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# EXPLORING CUSTOMERS' POST-ADOPTION PERCEPTIONS: A STUDY ON TRUST, COMMITMENT AND RELATED CONSTRUCTS IN B2C ONLINE SERVICE CONTEXT

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## Abstract

*Trust has shown to be an important factor both in the adoption of e-commerce but also in ongoing relationships between buyers and sellers. Information systems literature has discussed trust extensively, yet traditionally mostly focusing on the adoption phase. However, signs of increasing interest to post-adoptive phenomena, such as customer loyalty, can be seen in the recent IS and e-commerce literature. Encouraging customers to continue the relationship after the adoption has been widely seen as vital for e-businesses. This holds especially true with B2C online services, where the relationships are largely based on series of transactions and interactions. The paper presents a research model in which structural assurance and online self-efficacy are viewed as the antecedents of trust, whereas trust and switching costs are investigated as the determinants of commitment. We empirically investigate a sample of active users of online services and use structural equation modeling to analyze the data. The key findings are: 1. perceived structural assurance plays an important role also after the adoption, 2. online self-efficacy was notified to be a determinant of trust, and 3. switching costs are a determinant of commitment.*

*Keywords: trust, post-adoption, commitment, B2C online services*

# 1    INTRODUCTION

Trust has been shown to be an important element in explaining customers' adoption of e-commerce. A considerable number of studies have been published to elaborate the role of trust in e-commerce from several perspectives utilizing numerous theoretical frameworks. (Pavlou & Fygenson, 2006; Salam et al., 2005; Gefen & Straub, 2004.) The adoption and acceptance research has traditionally been a strong focus area of information systems (IS) discipline (cf. e.g. Jasperson et al., 2005). Recently, IS research has been showing increasing interest toward the post-adoption aspects in the contexts of IS use in organizations (Jasperson et al., 2005; Kim & Malhotra, 2005) and e-commerce (Li et al., 2006).

In B2C e-business alongside attracting new customers, also retaining the existing ones is an issue of great significance. Customer loyalty is viewed as one of the most important factors for e-business success (cf. e.g., Anderson & Srinivasan, 2003; Reicheld & Schefter, 2000). The importance of customer loyalty has been widely acknowledged and discussed in the marketing literature (cf., e.g., Oliver, 1997; 1999; Copeland, 1923; Jacoby & Chestnut, 1978) and has recently started to draw attention also in the IS and e-commerce field (cf., e.g., Otim & Grover, 2006; Gefen 2002; Cyr et al. 2007). Traditionally, marketing literature has viewed interpersonal human-to-human interaction and social bonds as cornerstones of loyalty (cf., e.g., Gwinner et al., 1998). However, when an increasing share of service encounters take place in digital channels as human-to-computer interaction, nurturing customer loyalty possesses a specific challenge that calls for understanding of the post-adoption phenomena.

In addition to the role trust is reported to have in, e.g., e-commerce adoption, trust is also a central component of ongoing buyer-seller relationships. (Morgan & Hunt, 1994; Dwyer et al., 1987). In this paper, the customer's decision to adopt a service is viewed as a temporal separator between pre- and post-adoption phases. This paper focuses on the post-adoption phase by exploring the relationship's trust, commitment, perceived structural assurance, online self-efficacy and perceived switching costs. In this study, post-adoption behaviour is viewed to encompass the subsequent phases of a customer relationship that take place after a customer's initial adoption. In other words, this study focuses to examine customers who already actively use online services.

Numerous studies in the IS and e-commerce literature empirically investigating trust have focused on, e.g., security and privacy issues and different institutional and technical mechanisms to overcome these issues. (cf. e.g., Kimery & McCord, 2006; Brown & Morgan, 2006; Pollach, 2006). One dimension of the complex trust construct is the set of trusting beliefs; integrity, predictability, competence and benevolence (see e.g., McKnight & Chervany, 2002). Therefore, this paper scrutinizes both trusting beliefs and perceived structural assurance; in the empirical setting, the trust construct is referred to as 'trusting beliefs'.

