Examining continuance usage of mobile Internet services from the perspective of resistance to change

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Abstract
Retaining users and facilitating their continuance usage are critical for mobile Internet service providers. From the perspective of resistance to change, this research identified the factors affecting continuance usage of mobile services. We collected data among mobile Internet users and conducted data analysis with structural equation modeling. The results indicated that trust and switching costs have strong effects on resistance to change, which in turn affects continuance usage. In addition, trust affects perceived usefulness and flow experience. The results indicate that mobile service providers need to increase users’ resistance to change in order to facilitate their continuance usage.

Keywords
mobile Internet services, continuance usage, resistance to change, switching costs, China

Retaining users and facilitating their continuance usage are crucial for mobile service providers.

Introduction
With the application of third generation (3G) mobile communication technologies, mobile Internet has been developing rapidly in the world. According to a report issued by China Internet Network Information Center (CNNIC) in July 2012, the number of mobile Internet users in China has exceeded 388 million, accounting for 72 percent of its Internet population (538 million) (CNNIC 2012). Faced with this great market, mobile service providers have released a variety of services, such as mobile instant messaging, mobile games, mobile purchase and mobile banking. They expect users to widely adopt and use these emerging services. A few mobile services have been popular among users (CNNIC 2012). For example, about 83 percent of users have ever used mobile instant messaging (CNNIC 2012). In addition, services such as mobile search, mobile news and mobile music also receive wide adoption among users. However, acquiring new users is only the initial step for mobile service providers. They also need to retain existing users and facilitate their post-adoption usage. It has been discovered that the cost of acquiring a new customer is 5 times that of retaining an existing customer (Reichheld and Schefter 2000). To some extent, unless users continue their usage, mobile service providers cannot achieve success. Service providers have invested great resource and effort on releasing mobile services. They cannot recover costs and make profit if users discontinue their usage. In addition, the competition among mobile service providers is intense (Liu et al. 2011). For example, there exist multiple products in the Chinese mobile instant messaging market, such as mobile QQ, Fetition, mobile MSN and mobile Wangwang, which are owned by Tencent, China Mobile, Microsoft and Alibaba, respectively. Mobile service providers need to retain users in order to achieve competitive advantage. Further, the switching costs are relatively low.
for mobile service users. They can easily switch from a mobile service provider to an alternative one. Thus, it is critical for mobile service providers to retain users and facilitate their continuance usage.

Extant research has examined mobile user continuance from multiple perspectives, such as the technology acceptance model (TAM) (Lee et al. 2007a; Shin et al. 2010), the decomposed theory of planned behavior (DTPB) (Hong et al. 2008), the expectation confirmation theory (ECT) (Thong et al. 2006), service quality (Kuo et al. 2009), and the two-factor theory (Lee et al. 2009). However, these theories are mainly concerned with the effect of enablers, such as perceived usefulness and satisfaction, which can directly promote continuance usage. In addition to enablers, inhibitors such as resistance to change may also affect user retention by preventing him or her from switching. Due to their resistance to switch, users will be locked into the relationship with the current mobile service provider. This may help retain users and facilitate their continuance usage. Thus, it is necessary to examine mobile user continuance from the perspective of resistance to change. This is the purpose of this research. Four factors, including perceived usefulness, trust, flow experience and switching costs are proposed to affect resistance to change and continuance usage. We collected data among mobile Internet users and conducted data analysis with structural equation modeling. The results validate the hypotheses.

The rest of this paper is organized as follows. We review related literature on resistance to change and mobile user continuance in the next section. Then we develop the research model and hypotheses in section three. Section four describes instrument development and data collection. Section five reports data analysis and results, followed by a discussion of these results in section six. We present the theoretical and managerial implications in section seven. Section eight concludes the paper.

