Understanding Technology Transition at the Individual Level

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Abstract

The present era is witness to numerous instances of new technologies constantly replacing those that are being used, a phenomenon coined as technology transition. In this research, based on existing evidences, we propose a theoretical model to explain technology transition from an individual user's perspective. Results based on validation of the proposed model based on survey data identifies key factors that may influence an individual's intention to transition from a conventional computing device to a tablet computer. The findings have implications to both theory and practice which have been also delineated.

Keywords: human behavior and IT; technology transition; technology use; tablet computers; digital innovation

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Introduction

Owing to the current era's rapid surge in information technology (IT), new technologies can potentially replace those that are currently being used. These new technologies often offer higher performance, improved functionality, lower operating costs, or better usability. Users start using new technologies, often in parallel to existing solutions, if the new technology seems to be an improvement on the old one. They then usually decide whether they will switch to the new technology, or retain the already established one.

In practice, there are several examples of such transitions to new technologies, both in organizational and individual spheres. Many organizations have recently moved from on-premise systems to cloud-computing solutions (Zhang, Cheng and Boutaba, 2010). Similarly, conventional knowledge management systems have been replaced by Web 2.0 solutions and social media (Weyant and Gardner, 2010). In terms of individuals, significant examples of technology transition relate to user devices. In the last couple of years, we have witnessed a large number of users switching from conventional cell phones to smart phones, which enable the use of new information management opportunities and business models (Falaki et al., 2010). We also notice a similar trend in the increasing use of tablet computers, which are starting to make desktop PCs and notebooks dispensable, at least for private use (Goldman Sachs, 2010). Beside these hardware trends, we can observe major transition in terms of user-related content from physical to digital media during the last couple of years (Flanagin and Metzger, 2008). As a result, user-behavior and corresponding business models are changing with significant implications for journalism (Herbert, 2000; McCoy, Galletta and King, 2005), media industry (Pagani, 2003; Zhu, 2001), and education (Flew, 2002; Smith, Tang and Hale, 2008), to give a few examples.

The term technology transition was coined by Briggs et al. (1998) and refers to the act of moving from one technology to another, in an organizational group setting. Thereby, the process "starts when some person […] expresses interest in using a new technology and […] ends when a community of users has become self-sustaining" (Briggs et al., 1998`, p. 153). The transition time is the time that lapses while switching from the stable version of the older system to the point at which the new technology attains stability. In contrast to technology acceptance and diffusion, which consider the new technology artifact in isolation and assume a positive path through all stages, technology transition does not necessarily assume a positive outcome. Hence, the processes that influence the transition phenomena are likely to be different in this case as compared to a study on technology acceptance or diffusion. The intention of an individual to make a switch to a substitute technology may involve evaluation of comparative characteristics of substitute technology over the existing technology. Thus, technology transition may end with a return to the pre-existing technology, the adoption of an unplanned technology alternative, or use of the planned technology (Smith, Tang and Hale, 2008).

Technology transition has been studied in several ways, for example by focusing on transition costs (Smith et al. 2008), analyzing transition dynamics (Campos, Holcombe, Leybovich, Szajnfarber and Thorsteinsson, 2006), or analyzing technology life cycles by means of simulation techniques (Kim, 2003). For our study, we are looking at technology transition as a behavioral phenomenon. Consequently, we present our development and empirical assessment of a technology transition model to explain transition as a behavior from an individual perspective based on behavioral theories like the theory of reasoned action (Fishbein and Ajzen, 1975) and the theory of planned behavior (Ajzen, 1985), as well as Bagozzi's suggestions (1992, 2007), and we derive our hypotheses accordingly. Our object of interest is transitioning to a tablet computer as this innovation with its present offerings to the market seeks to replace a conventional computing device (i.e. desktop

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/ laptop / etc.) in the coming years[1]. There has been a surge in tablet computer popularity among consumers, marked by the launch of Apple iPad in 2010 (Sarno, 2011). Even though the tablet computer and conventional computing device like laptops are considered by many as complementary devices, some of the recent tablet computer products are offered in the market as substitutes to these (conventional) devices[2]. We focus on transitioning to a tablet computer from a conventional computing device at an individual level. As explained above, the outcome of such a transitioning process may result in the adoption of the tablet computer, a continuation of the existing device, or even a switch to some other unplanned technology alternative (e.g. hybrid technologies such as laptops with touch screens or tablets with keyboards). We incorporate these possibilities in our survey questionnaire which is used to validate our model based on responses from participants who currently own a conventional computing device and may (or may not) want to switch to a tablet computer in the near future.

From a theoretical perspective, our research introduces a revised model of technology transition from an individual perspective based on evidences from related domains. By focusing on the individual perspective, we intend to enlarge the understanding of psychological and social processes that influence the technology transition process. We hope to identify the key antecedents that influence the transition process, and also to provide better reasoning for replacing certain established technologies over time. We also believe that our findings will be useful to technology manufacturing organizations, as they look to design new products or services in order to capture the mass market in different geographical regions.

We organize the remainder of this paper as follows: In the next section, we describe the theoretical foundations on which our work is built. Thereafter, we report on the development of our research model and present our hypotheses. The methods section outlines our approach to operationalizing the constructs and collecting empirical data. In the analysis and results section, we report on the measurement model's and structural model's assessment by means of structural equation modelling. The findings are then discussed subsequently. To conclude, we summarize the study's results, we outline its limitations, implications, and contribution, and give an outlook on future research opportunities.

Foundations

Information Systems (IS) research, investigating adoption and usage of technologies, has been significantly influenced by the work of Davis (1989) who proposed the technology acceptance model (TAM). TAM posits that adoption of information technology (IT) is governed by its behavioral intention (the extent to which a person is willing to exert effort to carry out a task), which in turn is a function of the person's attitude (an individual's positive or negative feelings (evaluative affect) about performing the target behavior). Attitude is, in turn, determined by two behavioral beliefs: perceived usefulness (PU), which is defined as the extent to which IT is believed to enhance performance, and perceived ease of use (PEOU), which is defined as the degree to which users think that they can use IT effortlessly.

Research on modeling technology transition is rooted in the technology acceptance research stream (Davis, 1989; Venkatesh and Davis, 2000; Venkatesh and Bala, 2008). Briggs et al.'s (1998) seminal work uses qualitative inquiry to produce a technology transition model (TTM) in order

[1]http://www.digitaltrends.com/computing/can-a-tablet-replace-your-laptop/
http://www.techtimes.com/articles/148513/20160411/tablets-big-and-powerful-enough-to-replace-your-laptop-or-not-apple-ipad-pro-samsung-galaxy-tabpro-s-microsoft-surface-pro-4.htm
[2]http://www.businessinsider.in/RANKED-The-4-best-tablets-to-replace-your-laptop/articleshow/51735231.cms

to explain staff behavior in military operations. Their motivation was to understand what leads organizations to abandon a technology, as was evident from the installation records of group support systems (GSS) during that period (Briggs et al., 1998). TTM, which is based on the revised TAM (i.e. 'exclusion of the 'attitude' construct), frames behavioral intention (BI) to be directly determined by a set of beliefs, such as perceived-magnitude-of-net-value (M), and perceived-net-value-of-transition (T), with BI subsequently leading to system usage. M is further weighted by a certainty 'C' factor, which represents the probability of realizing the net-value; and the combination is multiplied by the perceived frequency of occurrence (i.e. perceived-frequency-of-net-value (F)). The construct M supersedes the TAM PEOU construct and integrates all the factors that determine why perceptions of GSS vary among different groups of users. Briggs et al.'s (1998) work received much attention in information systems research. However, beyond this seminar work, there has been very few studies that explicitly address the issue of technology transition (e.g., Agres, Vreede and Briggs, 2004; Briggs, Adkins, Kruse and Jay F. Nunamaker, 1999; Briggs, Jay F. Nunamaker and Tobey, 2001; den Hengst, Weimar and Hengst, 2007; Kruse, Adkins and Briggs, 2001; Smith, Tang and Hale, 2008).

Briggs et al. (1998) work is subject to criticism following the recent advancements in adoption, diffusion and transition research domains. These studies have raised issues such as reliance on self-reported usage to measure the system usage construct, poor theoretical grounding on the defined constructs, assumptions of the deterministic nature of human behavior, how beliefs such as perceived ease of use – which has an individual connotation – can be applied to an organization or a group, and the use of a cross-sectional research design that uses surveys in order to validate the causal model (Benbasa and Barki, 2007; Chuttur, 2009; Lee, Kozar and Larsen, 2003). The most striking observation was made by Bagozzi (2007). The author felt that attitude would not result in intentions in the absence of motivational processes (e.g. desire) acting as a catalyst (Bagozzi, 1992). For example, a person can recognize and even accept that PU or attitudes are favorable criteria for deciding to act, but have no desire to act and even explicitly decide not to act in the face of these reasons. Furthermore, it is also not clear how multiple reasons for acting or not acting are reconciled and transformed into a decision or intention to act (Bagozzi, 2007). This finding challenge the direct link between the beliefs (M, T) and BI, as depicted in TTM. The omission of the 'attitude' construct can again be questioned, as the study context adopted by Briggs differs from the context explored by Davis et al. (1989). Moreover, in-depth exploration should uncover why the beliefs PU and PEOU are not salient in TTM, whereas they have assumed prominence in research on adoption. These drawbacks call for re-assessing of technology transition and for developing, in the process, a comprehensive understanding of the phenomenon. The need to revisit the core foundations in order to increase the usefulness of results can also be observed in Benbasat and Barki's (2007`, p. 6) statements: "We have recommended that researchers revisit the core theory of TPB (theory of planned behavior) and redirect their focus toward examining different antecedents".