The aim of this paper is to look into trust in order to explore the relationships between trust and the aforementioned other concepts. Secondly, the purpose is to test the applicability of the survey for further research. Since the survey used in this study is planned for use in a longer research process, feedback from be academic community mainly regarding the survey but on the topic of the research as well is important for ensuring the quality of the further research work. Thirdly, the paper attempts to explore and identify potential areas for further research. As a result, rather than testing existing theories or finding generalizable patterns or rules, the paper is of an explorative nature.

The theoretical basis of the paper consists of three parts. The first part consists of the trust conceptualizations mainly from prior e-commerce and IS literature (cf. e.g.,. McKnight & Chervany, 2002; Krabner-Kräuter & Kaluscha, 2003). A brief overview of trust in e-commerce with the definition of trust is given. Moreover, different dimensions of trust are presented. The second part of the theoretical foundation is taken from marketing literature; the commitment-trust theory by Morgan & Hunt (1994) is a widely cited framework to scrutinize trust and commitment as key mediating variables between relationship antecedents and outcomes. Online self-efficacy, perceived switching

costs and perceived structural assurance are briefly presented in the third part of the theoretical background.

# 2 BACKGROUND

## 2.1 Trust

Trust has been investigated extensively in the IS and e-commerce literature but also in other disciplines such as economics, psychology, sociology and marketing (Krabner-Kräuter & Kaluscha, 2003; Cowles, 1997). Defining trust has proven problematic as stated, e.g., by McKnight & Chervany (2002) and Lee & Turban (2001). At present, there are various different definitions and conceptualizations of trust (see e.g., Grabner-Kräuter et al., 2006.) However, there seems to be at least some kind of consensus among IS scholars that trust is a complex and multi-dimensional construct that is difficult to capture in one definition. (see e.g., Tan & Sutherland 2004; Grabner-Kräuter & Kaluscha, 2003; Komiak & Benbasat, 2004.)

The focus of this paper is not on developing an additional definition to this "conceptual morass"[1] associated with trust (Grabner-Kräuter et al., 2006). As a result, in this paper the definition of trust is taken in a compressed form from Mayer et al. (1995, 712) who define trust as "the willingness of a party to be vulnerable to the actions of another party".

Trust can be viewed as including at least dispositional, institutional and interpersonal dimensions. (See e.g., McKnight & Chervany, 2002; Tan & Sutherland, 2004). In several studies, the interpersonal dimension of trust is regarded as consisting of a set of trusting beliefs. According to McKnight & Chervany (2002), trusting beliefs are competence, benevolence, integrity and predictability, whereas for Lee & Turban (2001), the trustworthiness of an Internet merchant is seen to consist of ability, integrity and benevolence. In addition to a set of beliefs or psychological traits, the decision to trust is based on evaluation of the counterpart. Thus, calculativeness can be viewed as one aspect of trust. As stated by Williamson (1996), the existence of institutional safeguards makes trusting less risky. (Williamson, 1996.)

## 2.2 Commitment-trust theory

Commitment-trust theory (Morgan & Hunt 1994) can be regarded as one of the theoretical cornerstones of relationship marketing, and it is widely applied and utilized in the discipline of marketing (see, e.g., Mukherjee & Nath, 2007; Kingshott & Pecotich, 2007). Commitment-trust theory was originally developed in the B2B context, but it has thereafter also been successfully applied within the context of B2C e-commerce. (Mukherjee & Nath, 2007; Eastlick et al., 2006; Luarn & Lin, 2003).

In commitment-trust theory, trust and commitment are viewed as key mediating variables between antecedents (relationship termination cost, relationship benefits, shared values, communication and opportunistic behaviour) and outcomes (acquiescence, propensity to leave, cooperation, functional conflict and decision-making uncertainty). (Morgan & Hunt, 1994.)