Literature review

Mobile user continuance

Mobile user adoption includes two phases: initial adoption and post-adoption (Chen et al. 2012). Initial adoption is concerned with first-time usage, whereas post-adoption is concerned with continuance usage. Compared to the abundant research on initial adoption, post-adoption has received relatively less attention from researchers (Chen et al. 2012). TAM is probably the most often used theory to examine mobile user behavior (Varnali and Toker 2010). TAM proposes that perceived usefulness and perceived ease of use are two main factors affecting user adoption of a new technology (Davis 1989). Both factors are found to affect user satisfaction (Lee et al. 2007a) and post-adoption of mobile Internet (Shin et al. 2010). In addition, perceived ease of use affects user’s continuance intention of mobile games (Liang and Yeh 2011). TAM is also integrated with DTPB to examine continuance usage of mobile data services (Hong et al. 2008). Attitudinal beliefs, normative beliefs and perceived behavioral control are identified to affect continuance intention (Hong et al. 2008). Among them, attitudinal beliefs include perceived usefulness, perceived ease of use and perceived enjoyment. Normative beliefs include social influence and media influence.

In addition, other theories such as the ECT and the two-factor theory are also used to understand mobile user continuance usage. Expectation confirmation has a significant effect on mobile Internet user’s satisfaction and continuance intention (Thong et al. 2006; Zhou 2011; Chen et al. 2012). Service quality and perceived value also affect user satisfaction, which affects post-purchase intention of mobile value-added services (Kuo et al. 2009). With respect to the two-factor theory, information quality as a motivational factor and system quality as a hygiene factor determine post-adoption usage of mobile data services (Lee et al. 2009). Information systems success model is also used to examine mobile user’s post-adoption. System quality, information quality and information presentation have effects on user satisfaction with mobile banking (Chung and Kwon 2009) and repeat intention (Koivumaki et al. 2008).

Resistance to change

Resistance to change means a user’s opposition to switching from a service provider to an alternative one. It reflects a preference for maintaining the current status or situation (Kim and Kankanhalli 2009). Users may resist changing their service provider because of various reasons such as switching costs. These users will be locked into the relationship with the service provider and continue their usage of mobile services.

Information systems researchers have examined the effect of resistance to change on user behavior in a variety of contexts, such as healthcare information technology (HIT) (Bhattacherjee and Hikmet...
2007), online banking (Al-Somali et al. 2009), digital library (Nov and Ye 2009), and online shopping (Gupta et al. 2007). TAM is also combined with resistance to change to understand user adoption (Bhattacherjee and Hikmet 2007; Al-Somali et al. 2009). Further, resistance to change has a significant effect on perceived ease of use (Nov and Ye 2008). Switching costs and perceived value are found to affect user resistance to information systems implementation (Kim and Kankanhalli 2009; Kim 2011). In line with these studies, our research will generalize resistance to change to the mobile service context and examine its effect on mobile user behavior.

**Research model and hypotheses**

**Perceived usefulness**

Perceived usefulness is a main factor of TAM (Davis 1989) and it reflects the utility associated with using mobile services. Compared to traditional Internet, the main advantages of mobile Internet include ubiquity and immediacy. With the help of mobile networks and terminals, mobile Internet has freed users from temporal and spatial constraints, and enabled them to acquire information or services at any time from anywhere (Lee 2005). This brings great convenience to users and improves their living and working efficiency and effectiveness. Thus, if a service provider can present ubiquitous and timely information and services to users, they will maintain the relationship with the service provider and resist switching to another service provider. On the other hand, if users often encounter service interruption or unavailability, they cannot acquire the expected utility of mobile services (Yun et al. 2011). This may lead to their switch to another service provider due to the possible uncertainty associated with switch. For example, they may worry that the new service provider lacks ability and integrity to provide quality information and services to them. In addition, trust building involves a long time. This may increase users’ resistance to change as they need to spend much time on interacting with and building trust in a new service provider. Further, trust provides a guarantee that users will acquire their expected outcome in future. This will facilitate their continuance usage. The effect of trust on user behavior has been validated in extensive literature (Beldad et al. 2010; Hsu et al. 2011; Thatcher et al. 2011).

H2.1: Trust positively affects resistance to change.

H2.2: Trust positively affects continuance usage.

**Flow experience**

Flow reflects a holistic sensation that people feel when they act with total involvement (Csikszentmihalyi and Csikszentmihalyi 1988). Hoffman and Novak (1996) argues that flow is characterized by: (1) a seamless sequence of responses facilitated by machine interactivity, (2) intrinsic enjoyment, (3) a loss of self-consciousness, and (4) self-reinforcement. Flow reflects a balance between users’ skills and challenges (Hoffman and Novak 2009). When skills exceed challenges, users feel bored. In contrast, when challenges exceed skills, users feel anxious. When skills and challenges are lower than the threshold values, users feel apathy. Only when both skills and challenges exceed the threshold values and have a good match will users experience flow. As an illusive concept, flow consists of multiple dimensions, such as perceived enjoyment, concentration and perceived control (Koufaris 2002). Perceived enjoyment reflects the pleasure associated with using mobile services.
Concentration reflects user immersion in using the services. Perceived control reflects user feelings of control over the activity and surrounding environment.