As mentioned in the introduction, the object of interest in this study is the transitioning to a tablet computer at an individual level. Tablet computers, also known simply as tablets, are notebook-sized mobile computers which are typically used wirelessly. Equipped with a touch screen interface, a tablet computer usually has a software application used to run a virtual keyboard (Magazine, 2016). Tablet computers were introduced in the last century, and it came into reckoning after the introduction of Apple iPad in 2010 (McLellan, 2014). Since then, the demand

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of tablet computers has increased steadily and is expected to surpass the sales of conventional computing devices (i.e. desktop / laptop / etc.) (Rabow, Neuman and Hernandez, 1987). Hence, with the focus on the transition to the tablet computer, we propose a revised model of technology transition, grounded in theory and empirical evidence in the next section in order to address the aforementioned issues.

Research Model and Hypotheses

Acknowledging the parallelism between technology transition and the technology acceptance research stream as discussed above and the related theoretical developments, we propose a conceptual model to explain technology transition at the individual level which is shown in Figure 1.

The causal relationships shown by the arrows in Figure 1 describe our hypothesis regarding how the different constructs (shown within rectangular boxes) causally interact. The naming and interpretation of the different psychological and social factors as indicated by the model constructs were adapted from existing theoretical evidences or have been updated in accordance with our research context. The hypothesized relationships among the constructs perceived behavioral control, attitude towards transition, social influence, desire to transition, and intention to transition as shown in the figure is based on adaptation of the model of goal-directed behavior (Davis, 1984; Perugini and Bagozzi, 2001), and updated based on related evidences (e.g. Bagozzi and Edwards (1998)). The extreme left-hand side of our model presents the various antencents of the three constructs i.e. perceived behavioral control, attitude towards transition, and social influence, and is based on theoretical evidences on technology adoption, switching costs, hedonic consumption, and related domains. In the remainder of the section, we present these theoretical evidences for the hypotheses identified in the figure.

Perceived Behavioral Control over Transition

Perceived behavioral control is defined as "the person's belief as to how easy or difficult performance of the behavior is likely to be" (Ajzen and Madden, 1986, p. 457). Ajzen, (2002) observes that this construct is comprised of separable components that reflect beliefs about self-efficacy and about controllability. Self-efficacy refers to “beliefs in one’s capabilities to organize and execute the courses of action required to produce given levels of attainments” (Bandura, 1998`, p. 624). Controllability refers to beliefs about the extent to which performing the behavior is up to the actor.

Facilitating conditions refer to the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system (Venkatesh, Morris, Davis and Davis, 2003). In the context of technology transition, facilitating conditions construct relates to two dimensions of control beliefs: one relating to the resource factors, for example, time, knowledge, etc. and the other relating to the technology compatibility issues which may impact switching decisions. The absence of facilitating conditions can be perceived as barriers towards transition, and it can restrict the formation of self-efficacy towards performing the intended behavior (Taylor and Todd, 1995). This leads us to our first hypothesis which we specify as follows:

H1: Facilitating conditions has a positive influence on perceived behavioral control.

Trialability refers to the extent to which a technology may be experimented with before adoption. Consequently, new technologies that can be tested in advance are likely to be adopted faster than those that cannot be tried (Rogers, 1983). The proposed model considers trialability as the perception of an individual about the extent of opportunity available to him/her to try out a tablet computer in a specified timeframe. Thus, if an individual get an opportunity to

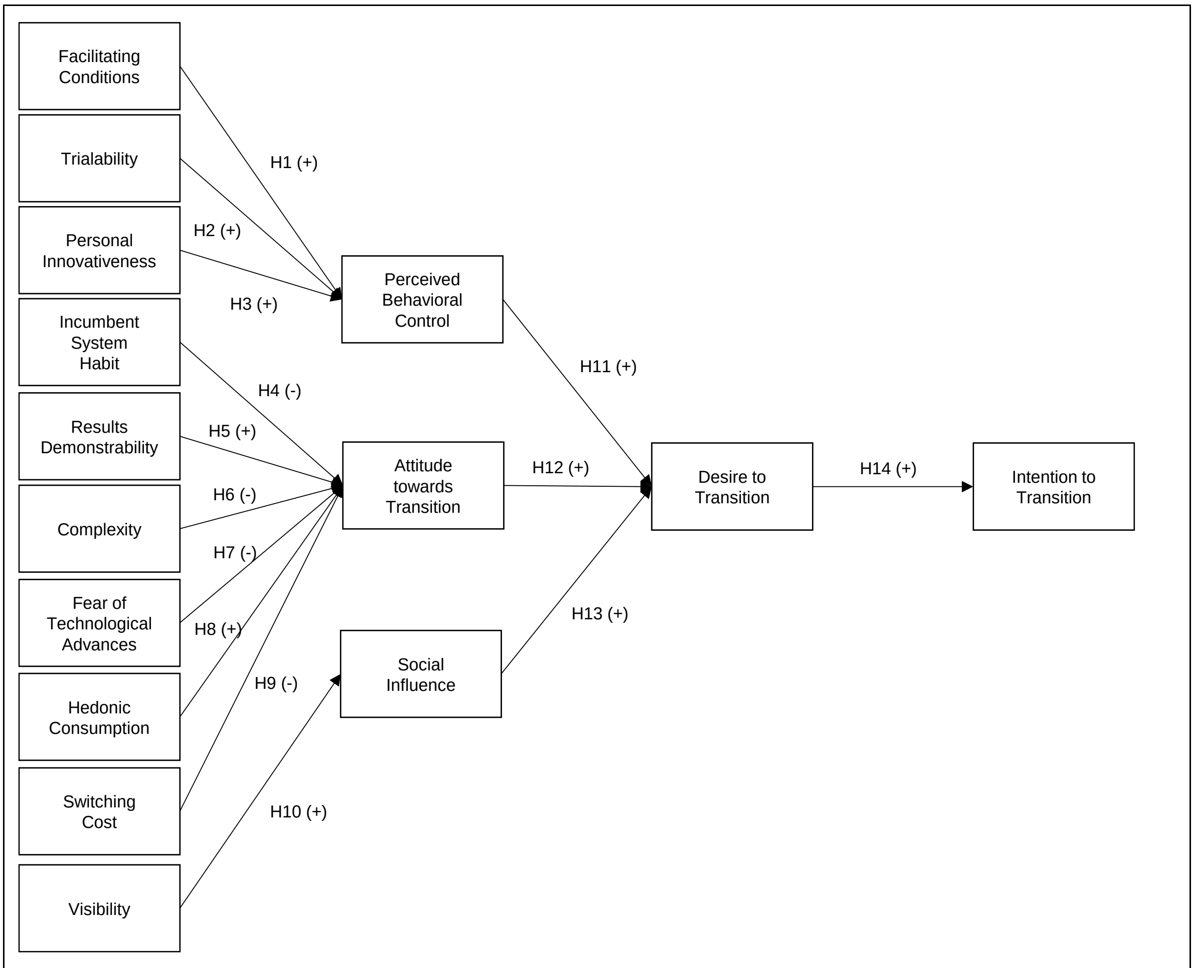

Figure 1 – Proposed Research Model

try out the preferred technology, certain fears of the unknown are likely to be minimized. This in turn is likely to foster self-belief in the individual in his/her capability to successfully switch to the technology of choice. Hence, our second hypothesis is as follows:

H2: Trialability has a positive influence on perceived behavioral control.

Personal innovativeness in the specific domain of IT refers to the extent to which an individual is prepared to try out any new information technology (Agarwal and Prasad, 1998, p. 206). Preparedness refers to a positive mental disposition of an individual with respect to the issue under consideration. Some individuals are more prepared to take a risk by trying out a technology, whereas others are hesitant to change their practice. The innovation diffusion theory (IDT) (Rogers, 1983) suggests that highly innovative individuals are more favorably disposed towards trying out new ideas and changes and possess greater ability to deal with uncertainty and risk. Individuals who are personally innovative thus may have more opportunities to experiment with the new information technology thereby impacting one's self efficacy through enactive mastery (Agarwal, Sambamurthy and Stair, 2000). Hence the self-perceptions of efficacy in the task domain is expected to be strongly influenced by the extent to which individuals believe they are personally innovative with respect to IT. Hence, we theorize as follows:
H3: Personal innovativeness has a positive influence on perceived behavioral control.

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Attitude towards Transition

Attitude indicates an individual's positive or negative feelings (evaluative affect) about performing a target behavior (Fishbein and Ajzen, 1975). Understanding the role of attitude has been of importance in behavioral studies in behavioral science, social science, and IT (Armitage and Conner, 2001; Bhattacherjee and Premkumar, 2004; Homer and Kahle, 1988).

Habits are commonly understood as "learned sequences of acts that become automatic responses to specific situations which may be functional in obtaining certain goals or end states" (Verplanken, Aarts and Van Knippenberg, 1997, p. 540). In this context, incumbent system habit (ISH) refers to the extent to which using a particular incumbent system has become automatic in response to certain situations (Limayenm, Hirt and Cheung, 2003). Wood and Quinn (2004, p. 8) indicate that once individuals are satisfied with an ongoing behavior, they will continue performing it due to an "avoidance-based self-regulatory process" where they seek to avoid an undesired state representing "what would happen if they quit doing the behavior." Past research has shown that individuals feel less overwhelmed and stressed when practicing habitual behaviors, since their practice requires few cognitive resources. This indicates that habits are associated with cognitive and affective components towards continuation of the status quo and in the process reducing cognitive dissonance (Polites and Karahanna, 2012). Thus, incumbent system habit of an individual can resist formation of a positive evaluation towards transitioning to the preferred technology. Thus, we posit:

H4: Incumbent system habit has a negative influence on attitude towards transition.

Results demonstrability has its origin in the observability construct defined by Rogers (1983) as the degree to which the results of an innovation are observable to others. Results demonstrability refers to the degree to which the benefits of using an innovation are clear to potential adopters (Moore and Benbasat, 1991). Therefore, we assume that more tangible are the benefits of the preferred technology in comparison to the existing one, the more favorable are the attitudes towards transitioning to the preferred technology. Hence, the fifth hypothesis is as follows:

H5: Results demonstrability has a positive influence on attitude towards transition.

