WHY DO USERS PREFER AN EXPERIENCED IT PROVIDER?
A STUDY OF NEW ONLINE SERVICES ADOPTION

Jiao Wu
Sheldon B. Lubar School of Business, University of Wisconsin -Milwaukee
2200 E. Kenwood Blvd. Milwaukee, WI 53201
jiaowu@uwm.edu, 414-229-2549

Shuyuan Deng
Sheldon B. Lubar School of Business, University of Wisconsin -Milwaukee
2200 E. Kenwood Blvd. Milwaukee, WI 53201
dengs@uwm.edu, 414-229-2533

ABSTRACT
This paper studies users’ adoption of multiple IT services: do users prefer to use new IT services from an experienced IT provider? By drawing insights from Information Diffusion Theory (IDT), we propose a research model to address this question. Corresponding methods to empirically test the model are also provided.

INTRODUCTION

Multiple Online Services Adoption

Contemporary IT enterprises face severe and intense rivalry, globalization, and time-to-market pressures. The ability to detect and seize market opportunities is considered to be an imperative for success (Sambamurthy et al, 2003). These IT firms spend expensively in Research & Development (R&D) innovation. They publish online services and products with speed and surprise, in order to attract and retain more users by meeting their multiple demands. For example, Microsoft has a wide series of popular IT services, such as MSN, hotmail, MySpace, and Bing. Similarly, Google is famous for its search engines, Gmail, blogspot.com, etc.

Although prior studies have demonstrated that invest in R&D does have benefits on performance and productivity, the actual outcomes are unforeseeable (Dorothy, 2010). IT industry believes that R&D innovations have potential to attract and keep individual’s attention by improving human quality of life, however; actually adoption of them varies significantly (Seneler et al, 2010). Even though a number of services may be provided by one IT vendor, the services adoption rates are different. For example, Google took 71.59% of search engine market share while Bing.com (Microsoft) took only 9.87% of the whole market share in 2010. However, in terms of email clients, hotmail covered 17% market share while Gmail gained merely 5% of the whole clients in 2010. Besides these two famous magnates, many other IT companies also have one or two very popular products, with other online products less successful.
Wu and Deng

New Online Services Adoption

High input with uncertain return makes R&D investment an unfavorable business. Therefore, a deep understanding on customer’s perception towards these new innovated online services is needed. This can help IT enterprises to shape their business strategies, reallocate budget and improve user’s satisfaction.

Although there is an interest in providing multiple online services via R&D among temporary IT service providers, little research in Management Information Systems (MIS) area touches this area. That is because many researchers regard multiple online services adoption from a same enterprise as brand loyalty, which has been heavily explored in marketing and e-commerce studies (Alwi, 2009; Chen & Hitt, 2002; Lin & Sun, 2009). However, adopting and using multiple services from a unique IT vendor is not quite the same as brand loyalty in marketing area since IT is a special business field and IT services are different from conventional marketing products. Gallaugher and Wang (2002) provided some explanations which are listed as follows. First of all, users form expectations regarding the potential size of the IT services. However, customers do not always expect the potential size of traditional services in marketing context. Secondly, perceived network externality of provided services can be an important antecedent of IT service hedonic pricing. However, in conventional market context, customers do not generally consider whether others also adopt same product. Thirdly, compatibility and standards are critical for software and web services while they are not strictly required in conventional markets. However, research in conventional markets still provides some underpinnings to investigate and explore current study, which will be illustrated later.

Based on the importance and gap discussed above, the purpose of this paper is to broaden understanding about multiple IT services adoption behavior, which is valued by IT industry and is also important for information systems (IS) academic researchers. In particular, we discuss and investigate the factors that influence users’ adoption from an IT service provider from whom a previous service has been experienced (We use “experienced IT provider” to represent this term in the rest of this paper). In order to investigate the inter-relationships among multiple services, interactions between previously adopted services and newly targeted ones are explored. Through our theorizing, we draw insights from Innovation Diffusion Theory (IDT) to address following research question:

Are individuals going to adopt new online services or products from an experienced IT provider/enterprise? If so, what salient factors will affect individuals’ adoption?