The constraints of mobile terminals such as small screens and inconvenient input may negatively affect user experience. If a mobile service provider can improve interface design and present a compelling experience to users, they will resist changing and keep their relationship with the service provider. If they switch to another service provider, they may be unable to enjoy a satisfying experience. In addition, flow as an optimal experience will facilitate users’ continuance behavior as they expect to obtain this experience again in future. Flow has been found to affect user behavior in various contexts, such as instant messaging (Zaman et al. 2010), online purchase (Guo and Klein 2009; Guo and Poole 2009), virtual community (Lin 2009), mobile TV (Jung et al. 2009), and mobile games (Ha et al. 2007). Consistent with these results, we propose,

H3.1: Flow experience positively affects resistance to change.

H3.2: Flow experience positively affects continuance usage.

Switching costs

Switching costs reflect the expected costs of switching from a current service provider to an alternative one. It often includes sunk costs, continuance costs and learning costs (Ranganathan et al. 2006). Sunk costs mean the unrecoverable time and effort spent on skillfully using original services. Continuance costs mean the abandoned benefits associated with switch such as discount and consumption points. Learning costs mean the effort and time spent on learning to use new services. When switching costs are expensive, the switching barrier is high for users and they will be locked into the relationship with the current service provider. This may increase their resistance to change. If users choose to switch to another service provider, they need to bear high switching costs including sunk costs, continuance costs and learning costs. Thus, switching costs will help retain users and facilitate their continuance usage. Extant research has reported the effect of switching costs on user behavior (Deng et al. 2010; Lee et al. 2011).

H4.1: Switching costs positively affect resistance to change.

H4.2: Switching costs positively affect continuance usage.

**The relationship between trust, perceived usefulness and flow experience**

Trust may help improve perceived usefulness and user experience. Trust enables users to believe that mobile service providers have necessary ability, integrity and benevolence to deliver a positive utility and compelling experience to them. In contrast, if they do not trust mobile service providers, they cannot expect utility and enjoyable experience from service providers. Prior research has noted the effect of trust on perceived usefulness (Gefen et al. 2003) and flow (Lee et al. 2007b).

H5: Trust positively affects perceived usefulness.

H6: Trust positively affects flow experience.

**Resistance to change and continuance usage**

Resistance to change will let users keep their relationship with the current service provider. Since they are unwilling to switch to another service provider, they may continue their relationship with the current service provider. Thus, resistance to change as an inhibitor may help facilitate continuance usage.

H7: Resistance to change positively affects continuance usage.

Figure 1 presents the research model.

**Method**

The research model includes six factors. Each factor was measured with multiple items. All items were adapted from extant literature to improve content validity (Straub et al. 2004). These items were first translated into Chinese by a researcher. Then another researcher translated them back into English to ensure consistency. When the instrument was developed, it was tested among 10 users that had rich mobile service usage experience. Then according to their comments, we revised some items to improve the clarity and understandability. The final items and their sources are listed in Appendix A.

Items of perceived usefulness were adapted from Bhattacherjee (2001) to reflect the improvement of performance and effectiveness associated with using mobile services. Items of trust were adapted from Pavlou and Gefen (2004) to measure mobile service providers’ ability, integrity and benevolence. We measured flow with items adapted from Lee et al.
to reflect users’ concentration, perceived control and enjoyment. Items of switching costs were adapted from Tsai et al. (2006) to reflect users’ effort and time loss derived from switch. Items measuring resistance to change were adapted from Gupta et al. (2007) to reflect that users did not change their preference to a mobile service provider. Items of continuance usage were adapted from Bhattacherjee (2001) to reflect user intention to continue using a mobile service.