Complexity has been defined as the degree to which a system is perceived as relatively difficult to understand and use (Thompson, Higgins and Howell, 1991). Past research indicates that systems with substantial complexity require greater technical skills and implementation and operational efforts in order to increase its chances of adoption (Cooper and Zmud, 1990; Dickerson and Gentry, 1983). Hence in case where the alternate technology is perceived to be of greater complexity in comparison to the existing one, this is likely to influence an individual's attitude towards switching to the alternate technology in a negative manner. Thus, we hypothesize as follows:

H6: Complexity has a negative influence on attitude towards transition.

Venkatesh and Brown (2001) define fear of technological advances as the extent to which rapidly changing technology is associated with fear of obsolescence or apprehension regarding a technology purchase. Given the rapid pace of change in the technology landscape, consumers today face the option of not committing to a purchase decision and instead continuing with the existing product that is available with them with the expectation of getting a more suitable version of the same or related products in the near future. This tendency among individuals might also be as a result of the evaluation the cost-to-useful ratio of the concerned product that is possibly acceptable among many (Venkatesh and Brown, 2001). This fear of obsolescence is likely to be an instrumental factor that determines whether an individual with a technological product commits to purchase of an alternate product or prefers to defer his/her decision regarding the same thereby reducing the risks that some disruptive technologies can make the present offerings obsolete in the near future. Therefore, we hypothesize:

H7: Fear of technological advances has a negative influence on attitude towards transition.

Beyond utilitarian applications, technology usage in personal contexts could also be for hedonic purposes. The role of fun has received attention in the context of technology adoption behaviors from the perspectives of enjoyment (Davis, Bagozzi and Warshaw, 1992; Venkatesh, 2000) and playfulness (Webster and Martocchio, 1992). Hedonic factors have been shown to be particularly relevant in the context of household PC adoption (e.g., Malone, 1981; Venkatesh and Brown, 2001), and adoption of digital artifacts (Holsapple and Wu, 2007). These hedonic factors are likely to capture the entertainment nature of the technology of interest. The tendency to use technology for its own sake represents the experiential perspective of the cognition process (Holbrook and Hirschman, 1982). Hence considering technologies which are comparable from the utilitarian perspective, those which better recognizes the imaginal and emotional responses of users are likely to be more preferred. Thus, we posit:

H8: Hedonic consumption has a positive influence on attitude towards transition.

A number of researchers have adopted the term ‘‘switching costs’’ to investigate the aspects of losing existing benefits or incurred extra efforts when accepting a new product or service (Burnham, Frels and Mahajan, 2003). Switching costs refer to the one-time costs that customers associate with the process of adopting a new service (Burnham, Frels and Mahajan, 2003). A rigorous definition of switching (full switching or attrition) means that consumers totally abandon their habitual behaviors, and adopt the new behaviors. Consumers reckon that switching from one service provider to another is analogous to adopting and using a new service (Keaveney and Parthasarathy, 2001). Intrinsically, switching costs arise as a result of prior commitments to the incumbent supplier in terms of specific physical, informational, artificially created, or psychological investments (Klemperer, 1995). Procedural switching costs can result from economic risks, evaluation needs, learning requirements, or setup requirements. Economic risk costs refer to the costs resulting from adverse performance when a consumer adopts a new product or service with insufficient information (Burnham, Frels and Mahajan, 2003). Evaluation costs refer to the mental effort and time associating with the search and analysis of information for a customer to make the acceptance decision (Samuelson and Zeckhauser, 1988). Learning costs refer to the mental effort and time an individual spends in acquiring new skills to use a new product or service more effectively (Eliashberg and Robertson, 1988). Finally, setup costs are associated with installation and configuration procedures of the new product (Klemperer, 1995). A higher evaluation of these costs to an individual might result in maintenance of the status quo, and thereby not committing to any switching decisions. Thus, we hypothesize:

H9: Switching costs has a negative influence on attitude towards transition

Social Influence

Social influence is defined as the degree to which an individual perceives that important others believe he or she should use the new system (Venkatesh, Morris, Davis and Davis, 2003). This term has similarity with the social norms term defined as self-instructions to do what is perceived to be correct and appropriate by members of a culture in certain situation (Thompson, Higgins and Howell, 1991), and the subjective norm construct defined as the perceived social pressure to perform or not to perform the behavior (Fishbein and Ajzen, 1975). Each of these constructs contains the notion that an individual’s behavior is influenced by the way in which they believe others will view them as a result of having used the technology (Venkatesh, Morris, Davis and Davis, 2003).

Visibility indicates the extent to which the results of a new technology are visible to

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others (Rogers, 1983). Such visibility are expected to stimulate peer discussion on the new technology, as friends and neighbors of a current user of the new technology may request for technology-evaluation information about the new technology (Rogers, 1983). Hence from the context of our research, the greater visibility of the preferred technology in the peer circle of an individual is likely to influence his or her important others belief that he or she should also switch to the preferred technology. Thus, we hypothesis as follows:

H10: Visibility has a positive influence on social influence.

Desire to Transition

Desire refers to “a state of mind whereby an agent has a personal motivation to perform an action or to achieve a goal” (Perugini and Bagozzi, 2004, p. 71). Desires appear as phases like ‘wish’, ‘want’, ‘like’, and are fundamentally different from intentions which indicate an ‘attempt’ or an act of ‘trying’ (Bagozzi, 1992). For example, an individual might desire to achieve a certain grade in the examination, but the desire is unlikely to be fulfilled unless and until he/she makes the attempt (i.e. intends) to achieve the grade. The difference between desires and intentions has also been explained in advancements of attribution theory (Malle, 1999; Malle and Knobe, 1997). According to Malle and Knobe (1997), the attribution of intention requires the actor to have a desire for an outcome and to hold the belief that specific behaviors will lead to particular outcomes.

In line with Gollwitzer’s designation for wants and wishes in his action phases model (e.g. Gollwitzer, Heckhausen and Steller, 1990, p. 1119), Bagozzi empirically demonstrates that desires provide the motivational impetus for intentions. Such motivations, derived from the integration of different appraisal sources (e.g., emotional, evaluative, and social), represent the first step towards a decision to act, which is followed by an intention to do so. Furthermore, he suggests that attitude, subjective norm and perceived behavioral control (PBC) work through desires to influence intentions (Bagozzi and Edwards, 1998). Fredricks and Dossett (1983) also provide evidence of links between attitude and desire. They suggest that a physiological process (i.e. desire) evaluates competing attitudes. Presence (absence) of PBC over a given act likewise is expected to first influence individual’s desire of performing (not performing) the act, thereby governing the formation (withdrawal) of intentions at the subsequent stage. The theoretical evidences lead to the following three hypotheses concerning the transition from the existing technology to the preferred technology:

H11: Perceived behavioral control has a positive influence on desire to transition.

H12: Attitude towards transition has a positive influence on desire to transition.

H13: Social influence has a positive influence on desire to transition.

Intention to Transition

The “contingent consistency” approach has been accepted widely (Andrews and Kandel, 1979; Baggozi and Schnedlitz, 1985; Grube and Morgan, 1990; Rabow, Neuman and Hernandez, 1987). Attitudes express themselves intentionally in the presence of social support and are comprised of evaluative appraisals, accompanied by a desire to act. Unless motivational commitments are intrinsically related, intentions may lose their momentum. Desires are necessary for the development of intentions and provide the impetus for action that is missing in attitudes. A belief, if associated with a desire, can act as an effective motivator for activating an intention, even without a positive evaluation. Evidences of desires acting as a mediating variable in the attitude to intention linkage are cited in Bagozzi and Kimmel (1995) which found that a substantial variance in intentions was explained by desires. Likewise, Fishbein and Stasson (1990) found that desires, but not attitudes influenced behavioral intention thereby leading to behavior. When the decision regarding transition is contingent on individual’s voluntary choices as in the case of this study, and in absence of any mandate or control, attitude, social influence and perceived behavioral control result in the development of volitive desire (i.e. based on reasons and implying a motivational commitment) (Davis, 1984; Perugini and Bagozzi, 2001). This, in turn motivates him or her to form an intention (Davis, 1984). Hence, we can deduce our last hypothesis:

H14: Desire to transition has a positive influence on intention to transition.

Methods

We applied a quantitative-empirical research approach to validate our research model. Quantitative-empirical methods, particularly surveys, are considered superior to qualitative-empirical approaches in terms of generalizability (Johnson and Duberley, 2000). Thus, we conducted a survey to collect empirical data for the model validation. In the following sections, we present our operationalization of constructs as well as our approach to collecting data.

Construct Operationalization

To operationalize our research model's constructs, we adapted items identified from previous studies and modified them for use in our particular research context in order to enhance validity (e.g., Bharati and Chaudhury, 2004; Kankanhalli, Tan and Wei, 2005). In cases in which there was a necessity to combine selected items from multiple sub-constructs, we paid careful attention to first doing a pilot test and subsequently verifying the constructs' convergent and discriminant validity in order to avoid common method variance bias (Majchrzak, Malhotra and John, 2005). The initial pool of items characterizing each construct was based on a comprehensive survey of literature of existing constructs. Table 1 provides a categorization of belief sets (corresponding to the belief-evaluation pairs) associated with the model constructs, and their operationalization based on the supporting evidences.

All the items were combined into draft survey instruments for pre-testing. Pre-testing was carried out with nine researchers in order to improve content validity and reliability of the survey questionnaire. In this context, the participants gave feedback both on the choice of items and the questionnaire's appearance. The results of the pre-test assisted us in refining the wordings of some of the questionnaire items, and dropping some response items from the questionnaire. In Appendix A, we include the wordings of the measurement items which are retained in our structural model (Figure 1) and are part of our final survey instrument using which we have collected the required data from the respondents.