The rest of this paper is organized as follows. Firstly, we explore the nature of multiple services adoption behavior from two perspectives. Secondly, we discuss theoretical foundations of IDT, which provides guidelines for this research. Thirdly, we propose a research model with hypotheses and justifications. Fourthly, we provide a series of methods to implement empirical test. Finally, a set of conclusions and potential contributions of this research is provided.
NATURE OF MULTIPLE ONLINE SERVICES ADOPTION FROM AN EXPERIENCED IT PROVIDER

Multiple online services adoption from a certain IT enterprise can be viewed from two distinctly conceptual perspectives. The first one is brand loyalty, which is the tendency of some customers to engage in repeat purchases of the same brand or from an experienced IT provider overtime (Chen & Hitt, 2002). The other is technology and services acceptance, which is related to technology and product innovation (Seneler et al., 2009).

Multiple Services Adoption as Brand Loyalty

Brand loyalty or customer loyalty, as defined above, is a major theme in marketing research. It has become an essential concern and a strategic obsession for many managers (Bodet, 2008). Due to the significance of brand loyalty and customer inertia on IT business, there is a growing interest in IT industry and MIS academic field. According to Yen and Lu (2008)’s study, e-service quality has a positive influence on customer loyalty on e-marketing field. Moreover, Sledgianowski and Kulviwat (2009) find that trust and satisfaction serve as a source for customer loyalty within the context of social network sites (Sledginowski & Kulviwat, 2009).

In our research, we define multiple services adoption behavior as new services adoption behavior, which happens after one has already adopted other services from the same IT provider. Users facing various online services and products, engage in selection and adoption decisions. For some IT providers, continually developing and releasing services will benefit both themselves and users. Riquelme et al. (2009) demonstrate that offering a wide portfolio of Internet products helps banks to create online banking satisfaction, which is also a measure of IS success. In the current study, we would like to address whether the inter-relationships among the previous and the newer services would also affect IS success, the adoption behavior. And, we also investigate how users value them. Since little research addresses this question, further investigation is required.

Multiple Services Adoption as Technology Adoption

Technology adoption has already been discussed extensively in previous MIS studies. However, most of them focus on single technology or separable service acceptance. A variety of theories are applied to address this kind of research, such as TAM, TRA (Fishbein & Ajzen, 1975), and TPB (Ajzen, 1991). However, regarding different services or products as correlated components and viewing them from an integrative perspective will get other points of view. For example, Whitten et al. (2000) demonstrated that since synergies will create more return, IT investment should be spent in both procuring and selling services. Therefore, an integrated perspective is taken in current study in order to investigate factors not only from separable innovations but also synthetically from all of the services.
DOMAIN OF RESEARCH

Do users prefer to adopt multiple services from a same IT vendor? What factors affect their acceptance behavior? The current study focuses on a domain of multiple online services adoption from an IT service provider. In order to get a thorough understanding, we test our model with different kinds of services from a real IT services provider—Tencent Inc..

Theoretical Foundations

IDT is used as the theoretical guideline for this research. We conceptualize several independent factors as antecedents of relative advantage, compatibility and complexity. New service adoption behavior is conceptualized as a dependent variable.

Interpretation of Innovation Diffusion Theory (IDT)

After examining IDT in general, we draw insights from it to address the research questions. Innovation is an idea, practice, or object that is perceived as new by individual or other units of adoption (Rogers, 2003). Therefore, a number of new online products and services can be regarded as technological innovations. According to IDT, these technological innovations may create uncertainty about their consequences in minds of potential adopters. Are users going to adopt new online services from an experienced IT provider? If so, what factors motivate customers to exert their effort to execute this adoption behavior?

There are several characteristics of innovation, as perceived by individuals, helping to explain their different rates of adoption (Rogers, 2003). They are relative advantage, compatibility, complexity, trialability and observability. The specific definitions of these five concepts are listed in Table 1.

