |             |             |             |             |
| 6. Usage barrier       | −0.37       | 0.36        | −0.62       | 0.51        | 0.54        | <b>0.89</b> |             |             |             |
| 7. Value for change    | 0.14        | 0.30        | 0.22        | −0.12       | −0.13       | −0.15       | <b>0.89</b> |             |             |
| 8. Purchase attitude   | 0.59        | 0.26        | 0.53        | 0.26        | −0.38       | −0.40       | 0.26        | <b>0.78</b> |             |
| 9. Purchase intention  | 0.54        | 0.28        | 0.39        | 0.28        | −0.27       | −0.24       | 0.28        | 0.73        | <b>0.92</b> |

All are significant at  $p < 0.01$ .



## 5.2. Hypotheses Testing

As previously discussed, based on the recommendations of Anderson and Gerbing (1988) [44], the theoretical framework was tested by using goodness of fitness indices. The structural model analysis results showed that the proposed model fits to the data well as the values are;  $\chi^2 = 200.84$  ( $df = 85$ ,  $p < 0.01$ ),  $\chi^2/df = 2.36$ , RMR = 0.07, RMSEA = 0.07, IFI = 0.95, TLI = 0.94, CFI = 0.95 [45]. Table 7 provides a summary of the results of proposed relationships of the current study. As the current study proposed in H1 a positive relationship between value for change and reason for adoption, which was supported by the results ( $\beta = 0.31$ ,  $p < 0.01$ ). Similarly, H2 of the study proposed that value for change has a negative relationship to the reason against adoption, which was supported by the results ( $\beta = -0.18$ ,  $p < 0.05$ ). H3 of the study hypothesized that there is a positive relationship between reasons for adoption and purchase attitude, which was supported ( $\beta = 0.76$ ,  $p < 0.05$ ). H4 was supported from the study which proposed that reason against adoption negatively related to purchase attitude which was also supported ( $\beta = -0.16$ ,  $p < 0.01$ ). H5 of the study proposed that purchase attitude leads to purchase intention which was supported by the results ( $\beta = 0.75$ ,  $p < 0.01$ ).

**Table 7.** Results of Structural Equation Modeling SEM (Research Model).

| Relationship of Variables |                           | Hypotheses | $\beta$ | Results   |
|---------------------------|---------------------------|------------|---------|-----------|
| Value for change          | → Reason for adoption     | H1(+)      | 0.31 ** | Supported |
| Value for change          | → Reason against adoption | H2(−)      | −0.18 * | Supported |
| Reason for adoption       | → Purchase attitude       | H3(+)      | 0.76 ** | Supported |
| Reason against adoption   | → Purchase attitude       | H4(−)      | −0.16 * | Supported |
| Purchase attitude         | → Purchase intention      | H5(+)      | 0.75 ** | Supported |

$\chi^2 = 200.84$  ( $df = 85$ ,  $p < 0.01$ ),  $\chi^2/df = 2.36$ , RMR = 0.07, RMSEA = 0.07, IFI = 0.95, TLI = 0.94, CFI = 0.95. \*\*  $p < 0.01$ , \*  $p < 0.05$ .

In order to check the robustness of the research model, we conducted a mediation test for the proposed alternate model of our research model. The results of the mediation are shown in Table 8. The result showed that reasons for adoption fully mediated the relationship between value for change and purchase attitude ( $\beta = 0.22$ ,  $p < 0.05$ ). Similarly, reasons against adoption partially mediated the relationship between values for change and purchase attitude ( $\beta = 0.01$ ,  $p < 0.05$ ). Purchase attitude partially mediated the relationship between reason for adoption and purchase intention ( $\beta = 0.38$ ,  $p < 0.01$ ). Finally, purchase attitudes partially mediated the relationship between reason against adoption and purchase intention ( $\beta = -0.48$ ,  $p < 0.01$ ).