Data were collected in April 2011 at three service outlets of China Mobile and China Unicom, both of which are the main telecommunication operators in China. These service outlets are located in an eastern China city, where mobile Internet is more developed than other regions. Users went to these service outlets to apply for new services, pay bills and print invoices. Due to the large number of users, they often need to wait for a moment before they are served by the representatives. This allows us to interview them and conduct data collection. We contacted users and inquired whether they had mobile service usage experience. Then we asked those with positive answers to fill the questionnaire based on their mobile service usage experience. We scrutinized all responses and dropped those with too many missing values. As a result, we obtained 277 valid responses. Table 1 lists the demographic information of the sample.

### Results

Following the two-step approach recommended by Anderson and Gerbing (1988), we first examined the measurement model to test reliability and validity.

Then we examined the structural model to test research hypotheses.

First, we conducted a confirmatory factor analysis to examine the validity. Validity includes convergent validity and discriminant validity. Convergent validity measures whether items can effectively reflect their corresponding factor, whereas discriminant validity measures whether two factors are statistically different. Table 2 lists the standardized item loadings, the average variance extracted (AVE), composite reliability (CR) and Cronbach Alpha values. As listed in the table, most item loadings are larger than 0.7. The T values indicate that all loadings are significant at 0.001. All AVEs and CRs exceed 0.5 and 0.7, respectively. Thus, the scale has good convergent validity (Bagozzi and Yi 1988; Gefen et al. 2000).

In addition, all Alpha values are larger than 0.7, showing good reliability (Nunnally 1978). To examine the discriminant validity, we compared the square root of AVE and factor correlation coefficients. For each factor, the square root of AVE is significantly larger than its correlation coefficients with other factors. This suggests good discriminant validity (Fornell and Larcker 1981; Gefen et al. 2000).

Second, we adopted structural equation modeling software LISREL to estimate the structural model. Table 3 lists the results. As listed in the table, except H1.1, other hypotheses are supported. Switching costs, trust and flow affect resistance to change and continuance usage. In addition, perceived usefulness and resistance to change also affect continuance usage. Trust has significant effects on perceived usefulness and flow.

Table 4 lists the recommended and actual values of some fit indices. All fit indices have better actual values than the recommended values. This indicates a good fitness of the research model (Gefen et al. 2000). The explained variance of perceived usefulness,
flow experience, resistance to change and continuance usage is 43.2 percent, 45.8 percent, 56.7 percent and 75.7 percent, respectively.

Discussion

The results indicated that among the factors affecting resistance to change, trust and switching costs have larger effects. Trust reflects a dedication-based mechanism, whereas switching costs reflect a constraint-based mechanism (Gupta et al. 2007). Trust enables users to believe that mobile service providers have necessary ability and integrity to provide expected product and services. This will decrease their perceived risk and increase their intention to resist changing. In addition, trust building is an ongoing process (Beldad et al. 2010), which requires continuous interaction with a service provider. If users switch to another service provider, they may also need to spend much time on evaluating its trustworthiness. Thus, trust may help prevent users from switching. Switching costs also have a significant effect on resistance to change. This result is consistent with Kim and Kankanhalli (2009)’s findings. Switching costs will increase switching barrier and lock users into the relationship with a service provider. Switching costs includes sunk costs, learning costs and continuance costs. To some extent, sunk costs and learning costs are relatively low for users as the same kind of mobile applications and services have similar functions and operation. Users can quickly adapt to a new service without much effort. However, there may exist significant differences on continuance costs. Service providers can increase continuance costs such as providing convenient services, discounts and awards in order to retain users. The results indicated that perceived usefulness has no effect on resistance to change. We conducted a post-hoc analysis and found that when trust is excluded from the model, the effect of perceived usefulness on resistance to change becomes significant (\( \beta = 0.14, P<0.05 \)). This suggests that the effect of trust on resistance to change shadows the effect of perceived usefulness on resistance to change. These results indicate that perceived utility is not a strong factor forming user resistance. Users may attach more importance to trust building, which requires service providers’ considerable effort and resource investment.