However, in previous IS research, not all of these factors have been found to be significant in affecting technological adoption. Relative advantage, compatibility and complexity are the most important factors, which influence adoption rate (Rogers, 2003). Moreover, these three are theoretically and empirically shown to have a direct effect on adoption intention or actual adoption (Karahanna et al, 2006; Slyke et al, 2002; Parry & Wilson, 2009). Therefore, with relative advantage, compatibility and complexity, IDT has the potential to be used as an overarching theory for our study. Current research focuses on figuring out salient factors of dependent variable, which is new online service adoption.

Also, it is theoretically and empirically demonstrated by extant research that, compared with TAM, IDT has used a more complex set of beliefs to predict adoption (Karahanna et al, 2006). Some salient factors in TAM can be regarded as equivalent beliefs in IDT. Perceived usefulness (PU) is equivalent to relative advantage and perceived ease of use is analogous to complexity, although the connotes are opposite. Karahanna et al. (2006) reconceptualize compatibility as a multi-dimension construct, which has sub constructs of compatibility with work style, compatibility with existing work, compatibility with prior experience and compatibility with values.
Table 1. Characteristics of innovation

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Definition</th>
<th>Reference</th>
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<tr>
<td>Relative advantage</td>
<td>The degree to which an innovation is perceived as better than the idea it supersedes.</td>
<td></td>
</tr>
<tr>
<td>Compatibility</td>
<td>The degree to which an innovation is perceived as being consistent with the existing values, past experiences and needs of potential adopters.</td>
<td>Rogers, 2003</td>
</tr>
<tr>
<td>Complexity</td>
<td>The degree to which an innovation is perceived as difficult to understand and use.</td>
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<tr>
<td>Trialability</td>
<td>The degree to which an innovation may be experimented with on a limited basis.</td>
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<tr>
<td>Observability</td>
<td>The degree to which the results of an innovation are visible to others.</td>
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In our context, adopting new services from an experienced IT provider also falls into the category of technology adoption area. Users’ previous adoption may have influences on later adoption. For example, it is shown in marketing area that previous satisfaction would affect customer’s later purchase decision (Riquelme et al, 2009). From this point of view, IDT could be a suitable theoretical frame for current research to explore a wide range of salient factors.

**RESEARCH MODEL**

**Proposed Model**

![Diagram of the new online service adoption model](image)

Figure1. New online service adoption model.
Constructs and Definitions

Table 2. Constructs and definitions

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Definition</th>
<th>Reference</th>
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<tbody>
<tr>
<td>Cooperation</td>
<td>The degree to which the later service and previous services can support and complement each other to enhance performance. (adapted)</td>
<td>Premkumar, 2000</td>
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<tr>
<td>Trust</td>
<td>Customers’ trustworthiness towards certain IT provider, in terms of competence, benevolence and integrity (adapted).</td>
<td>McKnight et al, 2002</td>
</tr>
<tr>
<td>Consistency</td>
<td>The consistency of the new service with prior service experienced from a certain IT provider.</td>
<td>Karahanna et al, 2006</td>
</tr>
<tr>
<td>Network externality</td>
<td>The degree of potential value users add through interaction with other members via IT services (adapted).</td>
<td>Gallaugher &amp; Wang, 2002</td>
</tr>
<tr>
<td>Effort expectancy</td>
<td>The degree of <em>ease</em> associated with usage of services (adapted).</td>
<td>Venkatesh et al, 2003</td>
</tr>
<tr>
<td>Technology familiarity</td>
<td>The users’ understanding towards technology based on previous interaction, experience and knowledge. (adapted)</td>
<td>Gefen, 2000</td>
</tr>
<tr>
<td>Relative advantage</td>
<td>The degree to which an online service is perceived as better than the idea it supersedes.</td>
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<td>Complexity</td>
<td>The degree to which an online service is perceived as difficult to understand and use.</td>
<td>Roger, 2003</td>
</tr>
<tr>
<td>Adoption</td>
<td>The indication of users’ use behavior of new IT services (adapted).</td>
<td>Delone and Mclean, 1992; 2003</td>
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Hypotheses and Justification