Table 1 - Construct Operationalization

Construct	Sources
Perceived Behavioral Control [PBC]	*Direct Measures (based on):* Ajzen and Madden (1986); Leone et al. (1999); Sparks et al. (1997);Venkatesh and Davis (2000) *Control Beliefs:* Facilitating Conditions [FC] (Venkatesh *et al.* 2003) Trialability [TRI] (Benham and Raymond 1996) Personal Innovativeness with IT [PIIT] (Polites and Karahanna 2012)

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Attitude towards Transition [ATT]	*Direct Measures (based on):* Bhattacherjee and Premkumar (2004); Davis et al. (1989); Karahanna et al. (1999); Taylor and Todd (1995); Venkatesh and Davis (2000) *Behavioral Beliefs:* Incumbent System Habit [ISH] (Limayem *et al.* 2007) Results Demonstrability [RD] (Benham and Raymond 1996) Complexity [COM] (Rogers 1983) Fear of Technological Advances [FTA] (Brown and Venkatesh 2005) Hedonic Consumption [HC] (Holbrook and Hirschman 1982, Holsapple and Wu 2007) Switching Costs [SC] (Kim and Kankanhalli 2009)
Social Influence [SI]	*Direct Measures (based on):* Thompson et al. (1991); Venkatesh et al.(2003) *Normative Beliefs:* Visibility [VIS] (Benham and Raymond 1996); (Venkatesh *et al.* 2003)
Desire to Transition [DES]	Davis (1984), Perugini and Bagozzi (2001), Perugini and Bagozzi (2004)
Intention to Transition [ITT]	Bhattacherjee and Premkumar (2004), Taylor and Todd (1995), Venkatesh and Davis (2000)

Data Collection

In order to appreciate the psychological and social factors that influence users' transition from conventional computing devices to tablet computers in a private, non-organizational context, and collect empirical data, we developed a web-based survey instrument using the services provided by Unipark. The questionnaire contained an introduction and two sections. The introduction described the survey objective and also emphasized that all data would be handled with the strictest confidentiality and that the identity of the respondent would remain anonymous. We did this, as well as taking other steps, to achieve the best possible response rate. The first section of the questionnaire containing 78 response items probed on various aspects that might influence a users' transition from a conventional computing device to a tablet computer. The final section containing eleven response items probed on various demographic information related to the user. All the measurement items were anchored on the 7-point Likert scale, with anchors ranging from 1 (strongly disagree) to 7 (strongly agree).

The survey was targeted at individuals who currently own a conventional computing device (say desktop / laptop / etc) and may (or may not) want to switch to a tablet computer in the near future. For simplicity, we have specified the future as duration of six months. Invitations to participate in the survey was sent out using the mailing lists of undergraduate and post graduate students in some educational establishments, and to members of some networking portals. Follow-up reminders were also sent out on multiple occasions in order to increase the response rate. Some participants were unable to fill up the questionnaire online because of technical issues and used the paper (word) version of the questionnaire, which was later coded. In total, 702 respondents filled up the survey. While going through the responses, we found a number of responses to be either ambiguous (i.e. inconsistency in response with respect to specific question(s)) or incomplete (questions not answered). We considered only fully completed questionnaires for further analysis. Further the sample consistency was checked by reviewing answers of demographic questions that met the survey objectives. After filtering out all the invalid responses in this way, a total of 278 usable responses were finally available to us for subsequent analysis. It is not known to us how many individuals actually received our invitation to participate in the survey, and hence we are unable to determine the response rate of our survey.

The respondents' demographic characteristics are shown in Table 2. The data indicates the predominance of male respondents over females in our dataset. The majority of the respondents were aged between 20 and 29 years with the overall average as 26.6 years with a standard deviation (STD) of 8.2 years. In terms of the highest education level obtained, majority (38.1%) of the respondents hold a master's degree in their specific areas of expertise. The number of respondents attaining a high school diploma or dropping out was also high (29.5%). On average, a respondent was found to spend 6.8 hours per day on the conventional computing device. The computing skills of more than 75% of the respondents were self-assessed above average. In contrast, in terms of previous experience in working with a tablet computer, the majority of the respondents considered themselves to be below competent (38.9%), with only 8.3% of the respondents regarding themselves as experts.

Table 2 – Demographic Information			
Age Categorization	**%**	**Computing skills**	**%**
<20	11.9%	Expert	20.1%
20-29	64.0%	Proficient	57.6%
30-39	16.2%	Competent	19.1%
>40	7.9%	Novice	3.2%
Age (Avd/STD)	26.6 / 8.2		
Highest level education	**%**	**Prior experience with tablet**	**%**
PhD	8.3%	Expert	8.3%
Master degree	38.1%	Proficient	27.7%
Bachelor degree	24.1%	Competent	25.2%
High school diploma or Lower	29.5%	Novice	24.5%
		None	14.4%
Gender Breakup % (Male / Female)	74.8% / 25.2%	**Time spent on conventional computing device (hours per day) (Avg/STD)**	6.8 / 4.1

Given that our study adopted a cross-sectional design with all the items being assessed at the same point of time, common method bias (CMB) posed a major threat for the validity. CMB occurs when a significant amount of spurious covariance shared among variables is attributable to the common method used in collecting data (Majchrzak, Malhotra and John, 2005). In order to control for this bias, we used procedural remedies recommended by Podsakoff, MacKenzie,

Lee and Podsakoff, (2003), such as offering complete anonymity to respondents as well as reducing ambiguity by means of pre-testing. In terms of statistical remedies to control for CMB, we used the Harman's single-factor test (Majchrzak, Malhotra and John, 2005). According to this test, CMB is present if a single factor accounts for the majority of the variance in the variables. Our results demonstrate distinct factor

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structure with the first factor only accounting for about 25.79% of the total variance. Consequently, having used both procedural and statistical remedies to control for CMB, we posit that CMB did not significantly affect our results.

Non-response bias generally occurs when some of the target respondents do not participate in the survey and, thus, cause an unreliable representation of the selected sample. Even with large number of responses, strong hypothetical differences in the non-response group can produce misleading conclusions that do not generalize the entire target group and, consequently, limit a study's external validity. Therefore, it is necessary to address the issue of non-response before, during, and after data collection (McCoy, Galletta and King, 2005). Before and during the data collection, we followed the recommendations by Rogelberg and Stanton (2007) on minimizing non-response: We designed the survey carefully, emphasized the importance of the respondents' participation and our high estimation of the respondents' opinions. After the data collection, we assessed the nonresponse bias by verifying that the responses of early and late respondents did not differ significantly. We defined early respondent group as those who responded within the first half of the survey period, while late respondent group did so within the second half. We used the non-parametric Mann-Whitney test (Urbach and Ahlemann, 2010) to test for differences between the two groups, with the results demonstrating no significant differences. Thus, we assume that the study is not affected by a significant non-response bias.

Analyses and Results

Using the empirical data collected in the survey, we assessed the measurement properties and tested our hypotheses using the partial least squares (PLS) approach (Hsu, Lu and Hsu, 2007; Wold, 1985). We chose PLS for the data analysis since, compared to covariance-based approaches, it is advantageous when the research model is relatively complex and has a large number of indicators (Claes Fornell and Bookstein, 1982; Hsu, Lu and Hsu, 2007). Furthermore, PLS has fewer demands regarding sample size and residual distributions (Claes Fornell and Bookstein, 1982; Straub, Boudreau and Gefen, 2004). We employed the software package SmartPLS 2.0 (Hair, Ringle and Sarstedt, 2011) for our statistical calculations. In the sections that follow we describe the assessment of both the measurement model and the structural model.

Assessment of the Measurement Model

We used reflective indicators for the operationalization of all model's constructs. Following the guidelines of Urbach and Ahlemann (2010), we tested the reflective measurement model for unidimensionality, indicator reliability, internal consistency reliability, convergent validity, and discriminant validity by applying standard decision rules. The measurement model examines the relationship between the latent variables and their measures (Anderson, Al-Gahtani and Hubona, 2008). Hence, the assessment of the measurements model was done for the entire dataset to check the reliability and validity of the latent variable operationalization based on the theoretical evidences discussed above.

Unidimensionality refers to a latent's variable's property of having each of its measurement items relate to it better than to any of the other model's variables (Gerbing and Anderson, 1988). Since PLS cannot directly measure unidimensionality, we carried out an exploratory factor analysis (EFA) on the entire dataset using SPSS 16 (see Appendix B). We used the principal axis factoring using promax rotation. We used the promax (oblique) rotation as there was no evidence available to us on the independence of the thirteen extracted factors. The EFA analysis for unidimensionality was carried out in three rounds with each involving deletion of some items based on considerations of loading values below the specified threshold (0.7) or loading on multiple factors (Hair et al., 2006). This resulted in deletion of nine items[1] from the specified 78 items included in the first section of the survey instrument, with the final values demonstrating a reasonable level of unidimensionality. The measurement items which were retained at the end of this stage mostly loaded highly on only one factor and on the factor they are supposed to measure. However, the items intended to measure desire (3 items) and intention (3 items) constructs were found to load on one factor. This was in contrary to the theoretical evidences provided above where desire and intention are conceptualized as different constructs (Bagozzi and Edwards 1998). Given that desire and intention measure distinct concepts, we decided to retain them as separate constructs for the time being. A justification of the same is provided in Lewis et al. (2005) with suggestions on retaining items on constructs with strongly justified theoretical relevance.

Indicator reliability indicates the extent to which a variable or set of variables is consistent regarding what it intends to measure. The reliability of each construct is assessed independent of other constructs. We assessed the indicator reliability using the PLS algorithm available in SmartPLS 2.0 software with the number of iterations set as 300. The significance of the indicator loadings was further tested using the bootstrapping procedure and based on 5,000 resamples (Hair, Ringle and Sarstedt, 2011). The results are provided in Appendix C (Table 7).