Perceived usefulness, trust, flow experience and switching costs have significant effects on continuance usage. Among them, flow experience has the largest effect. Flow as an optimal experience has been found to affect user behavior in extensive literature (Hausman and Siekpe 2009; Lu et al. 2009; O’Cass and Carlson 2010; Zaman et al. 2010). Especially, the constraints of mobile terminals such as small screens and inconvenient input highlight the necessity to improve interface design and deliver a compelling experience to users. We found that trust affects flow experience. When users build trust in mobile service providers, they will feel control and reduce their effort spent on monitoring service providers’ behavior. This

Table 2. Standardized item loadings, AVE, CR and Alpha values.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Item</th>
<th>Standardized item loading</th>
<th>AVE</th>
<th>CR</th>
<th>Alpha value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived usefulness</td>
<td>PU1</td>
<td>0.911</td>
<td>0.71</td>
<td>0.88</td>
<td>0.87</td>
</tr>
<tr>
<td></td>
<td>PU2</td>
<td>0.909</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PU3</td>
<td>0.695</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trust (TRU)</td>
<td>TRU1</td>
<td>0.822</td>
<td>0.65</td>
<td>0.85</td>
<td>0.84</td>
</tr>
<tr>
<td></td>
<td>TRU2</td>
<td>0.873</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TRU3</td>
<td>0.720</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flow (FLOW)</td>
<td>FLOW1</td>
<td>0.729</td>
<td>0.53</td>
<td>0.77</td>
<td>0.76</td>
</tr>
<tr>
<td></td>
<td>FLOW2</td>
<td>0.689</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FLOW3</td>
<td>0.764</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Switching costs (SC)</td>
<td>SC1</td>
<td>0.822</td>
<td>0.63</td>
<td>0.83</td>
<td>0.83</td>
</tr>
<tr>
<td></td>
<td>SC2</td>
<td>0.838</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SC3</td>
<td>0.710</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resistance to change (RTC)</td>
<td>RTC1</td>
<td>0.776</td>
<td>0.69</td>
<td>0.87</td>
<td>0.87</td>
</tr>
<tr>
<td></td>
<td>RTC2</td>
<td>0.887</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>RTC3</td>
<td>0.820</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuance usage(USE)</td>
<td>USE1</td>
<td>0.736</td>
<td>0.56</td>
<td>0.79</td>
<td>0.79</td>
</tr>
<tr>
<td></td>
<td>USE2</td>
<td>0.773</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>USE3</td>
<td>0.731</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3. Path coefficients and their significance.

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Path</th>
<th>Coefficient</th>
<th>Supported or not</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1.1</td>
<td>PU→RTC</td>
<td>0.03</td>
<td>No</td>
</tr>
<tr>
<td>H1.2</td>
<td>PU→USE</td>
<td>0.18***</td>
<td>Yes</td>
</tr>
<tr>
<td>H2.1</td>
<td>TRU→RTC</td>
<td>0.30***</td>
<td>Yes</td>
</tr>
<tr>
<td>H2.2</td>
<td>TRU→USE</td>
<td>0.24***</td>
<td>Yes</td>
</tr>
<tr>
<td>H3.1</td>
<td>FLOW→RTC</td>
<td>0.15*</td>
<td>Yes</td>
</tr>
<tr>
<td>H3.2</td>
<td>FLOW→USE</td>
<td>0.36***</td>
<td>Yes</td>
</tr>
<tr>
<td>H4.1</td>
<td>SC→RTC</td>
<td>0.42***</td>
<td>Yes</td>
</tr>
<tr>
<td>H4.2</td>
<td>SC→USE</td>
<td>0.16*</td>
<td>Yes</td>
</tr>
<tr>
<td>H5</td>
<td>TRU→PU</td>
<td>0.66***</td>
<td>Yes</td>
</tr>
<tr>
<td>H6</td>
<td>TRU→FLOW</td>
<td>0.68***</td>
<td>Yes</td>
</tr>
<tr>
<td>H7</td>
<td>RTC→USE</td>
<td>0.15*</td>
<td>Yes</td>
</tr>
</tbody>
</table>

(Note: *, P<0.05; **, P<0.01; ***, P<0.001).
helps them be immersed in using mobile services and obtain an enjoyable experience. Thus, mobile service providers need to build user trust in order to improve his or her experience. For example, they can adopt location-based services to acquire users’ real-time location and present the relevant information and services to users based on their location. This personalized service may signal service providers’ ability and integrity, thus affecting user trust. It is worth noting that service providers need to acquire users’ permission in advance because this service needs to utilize location information and this may arouse users’ privacy concern. If users receive location-based advertisements without their knowledge, they may feel that their privacy is violated, which will decrease their trust in mobile service providers.