Perceived cooperation to Relative advantage (+)

Perceived cooperation refers to the degree to which the prior services and the later service can support and complement each other to enhance performance. Premkumar (2000) discussed that cooperation can span variety of functionalities and businesses, and it improves the overall performance. Also, as Gallaugher and Wang (2002) demonstrated in their study, in multiproduct market, customers look for benefits through both current and later purchase. Moreover, Parker and Van Alstyne (2000) have modeled a situation that the demands of one product are influenced linearly by the quantity of the other product sold. Therefore, we can infer that new services adoption might also be influenced by the previous services adoption. In our context, online services, especially those that can complement and cooperate with previously adopted services, are able to achieve better performance than using single one or using services separately. Thus, we hypothesize:

**H1:** Perceived cooperation between the new service and prior adopted services positively affects relative advantage of the new from the experienced IT provider.

Trust to Relative Advantage (+)

Trust, in the current study, refers to the degree to which users believe a certain IT provider is trustworthy. There are three specific trusting beliefs working as sub constructs. They are competence, benevolence and integrity (Gefen 1997; 2002). According to extant studies, trust develops gradually (Kim & Tadisina, 2007; Zahedi & Song, 2008), and it requires a certain amount of interactions between the trustor and trustee. In our context, users who have experiences with products or services from one IT provider had gained interactions with the IT provider. This helps to develop further trust on that IT provider. As demonstrated by Choudhury and Karahanna (2008), trust could be a sub dimension of relative advantage to investigate electronic channel adoption, which also can be categorized into online services. In our case, trust presents a way in which an IT enterprise can offer advantages over others. Thus, we hypothesize:

**H2:** Trust positively affects relative advantage of the new online service adoption from the experienced IT provider.

Perceived Network Externality to Relative Advantage (+)

Perceived network externality measures the degree of potential value users add to IT services through interaction with other members via using the services. As discussed by Gallaugher and Wang (2002), the positive relationship between value and installed base develops in terms of three factors: exchange, stability and extrinsic benefits. In some other extant studies, it is theoretically and empirically shown that factors of network externality are significant for technology adoptions (Au & Kauffman, 2001; Strader et al, 2006; Wang et al, 2005). In Wang et al. (2005)’s research, externality factors could have influences on perceived usefulness. Also, as noted previously, perceived usefulness in TAM is equivalent to perceived relative advantage in
IDT. Therefore, perceived network externalities might enhance users’ decision on adopting new IT if they find that these services are largely adopted by others. Therefore, we hypothesize:

\[ H3: \text{Perceived network externality positively affects perceived relative advantage of the new online service adoption from the same experienced IT provider.} \]

**Perceived Consistency to Compatibility (+)**

In current context, perceived consistency measures how a new IT service consists with prior adopted IT services. Consistency and compatibility can be motivations of technology choice (Premkumar, 2000). As discussed by Karahanna et al. (2006), compatibility is a multi-dimension construct, including four distinct and separable sub constructs. They are compatibility with preferred work style (CPS), compatibility with existing work practice (CEP), compatibility with prior experience (CPE) and compatibility with values (CV). In our study, perceived consistency can be conceptualized as a combination of CPS, CEP and CPE, since the functionality and experience of new online services adoption can be compared by users with their previous adoptions, experiences and usage style. CV is conceptualized to be related to another construct, which will be discussed later. If the new service is consistent with those services that had already been adopted before, users will be more likely to consider the new one to be compatible for them. Therefore, we hypothesize:

\[ H4: \text{Perceived consistency between the new service and prior services positively affects compatibility of the new online service adoption from the experienced IT provider.} \]