**Table 8.** Results of Mediation Analysis.

| Relationship | Direct Effect (with Mediator) | Direct Effect (without Mediator) | Indirect Effect         | Mediation           |
|--------------|-------------------------------|----------------------------------|-------------------------|---------------------|
| VFC-RF-PA    | 0.30 *                        | 0.05                             | 0.22 * (0.13, −0.31)    | Fully mediation     |
| VFC-RA-PA    | −0.31 *                       | 0.06 *                           | 0.01 * (0.01, −0.17)    | Partially mediation |
| RF-PA-PI     | 0.74 *                        | 0.29 *                           | 0.38 ** (0.27, −0.59)   | Partially mediation |
| RA-PA-PI     | −0.33 **                      | −0.16                            | −0.48 ** (−0.24, −0.48) | Partially mediation |

VFC: value for change, RF: Reason for adoption, RA: Reason against, PA: Purchase attitude, PI: Purchase intention, \*\*  $p < 0.01$ , \*  $p < 0.05$ .

Furthermore, we also conducted a Sobel test to verify the results. Table 9 shows the results in detail. Results showed that reasons for adoption and reasons against adoption mediated the relationship between value for change and purchase attitude. Similarly, purchase attitude mediated the relationship between reasons for adoption, reasons against adoption, and purchase intention.

**Table 9.** Results of Sobel Test.

| Relationship   | Sobel Test |
|--|------------|
| value for change → reason for adoption → purchase attitude       | 4.62 **    |
| value for change → reason against adoption → purchase attitude   | 1.89 *     |
| reason for adoption → purchase attitude → purchase intention     | 3.11 **    |
| reason against adoption → purchase attitude → purchase intention | −1.91 *    |

\*\*  $p < 0.01$ , \*  $p < 0.05$ .

## 6. Discussion and Conclusions

The purpose of this study was to investigate reasons for adoption and reasons against adoption on the purchase attitude and purchase intention of an innovative new product based on the BRT, TPB, and TRA. The findings of the study showed that value for change leads to reasons for adoption positively and reasons against adoption negatively. These findings are consistent with the findings of previous studies. In past studies, Claudy et al. (2015) showed the positive relationship between value for change and reasons for adoption [5]. Similarly, Gupta and Arora (2017a; 2017b) also found the positive relationship between value for change and reasons for adoption [21,22].

The findings of the study also showed that reasons for adoption lead to purchase attitude, which also supported some of the findings in the previous studies [5,21,22]. To be very specific, in the previous studies, the researchers explored the effects of reasons for adoption and reasons against adoption on the adoption attitude and adoption intention. However, in the current study, we explored the significance of reasons for and reasons against the purchase attitude and purchase intention of innovative new products.

The current study also found the positive relationship between purchase attitude and purchase intention in the context of an innovative new product for sustainable innovative new product development. These findings are consistent with the results of the previous studies in different other contexts [32–35].

### 6.1. Theoretical Implications

Theoretically, this study has significant implication to the sustainable innovative new product development literature by using BRT to investigate the reasons for and reasons against in the purchase of innovative new product (i.e., galaxy fold). The contribution of this study is threefold. Firstly, our research focused on reasons against adoption, which have rarely been addressed in the innovation studies [46,47]. As previously discussed, reasons for and against adoption distinct constructs and they have different influence of adoption and resistance. Hence, in this way, BRT identifies the factors which determine adoption and resistance of the innovative new products.

Secondly, this study contributes to the literature of adoption and resistance by discussing the context specific reasons. Reasons for and against adoption are distinctive and can exist simultaneously. As reasons against adoption, the findings of the study showed that price barrier, performance barrier, and usage barriers are the dominants obstacles to adoptions of innovative new product. Similarly, the present study has also discussed reasons for adoption such as relative advantage, compatibility, and simplicity.

Thirdly, the present study has discussed the influence of value for change on the reasons for adoption and reasons against adoption in the context of innovative new product adoption. The findings have supported the previous studies which have argued the positive effect of value for change on the reasons for adoption and the negative effect on the reasons against adoption.

### 6.2. Managerial Implications

The findings of the study have several implications for practitioners. First, in the current study we investigated the reasons for adoption and reasons against adoption of innovative new product in a single framework. These findings have far-reaching managerial contributions. This is because in the previous studies, researchers have focused

exclusively on the adoption of the innovations (innovative new products). Therefore, the current study can provide implication in-term of innovation adoption and resistance. As context specific reasons for adoptions, the current study has identified relative advantage, compatibility, and simplicity. Hence, marketing managers should give attention to these factors in the formulation of marketing strategies for sustainable innovative new product development. To be more specific, marketing managers can highlight the benefits of the innovative new product in their advertisements. Marketing managers can also make noises about the relative advantages by using the former customer's opinions by social network sites, so the message can reach more people. Second, the marketing managers and designers of the products should make sure about the compatibility of the product with the different complementary technologies. The more compatible the products, the more likely it will have diffusion. Third, the marketing managers and manufacturer should consider the simplicity of the product. In this regard, they can ensure the simplicity of the user's interface simplicity.