The internal consistency of the measurement model can be assessed by computing the composite reliability (CR) which is a measure of the overall reliability of a collection of heterogeneous but similar items (Chen and Singpurwalla, 1996). An alternative approach is to evaluate the Cronbach's alpha (CA) coefficient of the constructs. The CA coefficient of a construct indicates how well a set of items measures that particular construct. The CA and the CR scores are provided in Appendix C (Table 7). The CR scores of all constructs in our model were above the recommended cut-off of 0.7 (Nunnally and Bernstein, 1994). The CA values of the construct FC in the dataset is in the range 0.6 to 0.7 which can still be regarded as acceptable (Churchill Jr, 1979; Joseph, Hair, Black, Babin and Anderson, 2010). Hence the construct FC was retained in our model. The 2-item SC construct having a CA score below 0.5 was removed from the model as it was also not possible to alter its item composition.

Convergent validity was assessed based on reported average variance extracted (AVE) (see Appendix C: Table 7). AVE measures the amount of variance that is captured by a construct in relation to the amount of variance due to measurement error. If the AVE is less than 0.50, the variance due to measurement error is greater than the variance due to the construct, making the convergent validity questionable (Chau, 1997). As indicated in the table, all the constructs in our model have AVE indicators above 0.50 which is deemed satisfactory.

Finally, discriminant validity relates to the degree to which the measures of different constructs differ from one another. This provides a way of testing whether the items of a construct do not unintentionally measure something else. For satisfactory discriminant validity, each item should load more highly on its own construct than on other constructs. In addition, the average variance shared between a construct and its measures should be greater than the variance shared by the construct and any other constructs in the model (Hsu, Lu and Hsu, 2007). In Table 7, the final construct cross-correlations are provided fifth column onwards (excepting the diagonal entries). For each of the constructs (given row wise), the square root of AVE (represented as diagonal entries) exceeds the values of the correlation coefficient between the construct and all the other constructs. This demonstrates discriminant validity (Claes Fornell and Larcker, 1981).

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[1] These deleted items (count) relate to the following model constructs: facilitating conditions (1 item), results demonstrability (1 item), switching costs (4 items), fear of technological advances (1 item), hedonic consumption (1 item), and attitude towards transition (1 item).

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Assessment of the Structural Model

After validation of the measurement model, the assessment of the structural model was carried out with the results depicted on Figure 2. Following suggestions by Hair, Ringle and Sarstedt (2011) we usedbootstrapping with 5,000 resamples to determine the significance of the paths within the structural model. The quality of the structural model was evaluated on squared multiple correlations (R2).

As shown in Figure 2, more than half of the variance of the endogenous dependent variables "Desire to Transition" and "Intention to Transition" is explained, which can be considered substantial. The variance of the variables "Perceived Behavioral Control" and "Attitude towards Transition" are explained to a lesser extent, but are still at a moderate level. Only "Social Influence" shows a weak R2 (Hsu, Lu and Hsu, 2007). Table 3 summarizes the findings regarding the fourteen hypotheses proposed earlier.

Table 3 – Hypotheses Test Results

Hypothesis		**ß**	**t-Value**	**Support**
H1	Facilitating conditions has a positive influence on perceived behavioral control	.471***	4.400	yes
H2	Trialability has a positive influence on perceived behavioral control	-.029	0.306	no
H3	Personal innovativeness has a positive influence on perceived behavioral control	.192*	1.766	yes
H4	Incumbent system habit has a negative influence on attitude towards transition	-.165*	1.888	yes
H5	Results demonstrability has a positive influence on attitude towards transition	.224**	2.369	yes
H6	Complexity has a negative influence on attitude towards transition	-.167	1.311	no
H7	Fear of technological advances has a negative influence on attitude towards transition	.151*	1.824	no†
H8	Hedonic consumption has a positive influence on attitude towards transition	.483***	5.786	yes
H9	Switching costs has a negative influence on attitude towards transition	n/a	-	no
H10	Visibility has a positive influence on social influence	.131	0.809	no
H11	Perceived behavioral control has a positive influence on desire to transition	.115	1.577	no
H12	Attitude towards transition has a positive influence on desire to transition	.597***	7.811	yes
H13	Social influence has a positive influence on desire to transition	.258***	3.425	yes
H14:	Desire to transition has a positive influence on intention to transition	.918***	34.735	yes

Path- ß: * significant at p < .050; ** significant at p < .010; *** significant at p < .001
† Even though the ß coefficient is significant, sign of the result is contrary to what has been hypothesized

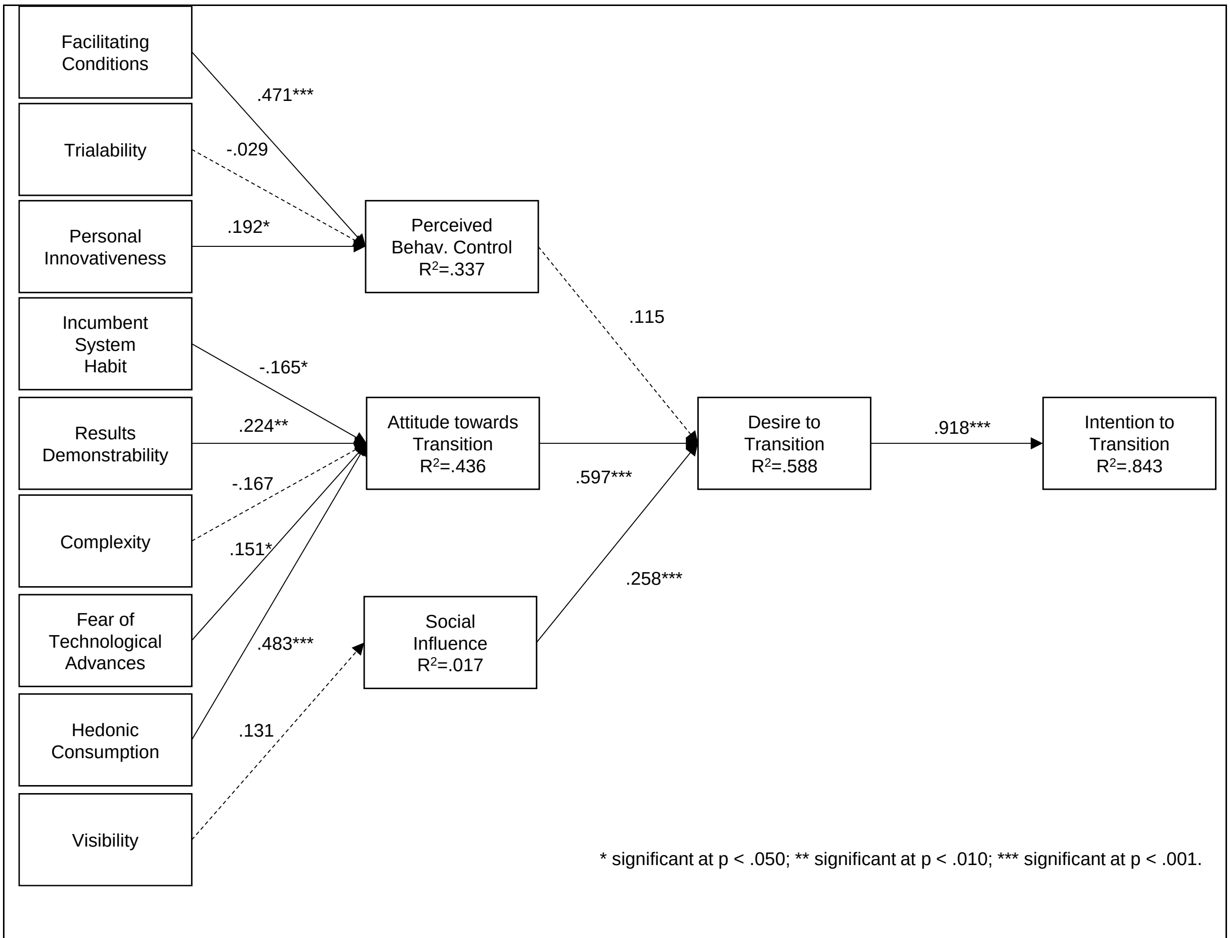

Figure 2 – Structural Model Results

Discussion

In our research we have tried to understand how various factors influence an individual's intention of transition from a conventional computing device to a tablet computer within a specified time horizon. The results based on 278 usable responses indicates eight out of the fourteen hypothesized relationships to be significant and in the expected direction. The paths from *facilitating conditions* and *personal innovativeness* to *perceived behavioral control* (H1, H3), from *incumbent system habit* and *results demonstrability* to *attitude towards transition* (H4, H5), from *hedonic consumption* to *attitude towards transition* (H8), from *attitude towards transition* and *social influence* to *desire to transition* (H12, H13), and from *desire to transition* to *intention to transition* (H14) emerged as hypothesized. On the contrary, the paths from *trialability* to *perceived behavioral control* (H2), from *complexity, fear of technological advances, and switching costs* to *attitude towards transition* (H6, H7, H9), from *visibility* to *social influence* (H10), and from *perceived behavioral control* to *desire to transition* (H11) are not supported. With respect to hypothesis H9, the hypothesized path is non-existent given the deletion of the SC construct at the time of measurement model assessment as reported above.

Our finding that *trialability* does not significantly influence *perceived behavioral control* (H2) is consistent with Li (2014) where trialability was not a significant predictor of tablet PC usages in Taiwan. The findings also concur with Riemer-Reiss and Wacker (2000) where trialability failed to explain continuation or abandonment of assistive technology among individual with disabilities. Our results can be explained by assuming the fact that the interface design of tablet PCs has similarities with computer and mobile interfaces to which the respondents are likely to be familiar.

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Various internet sources also publish information on these tablet PCs which again can be used to know about these devices. Hence the respondents might not have experimented with the various tablet PCs while deciding whether or not to make the switch. Our results differ from studies by Martins et al. (2004), and Hsbollah et al. (2009) in the context of e-learning adoption where trialability emerged as a significant predictor of adoption given the fact that the respondents (lecturers) needed to test the respective E-learning platforms before committing to its usage.