The e-commerce literature contains examples of using trust and commitment as core concepts of the framework for the research model, rather than utilizing the theory as such. (See e.g., Eastlick et al., 2006; Luarn & Lin, 2003.) This paper takes a somewhat similar approach. This paper applies the commitment-trust theory, viewing trust and commitment as key mediating variables between the antecedents and loyalty-related behavioural intents, but using different antecedents than originally presented by Morgan & Hunt (1994). Moreover, the outcomes of loyalty are excluded from the

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[1] Originally in Barber, B. (1983) The logic and limits of trust.

research model of this study. Thus, in the research model, commitment is positioned as a dependent variable. The commitment-trust theory was selected as a theoretical lens since it puts trust into the centre of the investigation and offers a tool to investigate the relations between different concepts related to trust.

This study uses the same definition of commitment developed by Moorman et al. (1992) that was also employed by Morgan & Hunt (1994). Moorman et al. viewed relationship commitment as an enduring desire to maintain a valued relationship. Like trust, commitment is also a multi-faceted concept that has been investigated by many disciplines in various contexts. (See, e.g., Gutiérrez et al., 2006; Hunt & Morgan, 1994.)

2.3     Online self-efficacy, perceived structural assurance & switching costs

Drawing on Bandura's (1982) work on social cognitive theory, we view online self-efficacy as having a direct effect on perceived usefulness.  In this paper, we use the term online self-efficacy to illustrate a person's perception of his abilities to obtain a certain goal. Compeau and Higgins define computer self-efficacy as "an individual's perception of his or her ability to use a computer in the accomplishment of a job task" (Compeau & Higgins, 1995). We utilize this definition with regard to online self-efficacy, but emphasize that within the context of this study, self-efficacy is particularly related to using B2C online services. In this study, we scrutinize the role of self-efficacy in the post-adoption context and place it as an antecedent of trust.

Institution-based trust refers to sociological view of trust. It is the belief that the needed structural conditions (facilities, regulations, standards, legislation etc.) are in place to ensure that the outcome of the transaction is satisfactory. McKnight et al. suggest two dimensions of institution-based trust, situational normality and structural assurance. Situational normality means that the business transaction is conducted with no major deviations from what the customer has expected i.e. the service encounter meets the expectations. Structural assurance is created with guarantees, premises, laws and other 'safeguards' that reduce the customer's perceived risk. (McKnight et al., 2002, 335-341; Pavlou & Gefen, 2004, 37-41.)

In this paper we have operationalized structural assurance as the mechanisms the service provider has established to protect the customer's identity and financial information. In the research model, structural assurance is viewed as a distinct construct from trust positioned in the research model as its antecedent. Moreover, we also explore the relationships between structural assurance and online self-efficacy by positioning structural assurance as a determinant of online self-efficacy.

Switching costs are the monetary and/or psychological costs the customers perceive as related to discontinuing with the current service and potentially starting the use of another one. In contexts where the use of a service is based on routine, or is driven mainly by convenience, switching costs can be a major driver for remaining with the service provider, i.e., customer loyalty. (cf. e.g., Aydin & Özer, 2005.) Following the same logic, switching costs have been positioned in our research model as an antecedent of commitment.

# 3     RESEARCH APPROACH & DATA ANALYSIS

3.1     Hypotheses & research model

To investigate the relationships between the key concepts of this study, we postulate five hypotheses based on our research model. Figure 1 presents the research model.

Based on the commitment-trust theory by Morgan & Hunt (1994), a positive causal relationship from trust to commitment exists. Thus, the first hypothesis is postulated accordingly:

*Hypothesis 1: Trust positively affects commitment.*

Since the perceived structural assurance as viewed as an integral dimension of trust (see, e.g., McKnight & Chervany, 2002; McKnight et al., 2002), we come to the second hypothesis:

*Hypothesis 2: Perceived structural assurance of the online service (mechanisms to protect customer's financial information and identity) has a positive influence of trust.*

Our operationalization of online self-efficacy reflects the level of confidence and behavioural control the respondent perceives when using her/his selected online service (cf., e.g., Pavlou & Fygenson, 2006; Hsu & Chiu, 2004; Compeau & Higgins, 1995). Thus, in one sense, self-efficacy can be viewed as the trust an individual possesses in his own capabilities. Therefore, the third hypothesis is formulated in a similar manner to the second one:

*Hypothesis 3: Perceived structural assurance positively affects online self-efficacy*

As identified by e.g., Pavlou (2003) and Pavlou et al. (2007), trust reduces uncertainty and the fears consumers perceive in online purchasing. As in this paper online self-efficacy can also be viewed to reflect a low level of uncertainty related to one's own skills, the next hypothesis is postulated as follows:

*Hypothesis 4: Online self-efficacy positively affects trust.*

Switching costs have been reported to have a positive influence on relationship intention (Wang & Head, 2007) as well as behavioural loyalty (Goméz et al., 2006; Aydin & Özer, 2005). Thus, we assume that this would also hold true with regard to commitment, and thereby hypothesize the following:

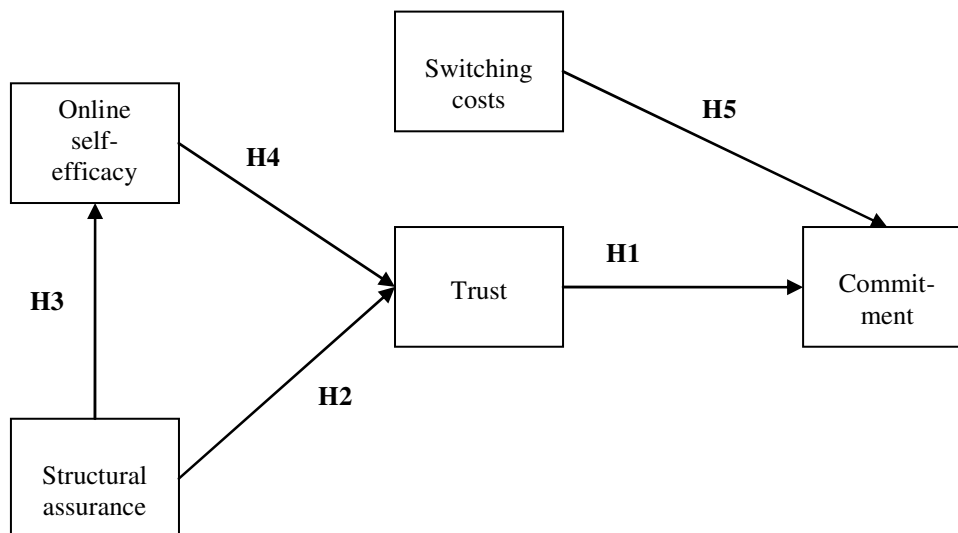*Hypothesis 5: Perceived switching costs positively affect commitment.*



*Figure 1. The research model*

3.2    Data collection & analysis

The empirical data was collected with a questionnaire and the sample was formed of a group of undergraduate students in a Finnish business school. The respondents were first asked to name an

online service which they use on a regular basis, and after that to answer to the subsequent questions based on their selected online services. A total of 110 questionnaires were distributed and 109 were returned. Only one form was discarded, due to missing data.

The questionnaire was pre-tested by distributing it to six researchers and asking them to provide comments on the understandability and clarity of the questions, as well as the length of the questionnaire. After the comments were received, some modifications were made.

3.3        Instrument validation

Except for the background questions, gender, use history and use frequency, the items were measured with a 5-point Likert scale anchoring ranging from *totally disagree* to *totally agree*. The convergent validity for the measures was assessed using principal components factor analysis. Five factors were extracted from the data, each containing the items of one construct. To calculate the loading values, we used Varimax rotation with Kaiser normalization. The operationalizations of the constructs with references to the literature are included in the paper as Appendix 1.