Similarly, the findings of the present study also discussed the reasons against adoption. Specifically, the results showed that price barrier, performance barrier, and usage barriers were some of the factors which make obstacles for the adoption of the innovative new product. In this regard, the marketing managers are advised to minimize these barriers by ensuring the economic benefits, performance benefits.

Finally, the findings of this study revealed that attitude towards an innovative new product predict the purchase intention. Therefore, the managers should focus more on the attitude formation of the consumers about the innovative new product. In this regard, the manager should enhance the relative advantage, simplicity, and compatibility of the innovative new products which in turn lead to making attitude towards purchase intention. Furthermore, the managers can also increase the attitude towards innovative new product purchase by minimizing the value barriers, performance barriers, and usage barriers of innovative new products, which eventually can be instrumental in the sustainable innovative new product development. Moreover, the findings of this study are also helpful in the context of sustainable innovative new product development. The managers can leverage the reasons for adoption and reasons against adoption for the sustainable innovative new product development.

### *6.3. Limitations and Future Research*

Our study has several limitations which opens new avenues for future researches. To begin with, in the present study, innovation adoption intention was used as outcome variables; therefore, in future researchers can extend this model by adding the actual behavior. Similarly, researchers can consider moderating variables such as demographic factors and personal innovations in the context of innovative new product purchase. Also, the researchers can study this framework in cross-cultural contexts because the "reasons for" and "reasons against" could vary across various cultures.

Furthermore, we empirically tested this framework in the context of galaxy fold in Korea and did not replicate it in other countries, which limits the generalizability of this study. Therefore, for increasing the generalizability of the framework in the context of galaxy folding, cross-cultural studies in other countries are needed. Moreover, in the current study, we explored consumer's reason for adoption and reason against adoption in the context of galaxy fold as innovative new product. However, our study has overlooked consumer's evaluation about galaxy fold as an innovative new product. Therefore, future researches are asked to empirically evaluate the perception of consumers about galaxy folding as an innovative new product. Finally, the hypothesized relationships of this study were explored with a cross-sectional study by collecting data at a single point of time. Therefore, another study that validates the findings of this study in a longitudinal setting is also needed.

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## Appendix A

### Values for change

1. I like surprises and I'm always looking for new things.
2. I am looking for adventure and taking risks.
3. I am open to new experiences.

### Relative advantage

1. This product offers advantages that are not currently provided by smartphones.
2. This product is superior to the current smartphone.
3. This product solves a problem that cannot be solved with current smartphones.

### Compatibility

1. This product will be more suitable for various tasks than current smartphones.
2. This product will fit my smartphone usage habits.
3. This product will be suitable for my smartphone use purpose.
4. This product will fit my lifestyle.

### Simplicity

1. This product will be easy to use.
2. It will be easy to learn the features of this product.
3. It will be easy to understand what this product is for.
4. The system of this product will not be complicated.

### Price barriers

1. This product seems to have a low price/performance ratio.
2. This product is not a fair price in terms of cost performance.
3. This product seems to have a lower cost-performance ratio compared to the current smartphone.

### Performance barriers

1. I have doubts about the performance of this product.
2. I doubt that this product will be of the same quality as the advertisement.
3. We raise questions about the function expressed in the advertisement of this product.

### Usage barriers

1. New learning is required to use this product.
2. This product seems to be inconvenient to use.
3. This product seems to be complicated to use.
4. It seems difficult to learn how to use this product quickly.

### Purchase attitude

1. Buying a Galaxy Fold is a great option.
2. Buying a Galaxy Fold is a smart choice.
3. Buying a Galaxy Fold is great.

## Purchase intention

1. I will be purchasing this product in the near future.
2. I will use this product in the future.
3. I will buy this product in the future.

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