**Perceived Network Externality to Compatibility (+)**

As discussed in previous parts, perceived network externality measures the degree of potential value users add to the IT services through interaction with other members via using the services. Also, users’ values (CV) and demands could be sub-dimension constructs of perceived compatibility (Rogers, 2003). Take herding behavior effect as an example, a potential adopter might prefer a new IT service, which has been used by a number of other people. Also, if one values the social network relationship very much, he/she is more likely to adopt an online service that can fulfill his/her social demands. Therefore, in current study, perceived network externality can be regarded as a source of compatibility. Thus, we hypothesize:

\[ H5: \text{Perceived network externality positively affects compatibility of the new online service adoption from the experienced IT provider.} \]

**Perceived Consistency to Complexity (-)**

Perceived consistency between a new service and previous services may influence complexity of service acceptance from an experienced IT provider. As Karahanna et al. (2006) discussed in their study, extent of similarity or dissimilarity between an individual’s prior experiences or knowledge and a new target behavior may lead to various acceptance results. It is also consistent with the core idea provided by learning theory that prior knowledge interferes with a human’s
ability to learn or adopt new concepts. In our context, IT service providers always provide products or online services with common user interfaces, similar features, and consistent design characteristics. In this way, adopting new services, which have consistency with existing technology, does not require substantial changes in one’s skill set, again resulting in less effort to accept and utilize it. The more consistent, the less users will be hindered by perceived complexity when adopt these new services. Therefore, we hypothesize:

**H6**: Perceived consistency between new IT service and prior services negatively affects complexity of the new online service adoption from the experienced IT provider.

**Effort Expectancy to Complexity (-)**

Effort expectancy is defined as the degree of perceived ease associated with usage of services (Venkatesh et al, 2003). As related in the same study, Venkatesh et al. compare different adoption theories and discuss that, effort expectancy reversely correlated to complexity, which means the more effort expectancy, the less complexity. Moreover, as complexity is usually regarded as an equivalence of perceived ease of use (Karahanna et al, 2006), sub dimensions of compatibility can be its antecedents. In our study, if a customer’s perception towards adopting a new online service is effort costly, he/she may be inhibited or interfered by this belief, again not accepting of the new services. Therefore, we hypothesize:

**H7**: Effort expectancy negatively affects complexity of the new online service adoption from the experienced IT provider.

**Technology Familiarity to Complexity (-)**

Technology familiarity measures user’s perception related to technology understanding based on previous interaction, experience and knowledge (Gefen, 2000). Familiarity is demonstrated to be one of the most significant factors of technology adoption (Gefen, 2000; Komiak & Benbasat, 2006). Moreover, in marketing area, it is demonstrated that if a customer has experiences and knowledge with a certain product, he/she has more chances to perform product-related tasks successfully (Ha & Perks, 2005). In our case, if one’s previous experiences are somewhat related to a new IT service, he/she will feel easy and comfortable to utilize the IT services. This also reduces the need to exert too much effort. Moreover, since one has the experiences to adopt IT services from an IT provider previously, he/she need not to spend extra time on searching information for another unfamiliar IT provider for a new service. Therefore, we hypothesize:

**H8**: Technology familiarity negatively affects complexity of new online service adoption from the experienced IT enterprise.
RESEARCH METHOD

Research Design

We plan to conduct online surveys to collect data. Subjects will be those who adopt both instant messaging service and e-mail services from Tencent Technology, Inc. (Tencent). In other words, users of Tencent are considered to be target subjects. The reasons are listed below.

First of all, Tencent instant messaging service (QQ) and its other web services are very popular in China. These services span a wide range of applications, such as online games, social networking communities, online media players, communication tools, e-business services and so on. It is reported that, the number of active accounts of QQ has reached to 798.2 million in 2012 according to Tencent annual announcement (2012). Secondly, QQ account serves as an entry for adopting other Tencent services, such as online game (QQ games), online music player (QQ music), and blog (Qzone). In other words, one can further access other Tencent services after adopting and using QQ in advance. Thirdly, Tencent has been publishing hundreds of IT services and continues to providing new services. This mechanism is quite suitable for our current study context that is to investigate the IT services adoption behavior from an experienced IT provider. Moreover, this field study context also allows us to empirically test proposed model across several combinations of Tencent services. It is very important to inspect the generalizability of the proposed model. In our study, the new IT services we examine are QQgame, QQmusic and Qzone.