To test the construct reliability, Cronbach's alpha values were calculated. Table 1 presents summary statistics of the number of items of each construct as well as the Cronbach's alpha values for the constructs. In addition, the factor loadings for each of the construct are presented.  All the constructs had Cronbach's alpha value at least very close to the limit of .70, suggested as a sufficient alpha statistic for research of an exploratory nature.  (Nunnally, 1978.)

| *Construct* | *Item* | *Loading* | *Cronbach's alpha* |
|---|---|---|---|
| Online self-efficacy | OSE1 | .689 | .817 |
| | OSE2 | .748 | |
| | OSE3 | .704 | |
| | OSE4 | .739 | |
| | OSE5 | .816 | |
| Trusting beliefs | Tr1 | .850 | .763 |
| | Tr2 | .903 | |
| | Tr3 | .704 | |
| | Tr4 | .500 | |
| Switching costs | Sw1 | .689 | .724 |
| | Sw2 | .801 | |
| | Sw3 | .732 | |
| | Sw4 | .641 | |
| Structural assurance | Sa1 | .884 | .956 |
| | Sa2 | .897 | |
| Commitment | Co1 | .912 | .682 |
| | Co2 | .739 | |

*Table 1. Reliability of the constructs*

Testing of the research model utilized structural equation modelling with AMOS 7.0 software. The measurement model fit indices are reported in Table 2. GFI was 0.987, which is above the desired cut-off value of 0.90 (Gefen, Straub & Boudreau., 2000). Also AGFI, CFI, TLI and values for the model exceeded the desired values. Consequently, the results suggest that the model adequately fits the data.

| Goodness of fit indices | Value | Recommended cut-off-value |
|---|---|---|
| GFI (Goodness of Fit Index) | 0.987 | >0.90 |
| AGFI (Adjusted Goodness of Fit Index) | 0.960 | >0.90 |
| CFI (Comparative Fit Index) | 1.000 | >0.90 |
| TLI (Tucker-Lewis Index) | 1.071 | >0.95 |
| NFI (Normed Fit Index) | 0.927 | >0.90 |
| RMSEA | 0.000 | <0.06 |

*Table 2. Fit indices for the estimated model*

## 4    RESULTS

The estimated SEM model showed that of the six hypothesized paths, all were supported. Moreover, all the hypothesized paths were statistically significant. The standardized regression weights for the paths are shown in Figure. 2. The squared multiple correlations for the construct are also presented.
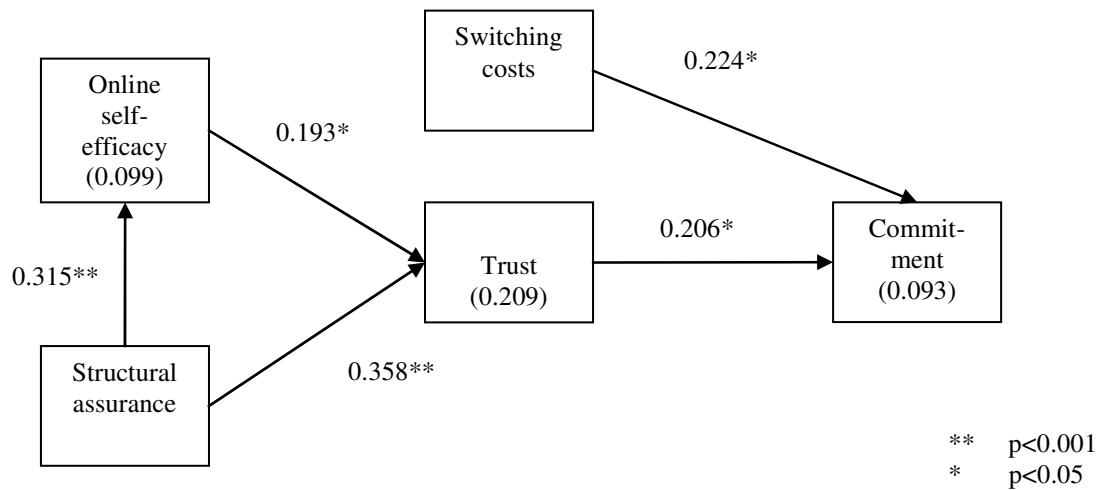


*Figure 2. Results for the research model*

The results indicate that structural assurance and online-self efficacy explained more than 20% of trust. Moreover, almost 10% of online self-efficacy can be explained by the impact of structural assurances. The fact that trust and switching costs together are able to explain only less than 10% of commitments indicates that other variables need to be included in the investigation. A summary of the hypotheses testing is presented in Table 3.