Our hypothesized relationship between *complexity* and *attitude towards transition* (H6) is not supported by the model results. This is surprising given the evidences of support on the relationship in the existing literature (Li, 2014; Venkatesh, Morris, Davis and Davis, 2003). The complexity construct assesses the extent of difficulty in understanding and using a tablet computer. To explain our results, we cite evidences from Foasberg (2011). The author carries out a survey of college students to understand E-book reader adoption, with the findings indicating interface nature as the second lowest drawback of the system as perceived by the respondents. In a similar way, complexity of the tablet interface might not be perceived as important by our study respondents leading to the above results.

The construct *fear of technological advances* relates to concerns associated with advances in the technology. This construct is found to be more salient for aged respondents in a study of technology adoption in households (Brown and Venkatesh, 2005). In our study, the influence of this construct on *attitude towards transition* is not supported (H7). A possible explanation of this finding is that over 91% of the total respondents in our study are below the age of forty, and these respondents are likely to be more tolerant towards risks (Brown and Venkatesh, 2005). Hence these respondents' evaluation of the above-mentioned association might have received lower relevance. Even though the hypothesis is not supported, the **ß** coefficient is observed to be positive and statistically significant which is possible if the respondents who have expressed less concerns with the technology advancements are also mostly indifferent towards switching to the alternate technology. However, in absence of data on actual switching behavior of the respondents, it was not possible for us to validate this assumption.

Our results indicate that *visibility* has no significant impact on the *social influence* construct (H10). Visibility refers to the extent that an innovation (in this case tablet computer) can be observed before it is adopted (Moore and Benbasat, 1991). A plausible argument in support of our finding can be based on the results of Hsu et al. (2007). The authors in their investigation of adoption of multimedia message service (MMS) by different categories of adopters observe visibility considerations to be not relevant for early adopters and early majority. The existing user groups of tablet computers can also be viewed as early adopters or early majority (Velinova, 2012). Hence it seems that most of the respondents who have participated in our study have actually made a switch from the conventional computer to a tablet computer, and hence fall in the categories of adopters mentioned above. Since we have not explicitly captured the transition outcome, this justification is also subject of future inquiry and verification.

Our results do not support the hypothesized relationship between *perceived behavioral control* and *desire to transition* (H11). Even though the result was contrary to our expectations, we are able to note similar findings in extant studies (e.g. Martin Fishbein and Stasson (1990)). In the context of our study it is possible that the respondents related more to the measures of perceived behavioral control (i.e. "I expect") than measures of desire (i.e. "I desire"). Fishbein and Stasson (1990) indicate that measures of perceived behavioral control are separate from measures of desire, and desire is ambiguous when one is dealing with non-volitional behaviors, goals, or outcomes. Our findings, assuming the context of volitional transition is hence subject to further inquiry.

Summary and Conclusion

Why do people switch to new technologies? Drawing on theories on social psychology, our study presents a possible explanation on how various factors influence the transitioning process from the conventional computing device to a tablet computer at an individual level. Based on existing evidences, fourteen relationships were hypothesized among different variables representing our conceptual model shown in Figure 1. Results based on survey data indicate eight out of the fourteen hypotheses to be valid in our study context. In terms of the variances explained by the model, about 59% of the variance in desire towards transition is explained by the model. The results establish the importance of the different antecedents in understanding technology transition at an individual level.

Our study is not without limitations. First, the research investigates the phenomena from an individual's perspective, and hence the findings might not be applicable in a broader organizational context. Hence our model is likely to fall short in explaining the process of technology transition in an organizational context. Second, the research model presented here incorporates social and behavioral aspects in explaining technology transition at an individual level. There may be other exogenous factors as well influencing the same scenario but these have not been explicitly incorporated in this study. Third, our research model presents a simplified representation of factors in explaining an individual's intention towards transitioning to the preferred technology. The causal links depicted in Figure 1 are also unlikely to be as deterministic as proposed. Thus, this paper's results can only be considered as the basis for future empirical work. Fourth, we used the Harman's single-factor test only to control for common method bias, which is today considered an approach with some limitations (Podsakoff, MacKenzie, Jeong-Yeon and Podsakoff, 2003). Since more advanced tests require the collection of a marker variable which we did not include in our survey, we cannot completely rule out that a common method bias affected the validity of our findings. Finally, the formation of the intention does not necessarily guarantee a positive outcome in the context of transition (Smith, Tang and Hale, 2008). There are intervening processes which dictate whether the intended transition can be realized. Intentions are often ill-formed or incomplete or need to be adjusted over time (Bagozzi, 2007). The gap in time between the formation of intention and the point of occurrence of outcome can also be large resulting in shift of the intentions. Also, several obstacles might arise following the intention to take action, and the process is plagued with uncertainty (Bagozzi and Edwards, 1998). Hence, further research on this topic can investigate how these factors can influence the intention to outcome linkage with respect to technology transition.

Our research makes a number of important theoretical contributions which broadens our understanding on the phenomena of technology transition. First, the research's contribution to theory is a greater understanding of the psychological and social processes that influence technology transition, from an individual perspective. Our research culminates into a model that integrates the key antecedents and provides better reasoning to why certain technologies get replaced over time. Consequently, we extent the existing body of knowledge on previous technology transition based on our explanations on the intention towards transitioning to the preferred technology at the individual level. Second, our research model incorporates both utilitarian and hedonic concepts in explaining the phenomena of technology transition. This extends previous contributions where technological issues with respect to adoption and usage are addressed mainly from a utilitarian perspective (Davis, Bagozzi and Warshaw, 1989; Venkatesh, Morris, Davis and Davis, 2003). The hedonic consumption construct is found to significantly affect an individual's attitude towards transition suggesting its importance in explaining individual's preference of technologies. Third, our study incorporates TAM constructs, despite all its noted criticisms, in order to explain the phenomena of technology transition given the fact that both technology acceptance

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and technology transition relates to evaluating the technology usefulness in the appropriate contexts. Thus the study highlights the range of applicability of TAM by demonstrating its suitability in technology transition research stream also. In doing so, we also try to address some of the deficiencies that have beset TAM based research. Specifically, we attempt to strengthen the groundings behind usage and operationalization of specific TAM constructs (Figure 1), and incorporate Bagozzi's suggestions (1992, 2007).

The results of our study have also implications for practice. Our research results are expected to provide practitioners with additional insights into the motivational processes of individuals who are willing to switch to new technologies. Technology manufacturing corporations may incorporate the expected findings when they design new products or services, and develop marketing activities. Apart from the utilitarian factors, the technology manufacturers can also stress on the pleasure aspects of a design, thereby emphasizing on the hedonic value of the intended technology in the design and marketing activities. Media companies may also use the results when adapting product portfolio and the corresponding business models. The results might also be useful for corporate IT planning. Whereas private and corporate settings were clearly separated in terms of IT in the past, these two levels are becoming increasingly intertwined. Today, many technological trends that emerged in the private context have been adopted in the corporate world (e.g., as Web 2.0 applications) (Raeth, Urbach, Smolnik and Butler, 2014). Furthermore, organizations increasingly "allow" their employees to use their personal mobile devices to access organizational systems ("bring your own device" policy) (Lowenstein, 2010). In these cases, understanding individual technology transition is of high organizational relevance. Considering the importance of understanding technology transition in explaining the switching behavior of individuals from existing to a preferred technology, we identify specific areas of research in order to better appreciate the phenomena. Apart from addressing the limitations addressed above, future efforts should use a variety of methodologies (e.g., interviews, qualitative methods) as well as capture the actual transition outcome to triangulate results. Further, beliefs are generally not static and are expected to vary longitudinally and hence longitudinal studies assessing how beliefs evolve during the period of an individual's assessment, evaluation, and subsequent decision regarding transitioning to the preferred technology is likely to provide additional insights into the phenomenon. Subsequent research should investigate if the results achieved in our study from an individual perspective are also valid in an organizational setting, and if differences between private and organizational settings can be observed. The explanations which we have provided earlier with respect to our results pertain to transitioning intention of individuals who are mostly in the lower and middle age groups. We do not have evidences on whether these results are likely to be valid for aged or older people, which again can be an aspect of future inquiry. Similar research can also examine how the results are likely to differ with changes in demographic profile, for example, transitioning behavior of males in comparison to females, etc. Additional research may also investigate how the results are expected to vary across cultures. Such cross-cultural analysis may shed insights into possible variations in the process across multiple geographies. Similar analysis is also possible with different technological artifacts, for example, an analogous scenario can be transitioning from a conventional mobile to a smart phone. While it may be expected that there can be similarities of the results with our findings, there is likely to be differences. It is also possible that the nature of the technology (i.e., standalone versus collaborative) has an impact on technology switching decisions made by an individual which can be an object of further inquiry.

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Appendix A: Measures

All items were measured using a seven-point Likert-type scale, where 1 = strongly disagree, and 7 = strongly agree.

Facilitating Conditions (FC)

FC1 I have the resources necessary for switching to a tablet computer during the next six months.

FC2 I have the knowledge necessary for switching to a tablet computer during the next six months.

Trialability (TRI)

TRI1 I have a great deal of opportunity to try various tablet computers before I make the switch from my conventional computing device to a tablet computer during the next six months.

TRI2 I know where I have to go in order to have access to a tablet computer before I make the switch from my conventional computing device to a tablet computer during the next six months.

TRI3 A tablet computer is available to me to test out its applications before I make the switch from my conventional computing device to a tablet computer during the next six months.

Personal Innovativeness with IT (PIIT)

PIIT1 If I hear about a new information technology, I always look for ways to experiment with it.

PIIT2 Among the peers, I am usually the first to try out new information technologies.

PIIT3 I like to experiment with new information technologies.

Incumbent System Habit (ISH)

ISH1 Using my conventional computing device has become automatic for me.

ISH2 Using my conventional computing device is natural for me.

ISH3 When faced with any computing needs, using my conventional computing device is an obvious choice for me.

Results Demonstrability (RD)

RD1 I believe I could communicate to others the consequences of switching from my conventional computing device to a tablet computer during the next six months.

RD2 The consequences of switching from my conventional computing device to a tablet computer are expected to be apparent to me.

Switching Costs (SC)

SC1 Switching to a tablet computer is expected to involve hidden costs/charges.