Procedure

A survey will be designed to measure constructs of the research model. Three different versions of survey are developed. The difference among these three versions of survey is that each subject will be asked to answer questions based on only one specific situation (service). The services are QQgame, QQmusic and for Qzone. Every survey includes the questions in terms of the subject’s perceptions towards one of the selected services. We will try to contact managers in Tencent to distribute our survey to users of different IT services, respectively. We expect to have at least one thousand usable pieces of feedback.

Construct Measurement

Since all the constructs are from extant literature (Table 2), measurement will be developed and adapted from previous measurement scales.

Analysis Methods

First of all, Cronbach’s alphas for each of the constructs are calculated to test construct reliability. Structural equation modeling (SEM) is applied to investigate correlations among factors. Standardized factor loadings are used to extract average variance of each construct and validity (the threshold is 0.5). The comparison of squared correlations between each construct to the
average variation extracted estimates is used to test discriminant validity among all constructs. Then, path coefficients of three models (three versions of survey) are tested to see whether they are significant differently. Chi-square/df ratio, RMSEA and CFI indicate whether the models are acceptable. R² is used to indicate the portion of variation explained for dependent variables. Specific models and path coefficients are provided to see whether proposed hypothesis are supported. Based on the results, we can conduct further exploration.

POTENTIAL CONTRIBUTIONS

If the results are shown to support the research model, here are several potential contributions.

Practical Contributions

Firstly, the relationship between previous IT services usage and new IT service is important for the new one’s adoption. The findings here provide some implications for IT service providers to promote usage of their products. Both the factors of the new service itself, such as functionality, convenience, and its consistency with previous services are needed to take into consideration.

Secondly, salient factors are identified. These can help technology designers and stakeholders to understand users’ behavior, as well as improve products and services quality. For example, the effects of network externality and cooperation need to be further considered when planning to develop and release new services.

Thirdly, these findings provide implications for managers in IT enterprises to develop and shape business strategies. For example, technology familiarity is an advantageous factor for targeting different customers. For innovators, services development can focus on providing new functionalities but with similar and consistent user interface and common applications as previous services. For non-innovators, service development needs consider about other factors, such as effort expectancy.

Theoretical Contributions

Firstly, by building on the foundations from IDT, we provide a deeper understanding of new online service adoption behavior with several salient factors. We identify several factors that can represent relationships between the new service and previous services. Moreover, this research could further support the findings of Gallaugher and Wang (2002)’s study that perceived externality has strategic implications. IT provider needs to take advantages of its extant success to promote new services. Finally, we empirically test three types of new IT services, which provide relatively robust support to current study. As a result, it helps to theoretically and empirically extend IDT with online services usage in a new context.
FUTURE WORK

Firstly, in current work, we test the effects among multiple services from one IT provider; however, IT vendors often form alliance and provide compatible platform and interface. The interactions among online services from multiple IT vendors may also have some interesting implications. For example, MSN also supports quick access to Facebook, which is an extremely popular social networking service from another IT service provider. Is there any probability that usage of MSN also affects adoption of Facebook?

Secondly, several specific types of adoptions exist, such as adoption of an absolute new type of services; adoption of one service after the user abandons similar services from other IT providers, and adoption of service with continuing use of other services of other IT vendors. The effects of factors on variety of adoption may be different. Future research can address these gaps.

Thirdly, besides the salient factors explored in current study, there might be some other moderating factors that could affect the adoption, such as service fee. Whether users are likely to adopt a charged service from an experienced IT provider, or they prefer a similar but free service from an unfamiliar IT provider? We would like to explore the pricing effects on adoption behavior.

At last, whether a user holds different beliefs related to IT services when he/she uses the services in different contexts? For example, users’ preferences and demands towards entertainment services might be different from productivity applications. In future research, we also would like to explore this research question.
REFERENCE