| Hypothesis | Result |
|---|---|
| Hypothesis 1: Trust positively affects commitment. | Supported |
| Hypothesis 2: Perceived structural assurance of the online service (mechanisms to protect customer's financial information and identity) has a positive influence on trust. | Supported |
| Hypothesis 3: Perceived structural assurance positively affect online self-efficacy. | Supported |
| Hypothesis 4: Online self-efficacy positively affects trust. | Supported |
| Hypothesis 5: Perceived switching costs positively affect commitment. | Supported |

*Table 3.  Summary of the results*

# 5 DISCUSSION & FURTHER RESEARCH

## 5.1 Implications for research

The results of the study indicate that trust plays a central role also in the post-adoption context by having an influence on commitment. This is in line with the findings of prior studies. (See e.g., Morgan & Hunt, 1994; Luarn & Lin, 2003; Mukherjee & Nath, 2007.) However, since our model was able to explain less than 10% commitment, the relationship between trust and commitment was somewhat weaker than expected. As a result, including additional variables to the trust-commitment framework may be appropriate in further studies.

An interesting finding from the study was that structural assurance seems to have an influence on trust both directly, but also indirectly via online self-efficacy. As a result, the findings of this study underscore the importance of high-quality mechanisms to protect the customer during the whole customer relationship. This can be considered an interesting theoretical implication since prior research has not extensively investigated the role of structural assurance after the initial acceptance has taken place.

In this study, trust was empirically investigated as a set of trusting beliefs, whereas perceived structural assurance was seen as a separate construct. Viewing them as a single construct would emphasize the importance of trust even more. Since trust is a multi-dimensional issue, investigating it as two separate constructs rather than as a monolith may help to reveal new relationships between dimensions of trust and other constructs.

Switching costs were found to have a positive impact on commitment and thus making the customer less prone to competing offerings. Alongside its other impacts reported in the literature, commitment seems to be an integral building-block of customer loyalty also within the context of B2C online services. (Cf. e.g., Li et al., 2006; Luarn & Lin, 2003.)

## 5.2 Implications for practitioners

The results of the study highlight the importance of perceived structural assurance also after the adoption of the service has occurred. Having an impact on both online self-efficacy and trust, sufficient technical and other mechanisms to protect the customer are important not only in the adoption phase but during the whole customer relationships. This study investigated particularly perceived structural assurance, not the actual ones. In this regard, the existence of safety mechanisms and procedures needs to be efficiently communicated to the customers to produce the desired outcome.

The relationship between commitment and perceived switching costs is potentially an issue to be considered when attempting to increase customer loyalty. Increasing switching costs to keep the customers is known as a lock-in strategy. It can be efficient in keeping customers behaviourally loyal, i.e., using the service, but has a negative impact on the loyalty attitudes. (Salmen & Muir, 2003; Jacoby & Chestnut, 1978.) As a result, attempts to influence commitment may involve less risk than increasing switching costs.

## 5.3 Limitations

Self-evidently, this study has several limitations. The sample used in the empirical setting is rather small (n=108), and the fact that the data was collected among students of one Finnish university may impose constraints on the utilization of the results. Thus, the results cannot be generalized to statistically represent the whole Finnish population. In general terms, structural equation modelling (SEM) is a large sample technique (Tabachnick & Fidell, 2007). However, a minimum sample size depends on several factors, such as the analysis technique, quality of data, etc. Yet, we acknowledge

the fact that our sample is small and consider it as the main limitation of our study. To keep the model reliable, only relatively few variables have been included in the analyses. Comfortingly, based on the results of SEM, we obtained a sufficient level of model fit.