SC2 It is expected to take much time/effort to get the information to fully evaluate a tablet computer.

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Complexity (COM)

COM1 Working with a tablet computer is expected to take too much time from my other personal activities.

COM2 Working with a tablet computer is expected to be so complicated that it is difficult to understand what is going on.

COM3 It is expected to take too long to learn how to use a tablet computer to make it worth the effort.

Fear of Technological Advances (FTA)

FTA1 The trends in technological advancement are worrisome to me.

FTA2 I am worried about the rapid advances in computer technology.

Hedonic Consumption (HC)

HC1 Switching to a tablet computer is expected to make me inspired.

HC2 Switching to a tablet computer is expected to make me feel as if I am part of the experience.

HC3 Presence of a tablet computer is expected to make me want to use it.

HC4 Switching to a tablet computer is expected to help me augment reality.

Visibility (VIS)

VIS1 I have plenty of opportunity to see other people using tablet computers.

VIS2 I know several people switching to tablet computers.

VIS3 I have not seen many others using tablet computers.

Perceived Behavioral Control (PBC)

PBC1 I believe that I have the ability to make the switch from my conventional computing device to a tablet computer.

PBC2 It is very easy for me to make the switch from my conventional computing device to a tablet computer during the next six months.

PBC3 If I want to, I would not have problems in succeeding to make a switch from my conventional computing device to a tablet computer during the next six months.

PBC4 I expect to have complete control over my switching from a conventional computing device to a tablet computer.

PBC5 Whether or not I opt for the switching from my conventional computing device to a tablet computer is completely up to me.

Attitude towards Transition (ATT)

ATT1 All things considered, switching from my conventional computing device to a tablet computer during the next six months would be … extremely negative (1) – extremely positive (7)

ATT2 … extremely harmful (1) – extremely beneficial (7)

ATT3 … extremely unpleasant (1) – extremely pleasant (7)

ATT4 … extremely uncomfortable (1) – extremely comfortable (7)

ATT5 … extremely unimportant (1) – extremely important (7)

ATT6 Switching to a tablet computer is expected to fit well for my personal usage.

ATT7 Switching to a tablet computer is expected to suit my computing needs.

ATT8 Switching to a tablet computer is expected to be completely compatible for my personal usage.
ATT9 I expect to be very well prepared to switch from my conventional computing device to a table computer.
ATT10 I expect the switch to a tablet computer from my conventional computing device to be easy.
ATT11 In general, switching to a tablet computer is expected to enable me to accomplish tasks more quickly.
ATT12 In general, switching to a tablet computer is expected to be useful.
ATT13 In general, switching to a tablet computer is expected to enhance my effectiveness.
ATT14 Switching to a tablet computer is expected to increase my productivity more than using my conventional computing device.
ATT15 Switching to a tablet computer is expected to enable me to accomplish tasks more quickly than using my conventional computing device.

Social Influence (SI)

SI1 Switching from a conventional computing device to a tablet computer is expected to improve my image.
SI2 People switching to tablet computers are expected to have more prestige than those who do not.
SI3 Switching from a conventional computing device to a tablet computer is a status symbol.
SI4 Most people who influence my behavior think that I should switch from my conventional computing device to a tablet computer.
SI5 Most people who are important to me think that I should switch from my conventional computing device to a tablet computer.

Desire to Transition (DES)

DES1 I want to switch from my conventional computing device to a tablet computer during the next six months.
DES2 I desire to switch from my conventional computing device to a tablet computer during the next six months.
DES3 My desire to switch from my conventional computing device to a tablet computer during the next six months can be described as (please select one of the following): (a) 'no desire', (b) 'very weak desire', (c) 'weak desire', (d) 'medium desire', (e) 'strong desire', and (f) 'very strong desire'.

Intention to Transition

ITT1 Based on the experience I made so far, I intend to switch from my conventional computing device to a tablet computer during the next six months.
ITT2 Based on the experience I made so far, I plan to switch from my conventional computing device to a tablet computer during the next six months.
ITT3 Based on the experience I made so far, I predict that I will switch from my conventional computing device to a tablet computer during the next six months.

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Appendix B: Exploratory Factor Analysis

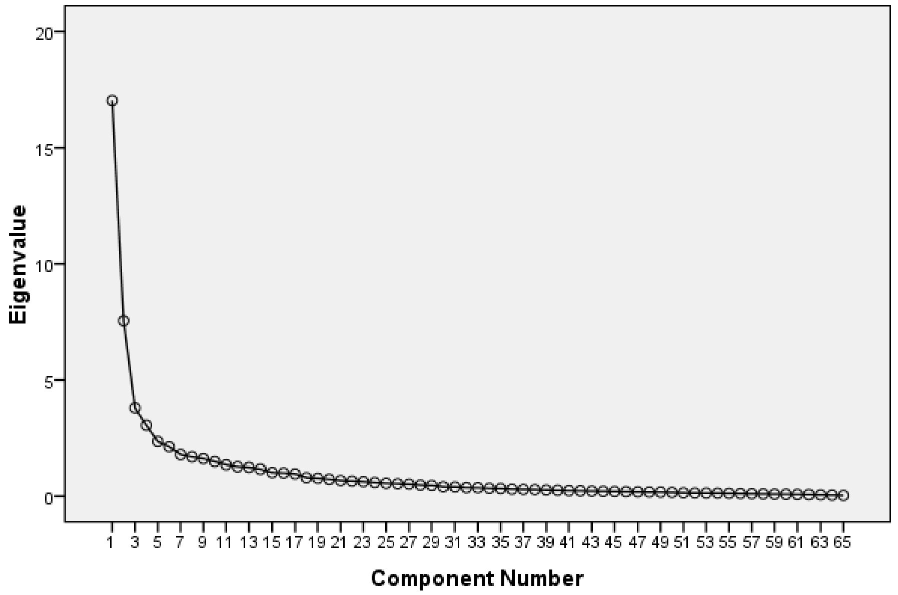

Figure 3 – Scree Plot

Table 4 – KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.887
Bartlett's Test of Sphericity	Approx. Chi-Square	1.491E4
	df	2080
	Sig.	.000

Table 5 – Assessment of Unidimensionality of Reflectively Measured Constructs

	Factor												
	1	2	3	4	5	6	7	8	9	10	11	12	13
ATT7	0.928												
ATT6	0.913												
ATT8	0.901												
ATT12	0.833												
ATT2	0.832												
ATT1	0.771												
ATT11	0.741												
ATT3	0.732												
ATT4	0.727												
ATT5	0.714												
ATT13	0.713												
ATT9	0.651												
ATT10	0.61												
ATT14	0.585												
ATT15	0.567												
PBC3		0.874											
PBC1		0.792											
PBC5		0.74											
PBC2		0.737											
PBC4		0.643											
FC2			0.905										
FC1			0.842										
SI2				0.984									
SI3				0.935									
SI1				0.786									
SI4				0.607									
SI5				0.58									
ITT1					0.862								
DES2					0.83								
ITT2					0.799								

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ITT3					0.79								
DES1					0.771								
DES3					0.738								
PIIT2						0.887							
PIIT3						0.842							
PIIT1						0.801							
COM3							0.773						
COM2							0.74						
COM1							0.562						
SC2							0.543						
SC1							0.508						
HC1								0.795					
HC2								0.757					
HC3								0.722					
HC4								0.585					
TRI3									1.022				
TRI2									0.846				
TRI1									0.685				
VIS2										0.856			
VIS1										0.806			
VIS3_R*										0.789			
ISH2											0.908		
ISH1											0.852		
ISH3											0.52		
RD1												0.819	
RD2												0.693	
FTA2													0.773
FTA1													0.771

Extraction method: Principal Axis Factoring. Rotation method: Promax with Kaiser Normalization. To increase readability, only loadings

* Item VIS3 (Appendix A) reversed and renamed to VIS3_R which is then used in the analysis