Resistance to change has a significant effect on continuance usage. This suggests that resistance to change exerts its role as an inhibitor. When users resist switching to another service provider, they are locked into the relationship with the current service provider and will continue their usage.

**Theoretical and managerial implications**

From a theoretical perspective, this research examined post-adoption usage of mobile services from the perspective of resistance to change. As noted earlier, extant research has focused on examining mobile user continuance usage from the perspective of enablers such as satisfaction and service quality, and has seldom considered the effect of inhibitors such as resistance to change on user behavior. Although user behavior can be directly promoted by enablers, it may be also affected by inhibitors, which help retain users and prevent them from switching. We found that resistance to change has a significant effect on continuance usage of mobile services. Trust, switching costs and flow affect resistance to change. Thus, this research provides a new perspective of examining continuance usage of mobile services, and the results advance our understanding of mobile user behavior.

In addition, this research generalizes extant findings on resistance to change from traditional information systems such as HIT (Bhattacherjee and Hikmet 2007) and online banking (Al-Somali et al. 2009) to emerging mobile services. This also enriches extant research on resistance to change.

From a managerial perspective, our results imply that mobile service providers need to attach importance to resistance to change in order to facilitate post-adoption usage of services. They may have been concerned with the effect of enablers such as satisfaction and service quality, and neglected the effect of resistance to change on user behavior. Our findings suggest that in addition to the enablers of user behavior, service providers also need to consider increasing users’ resistance to change in order to retain them. Trust and switching costs are identified as the main factors affecting resistance to change. Thus, mobile service providers need to adopt measures such as good interface design to build user trust in them (Cyr et al. 2006). They also need to provide convenient and value-added services to increase switching costs. Then users may resist switching to an alternative service provider and continue their usage. In addition, trust has a strong effect on flow. This suggests that trust provides a guarantee for users to obtain an enjoyable experience in future. Besides enhancing interface design, service providers can adopt third-party certification to transfer user trust in these third-parties to trust in them. They can also build linkages with other credible service providers to engender user trust.

**Conclusion**

Retaining users and facilitating their continuance usage are crucial for mobile service providers. From the perspective of resistance to change, this research identified the factors affecting continuance usage of mobile services. The results indicate that trust and switching costs are the main factors affecting resistance to change, which in turn affects continuance
usage. Thus, mobile service providers need to increase users’ resistance to change in order to retain them and facilitate their continuance usage.

This research has the following limitations. First, we collected data in China, where mobile Internet is developing rapidly but is still in its early stages. Thus, our results need to be generalized to other countries that have developed mobile business. Second, we used a relatively small (277) sample. And our data may not be randomly sampled. Further research is needed to test the results with a large and random sample. Third, we mainly conducted a cross-sectional study. However, user behavior is dynamic. Thus a longitudinal research may provide more insights on user behavior development.

Appendix A. Measurement scale and items

Perceived usefulness (PU) (adapted from Bhattacherjee (2001))

PU1: Using this mobile service improves my living and working performance.
PU2: Using this mobile service enhances my living and working effectiveness.
PU3: Overall, this mobile service is useful.

Trust (TRU) (adapted from Pavlou and Gefen (2004))

TRU1: This service provider is trustworthy.
TRU2: This service provider keeps its promise.
TRU3: This service provider keeps customer interests in mind.

Flow experience (FLOW) (adapted from Lee et al. (2007b))

FLOW1: When using this mobile service, my attention is focused on the activity.
FLOW2: When using this mobile service, I feel in control.
FLOW3: When using this mobile service, I find a lot of pleasure.

Switching costs (SC) (adapted from Tsai et al.(2006))

SC1: Switching to other service providers will cost me much effort.
SC2: Switching to other service providers will cost me much time.
SC3: Switching to other service providers will incur much loss to me.

Resistance to change (RTC) (adapted from Gupta et al. (2007))

RTC1: I would not willingly change my preference to use the services presented by this service provider.
RTC2: I would not substitute this service provider with another service provider.
RTC3: Even if my close friends were to recommend another service provider, I would not change my preference for using the services presented by this service provider.

Continuance usage (USE) (adapted from Bhattacherjee (2001))

USE1: I intend to continue using this mobile service rather than discontinue its use.
USE2: My intentions are to continue using this mobile service than use any alternative means.
USE3: If I could, I would like to discontinue my use of this mobile service (reversed item).

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