5.4    Avenues for further research

Including more aspects of trust into scrutiny would potentially be interesting to investigate the role of trust in a more comprehensive manner. In this study, the trust constructs consisted of four items and the structural assurance construct of two items. Including the dispositional dimension in empirical investigation would increase awareness on how personality influences trust and related concepts. With regard to trusting beliefs, benevolence was not investigated in this study. Ball et al. (2004) argue that the benevolence component of trust has a strong role in determining loyalty in B2B context. Investigating this issue further in online B2C context would be interesting to elaborate the trust-loyalty relationship.

This study has investigated only five factors. Self-evidently, there are numerous other components such as loyalty-related behavioural intents, social presence, website design, communication, etc., that could be included in the investigation (see e.g., Gefen, 2002; Ball et al., 2004). Thus, conducting the research with a larger sample would enable using a more fine-grained research setting in subsequent studies which in turn would potentially increase both validity and reliability of the results. The research model used in this paper was able to explain over 20% of trust and slightly less than 10% of commitment, which also underscores the need for additional research with more variables.

Another potentially interesting path for research would be investigating the gender differences in post-adoptive behaviours, attitudes and beliefs. Preliminary investigations with the current data indicated that men and women perceive trust-related issues somewhat differently also in the post-adoption phase. In addition, including cultural aspects in the investigation would perhaps provide interesting insight by, e.g., comparing how users of online service in Europe and Asia perceive trust, commitment and loyalty. Finally, including a longitudinal aspect in the research setting would potentially be beneficial in order to be able to grasp the dynamic nature of trust.

In practical terms, this research process will continue by developing the questionnaire further to increase the reliability of the core constructs of the study. Once the improvements are done, the survey will be distributed to a larger sample of respondents. Due to space limitations, we have limited the scope of this paper to the variables discussed before, however the questionnaire includes also several other variables.

# 6    CONCLUSIONS

The first aim of this paper was to explore the relations between trust and other concepts related to post-adoptive behaviours. The paper has discussed the roles of trust, commitment, online self-efficacy, structural assurance and switching costs by presenting and empirically testing the research model.

Secondly, the purpose was to investigate the applicability of the survey and the research setting for possible additional research. With this respect, the purpose is also to expose the study to feedback for the academic community to ensure the quality of the research since the early steps of the process. The survey and the research model were able to deliver some applicable results, yet there is still room for improvement. However, keeping in mind the limitations and the explorative nature of the study, the findings are encouraging as regards additional research around the topic.

The third aim of the paper was identify potential paths for further research. Based on the findings, several avenues for additional clarification were suggested. This paper aims to act as a starting point towards a research agenda.

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## APPENDIX 1. The questionnaire

|      | Question |
|------|----------|
| OSE1 | When using the service, I have control over the service encounter. |
| OSE2 | I feel I have the needed knowledge and competence to use the service. |
| OSE3 | I would be able to use also competing services if I needed to. |
| OSE4 | I am able to solve normal problem situations with the service. |
| OSE5 | Doing business on the Internet is generally not difficult for me. |
| Tr1  | The service provider is honest. |
| Tr2  | The service provider I use always keeps its promises. |
| Tr3  | The service provider would have a lot to lose if it did not keep its promises. |
| Tr4  | The online service is very capable of doing what it is supposed to do. |
| Sa1  | The service provider has implemented sufficient mechanisms to protect my identity. |
| Sa2  | The service provider has implemented sufficient mechanisms to protect my financial information. |
| Sw1  | Switching to another service would cost me money. |
| Sw2  | Switching to another service would require too much of my time. |
| Sw3  | If I switched to another service I would lose the benefits I get from my current service provider. |
| Sw4  | I use the current service since switching to another one would require too much effort. |
| Co1  | I would continue using the service even if I knew that competing services are technically more advanced. |
| Co2  | I would like to continue using the service even if I knew that competing services have cheaper prices than the one I currently use. |

*OSE1-4*: applied from Pavlou & Fygenson (2006) and Liao et al. (2007); *TR1-4*: applied from McKnight et al. (2002) and Pavlou (2003) ; *SA1-2* applied from McKnight et al. (2002); *SW1-14*: applied from Jones et al. (2000); *Co1 & Co2*: applied from Li et al. (2006 and Luarn & Lin (2003)