Appendix C: Measurement Model Tests

Table 6 – Cross Loadings of Reflectively Measured Constructs

	ATT	COM	DES	FC	FTA	HC	ISH	ITT	PBC	PIT	RD	SI	TRI	VIS	t-Value*
ATT1	**0.748**	-0.088	0.543	0.081	0.061	0.374	-0.144	0.553	0.259	0.045	0.214	0.274	0.225	0.171	22.561
ATT10	**0.693**	-0.247	0.500	0.258	0.029	0.353	-0.204	0.512	0.396	0.255	0.219	0.211	0.277	0.256	18.744
ATT11	**0.798**	-0.123	0.573	0.016	0.204	0.485	-0.117	0.589	0.127	0.115	0.214	0.274	0.152	0.097	29.813
ATT12	**0.828**	-0.149	0.564	0.005	0.103	0.547	-0.148	0.584	0.180	0.081	0.209	0.268	0.207	0.148	37.332
ATT13	**0.816**	-0.136	0.599	0.011	0.153	0.569	-0.183	0.608	0.152	0.091	0.236	0.312	0.191	0.145	34.147
ATT14	**0.733**	-0.063	0.599	0.006	0.194	0.389	-0.254	0.555	0.099	0.049	0.233	0.315	0.148	0.144	22.678
ATT15	**0.752**	-0.089	0.633	-0.004	0.195	0.428	-0.211	0.585	0.118	0.035	0.286	0.261	0.147	0.136	26.250
ATT2	**0.786**	-0.107	0.546	-0.004	0.128	0.387	-0.271	0.546	0.163	0.048	0.217	0.284	0.175	0.175	30.143
ATT3	**0.744**	-0.136	0.547	-0.003	0.124	0.370	-0.196	0.543	0.190	0.022	0.238	0.241	0.131	0.153	25.693
ATT4	**0.717**	-0.164	0.476	0.023	0.154	0.360	-0.179	0.457	0.151	0.077	0.186	0.242	0.165	0.194	21.145
ATT5	**0.697**	-0.084	0.517	-0.043	0.127	0.386	-0.268	0.542	0.054	0.035	0.200	0.401	0.245	0.178	18.274
ATT6	**0.819**	-0.112	0.536	0.080	0.211	0.492	-0.173	0.556	0.186	0.085	0.246	0.296	0.239	0.160	33.948
ATT7	**0.828**	-0.074	0.591	0.059	0.203	0.464	-0.178	0.603	0.183	0.147	0.209	0.314	0.195	0.143	40.550
ATT8	**0.819**	-0.071	0.553	0.035	0.227	0.495	-0.263	0.599	0.198	0.094	0.190	0.360	0.225	0.191	35.197
ATT9	**0.669**	-0.120	0.464	0.222	0.107	0.320	-0.129	0.486	0.348	0.230	0.268	0.254	0.278	0.205	16.501
COM1	-0.167	**0.922**	-0.156	-0.023	0.222	0.028	0.101	-0.166	-0.146	-0.073	-0.120	0.148	-0.106	0.030	3.899
COM2	-0.027	**0.709**	0.068	-0.185	0.425	0.052	0.066	0.065	-0.179	-0.211	-0.157	0.292	-0.222	-0.100	2.320
COM3	-0.076	**0.714**	0.026	-0.102	0.304	0.038	0.140	0.009	-0.125	-0.144	-0.090	0.176	-0.197	-0.108	2.414
DES1	0.694	-0.094	**0.954**	0.173	0.119	0.523	-0.324	0.882	0.292	0.199	0.257	0.451	0.284	0.300	99.534
DES2	0.696	-0.075	**0.969**	0.108	0.154	0.524	-0.309	0.891	0.256	0.134	0.230	0.494	0.240	0.251	181.847
DES3	0.661	-0.111	**0.922**	0.117	0.109	0.521	-0.304	0.838	0.233	0.166	0.252	0.450	0.320	0.280	71.115
FC1	0.037	-0.027	0.064	**0.842**	-0.158	0.066	0.178	0.088	0.427	0.485	0.114	-0.055	0.355	0.299	27.150
FC2	0.065	-0.092	0.169	**0.905**	-0.235	0.085	0.168	0.130	0.541	0.449	0.292	-0.009	0.465	0.388	56.547
FTA1	0.185	0.295	0.109	-0.199	**0.930**	0.182	-0.045	0.170	-0.185	-0.174	-0.047	0.279	-0.137	-0.064	25.193
FTA2	0.180	0.290	0.142	-0.228	**0.926**	0.226	-0.047	0.196	-0.115	-0.233	-0.089	0.272	-0.193	-0.177	26.465

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HC1	0.472	0.028	0.511	0.086	0.171	**0.905**	-0.189	0.499	0.062	0.113	0.081	0.498	0.232	0.148	61.680
HC2	0.543	0.051	0.516	0.024	0.260	**0.904**	-0.203	0.533	0.119	0.082	0.072	0.448	0.198	0.061	83.773
HC3	0.371	-0.012	0.391	0.118	0.080	**0.781**	0.013	0.341	0.116	0.142	0.157	0.325	0.295	0.077	23.362
HC4	0.525	0.053	0.459	0.089	0.210	**0.837**	-0.100	0.459	0.107	0.061	0.171	0.391	0.182	0.099	40.746
ISH1	-0.228	0.074	-0.300	0.234	-0.158	-0.150	**0.867**	-0.313	0.220	0.098	0.097	-0.272	-0.057	0.021	16.392
ISH2	-0.157	0.067	-0.237	0.233	-0.072	-0.076	**0.853**	-0.234	0.183	0.040	0.084	-0.208	-0.058	-0.061	14.153
ISH3	-0.236	0.168	-0.280	0.052	0.092	-0.136	**0.801**	-0.299	0.086	-0.022	-0.029	-0.063	-0.112	-0.071	13.050
ITT1	0.695	-0.112	0.904	0.113	0.183	0.517	-0.338	**0.973**	0.235	0.148	0.220	0.485	0.236	0.284	189.086
ITT2	0.736	-0.114	0.900	0.128	0.201	0.535	-0.316	**0.984**	0.239	0.173	0.223	0.487	0.273	0.276	267.751
ITT3	0.701	-0.100	0.886	0.131	0.192	0.537	-0.351	**0.974**	0.208	0.179	0.208	0.460	0.290	0.278	184.896
PBC1	0.145	-0.177	0.197	0.474	-0.201	0.062	0.244	0.128	**0.851**	0.364	0.237	-0.009	0.239	0.252	40.032
PBC2	0.345	-0.122	0.380	0.416	-0.072	0.187	0.063	0.324	**0.823**	0.340	0.088	0.198	0.224	0.203	26.057
PBC3	0.217	-0.112	0.260	0.527	-0.117	0.123	0.117	0.233	**0.895**	0.416	0.205	0.086	0.279	0.283	67.568
PBC4	0.162	-0.206	0.207	0.405	-0.158	0.084	0.117	0.203	**0.748**	0.368	0.271	-0.002	0.286	0.279	14.879
PBC5	0.025	-0.053	-0.038	0.422	-0.110	-0.037	0.287	-0.035	**0.668**	0.178	0.091	-0.056	0.107	0.154	11.798
PIT1	0.188	-0.165	0.218	0.437	-0.210	0.173	-0.039	0.214	0.365	**0.874**	0.228	0.112	0.539	0.396	34.385
PIT2	0.091	-0.104	0.144	0.475	-0.217	0.071	0.108	0.114	0.386	**0.910**	0.247	-0.009	0.437	0.397	47.719
PIT3	0.054	-0.078	0.119	0.521	-0.168	0.062	0.049	0.138	0.405	**0.923**	0.161	0.005	0.397	0.353	77.857
RD1	0.263	-0.130	0.231	0.212	-0.039	0.138	0.064	0.184	0.201	0.193	**0.912**	-0.008	0.323	0.207	42.583
RD2	0.274	-0.119	0.244	0.234	-0.093	0.112	0.037	0.222	0.212	0.234	**0.919**	-0.031	0.282	0.227	40.809
SI1	0.381	0.137	0.450	-0.057	0.263	0.515	-0.153	0.427	0.089	0.026	0.023	**0.844**	0.067	0.046	34.997
SI2	0.261	0.176	0.351	-0.061	0.257	0.361	-0.127	0.342	0.008	-0.032	-0.021	**0.862**	-0.015	0.049	34.065
SI3	0.217	0.152	0.269	-0.083	0.235	0.337	-0.053	0.259	0.012	-0.031	-0.013	**0.793**	-0.028	0.085	22.591
SI4	0.359	0.196	0.477	-0.004	0.257	0.431	-0.245	0.495	0.079	0.073	-0.034	**0.879**	0.119	0.144	50.070
SI5	0.332	0.188	0.465	0.025	0.249	0.400	-0.248	0.473	0.070	0.077	-0.041	**0.866**	0.107	0.199	48.475
TRI1	0.289	-0.186	0.309	0.440	-0.180	0.262	-0.086	0.269	0.314	0.472	0.326	0.064	**0.942**	0.341	78.351
TRI2	0.200	-0.180	0.237	0.466	-0.191	0.229	-0.059	0.216	0.278	0.489	0.312	0.021	**0.932**	0.307	66.216
TRI3	0.221	-0.081	0.276	0.409	-0.104	0.216	-0.128	0.282	0.194	0.436	0.269	0.142	**0.913**	0.297	42.930
VIS1	0.071	-0.063	0.166	0.373	-0.157	0.095	0.075	0.155	0.326	0.386	0.248	0.060	0.330	**0.801**	3.950

VIS2	0.257	0.027	0.323	0.362	-0.094	0.119	-0.073	0.317	0.250	0.378	0.210	0.160	0.315	**0.959**	3.487
VIS3_R	0.119	-0.143	0.164	0.307	-0.134	0.035	-0.059	0.172	0.238	0.361	0.168	0.045	0.239	**0.781**	3.724
* The t-value provides a measure of statistical significance of the loadings (bold and highlighted) of items (row-wise) on the corresponding constructs (shown column-wise)															

Table 7 – Reliability and Validity of the Measurement Model

				Constructs													
	AVE	**CR**	**CA**	***ATT***	***COM***	***DES***	***FC***	***FTA***	***HC***	***ISH***	***ITT***	***PBC***	***PIIT***	***RD***	***SI***	***TRI***	***VIS***
ATT	0.58	0.95	0.95	**0.76**													
COM	0.62	0.83	0.78	-0.15	**0.79**												
DES	0.9	0.96	0.94	0.72	-0.1	**0.95**											
FC	0.76	0.87	0.69	0.06	-0.07	0.14	**0.87**										
FTA	0.86	0.93	0.84	0.2	0.31	0.13	-0.23	**0.93**									
HC	0.74	0.92	0.88	0.57	0.04	0.55	0.09	0.22	**0.86**								
ISH	0.71	0.88	0.8	-0.25	0.13	-0.33	0.2	-0.05	-0.15	**0.84**							
ITT	0.95	0.98	0.98	0.73	-0.11	0.92	0.13	0.2	0.54	-0.34	**0.98**						
PBC	0.64	0.9	0.86	0.24	-0.17	0.27	0.56	-0.16	0.12	0.19	0.23	**0.8**					
PIIT	0.81	0.93	0.89	0.12	-0.13	0.18	0.53	-0.22	0.11	0.05	0.17	0.43	**0.9**				
RD	0.84	0.91	0.81	0.29	-0.14	0.26	0.24	-0.07	0.14	0.05	0.22	0.23	0.23	**0.92**			
SI	0.72	0.93	0.91	0.38	0.2	0.49	-0.03	0.3	0.49	-0.21	0.49	0.07	0.04	-0.02	**0.85**		
TRI	0.86	0.95	0.92	0.26	-0.17	0.3	0.47	-0.18	0.26	-0.09	0.27	0.29	0.5	0.33	0.07	**0.93**	
VIS	0.72	0.89	0.84	0.21	-0.03	0.29	0.4	-0.13	0.11	-0.04	0.29	0.3	0.42	0.24	0.13	0.34	**0.85**

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