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Do As Your Competitors Do? Analyzing Competitors' Influence on the Non- Adoption of Information Systems in Organizations

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DO AS YOUR COMPETITORS DO? – ANALYZING COMPETITORS' INFLUENCE ON THE NON-ADOPTION OF INFORMATION SYSTEMS IN ORGANIZATIONS

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Abstract

Research on IT adoption and diffusion has long been a major field in IS research. However, most researchers are testing adoption behavior. Based on the theory of planned behavior and first results of non-adoption research in a household context (Brown and Venkatesh 2005) we are testing the factors that influence non-adoption behavior in an organizational context.

Using data from a survey of Germany's Top-1,000 HR executives concerning their non-use of CV databases, it can be evaluated that social influence especially from outside the company and perceived behavioral control are explaining non-adoption behavior in organizations and that factors as discussed by Brown and Venkatesh (2005) are significant in an organizational context as well.

Keywords: Non- Adoption, Diffusion, Human Resources, CV-Databases, Subjective Norm

1 INTRODUCTION

"Quo Vadis TAM" is the guiding question of a special issue of the Journal of the Association for Information Systems (JAIS) published in April 2007. Different authors discussed the use of the Technology Acceptance Model (TAM) (Davis 1989) in IS adoption research in the past, present and future. Several scholars who have published research using TAM over the past two decades point out what the future of IS adoption research should look like (Hirschheim 2007). TAM-related research tries to explain why an individual adopts an information system (IS) in organisational (e.g. Davis 1989) and in household (e.g. Brown and Venkatesh 2005) contexts. The main focus is to explain why an individual adopts a specific IS. However, Dewan and Riggins (2005) deduce from Venkatesh and Brown's work on IT adoption in the household context (e.g. Venkatesh and Brown 2001, Brown and Venkatesh 2005) that "*a key conclusion is that adopters and non-adopters are driven by different factors*". As Brown and Venkatesh (2001, 2005) highlighted in the case of non-adopters in households, social influence and different barriers such as rapid change in technology, high cost and lack of knowledge, and in particular, information from secondary sources are important.

The approach of this paper is to build on some ideas proposed by Benbasat and Barki (2007), Dewan and Riggins (2005), Venkatesh and Brown (2001), and Brown and Venkatesh (2005) to explain non-adoption in an organizational context.

We focus on the theory of planned behavior (TPB) (Ajzen 1991) to explain non-IS usage and to test whether the usual adoption drivers can explain non-adoption as well. Based on the findings that social influence is important for non-adoption behavior we aim to evaluate and to extend the – especially for non-adopters important - Brown and Venkatesh's (2005) normative beliefs construct to organizational contexts to discuss different aspects of non-adoption drivers.

Thus our research question is:

Do individual non-adoption drivers for household adoption decisions have a significantly influence in an organizational context as well?

To answer the question we conducted an empirical survey with the executives in charge of the recruiting processes in the largest 1,000 companies in Germany. We choose the HR function because of its high degree of human labor and low degree of automation, and especially its use of CV-databases as an information system, which is rarely done by HR executives (Eckhardt et al. 2008).

The paper is structured as follows. After an overview of the theoretical background especially for non-adoption research in households and for normative beliefs (section 2), the research model is developed (section 3). In section 4, the results, limitations and opportunities for future research are discussed.

2 THEORETICAL BACKGROUND

System usage and adoption by individuals has been a long-term focus area of research in the IS field. Over the past twenty years a lot of models and theories have been proposed to explain why individuals use and adopt a system and how individuals can be supported when adopting a new system. For an overview see Venkatesh et al. (2003), who have also recently introduced a model to explain system usage and adoption. However, less research has been published to explain why individuals might not adopt an information system (e.g. Brown and Venkatesh 2005). We will base our research on that of technology acceptance research and especially in the theory of planned behavior (TPB) as well as non-adoption research on household context to evaluate if classical TPB constructs and especially normative ones in particular can be used to explain non-adoption of information systems in an organizational setting.

2.1 Technology Acceptance Research

The best-known and most frequently cited model is the *Technology Acceptance Model* (TAM) introduced by Davis in 1989 (Davis 1989). However, in his introduction to the JAIS special issue, Rudy Hirschheim points out that "*it was time to take a critical look at TAM and its variants and extensions*" (Hirschheim 2007). Izak Benbasat and Henri Barki entitled their paper "Quo Vadis TAM" and proposed five rules researchers should follow to address other important research topics related to IS adoption and usage beyond those TAM had focused on. Based on five theoretical concerns Benbasat and Barki identify for TAM, they give five recommendations to IS researchers to go beyond TAM in order to take the IS adoption and acceptance literature on to the next generation. First, they suggest that researchers should go back to the original theory, the theory of reasoned action and especially its more comprehensive version, the theory of planned behavior (Ajzen 1991). Second, they point out that IS research needs "*to conceptualize system usage so as to include a broader perspective of what users actually do in and around the notion of system use"*. Third, the need for longitudinal, multi-stage models to conceptualize the *influence of salient belief* is demonstrated, followed by the identification of the antecedents of the beliefs contained in adoption models. The last recommendation Benbasat and Barki make is "*to consider the solely perceptual belief-based focus approach the IT adoption models have followed to date"*. Benbasat and Barki conclude that TAM has satisfied its original expectations and that researchers should turn their attention to other related topics of IT adoption and usage research (Benbasat and Barki 2007).

Our approach to IT adoption and usage research will follow these recommendations. Consequently, we will go back to the theory of planned behavior to answer our research questions. In particular, we will extend the perspective of what users actually do in and around the notion of system use by discussing factors influential in the non-adoption of an IS and the influence of workplace and competitors' referents on IT non-adoption in an organizational context as Ventkatesh and Brown (2001) did for the household context.

2.2 Theory of planned behavior

The theory of planned behavior is an extension of the theory of reasoned action (Ajzen and Fishbein 1980). Following the original theory of reasoned action the central factor in the theory of planned behavior is an individual's intention to perform a given behavior (Ajzen 1991). In our context individual's intention is about whether to use a particular IS or not. Intention is influenced by an individual's attitude to the behavior, subjective norm and perceived behavioral control as illustrated in Figure 1 (Ajzen 1991, p.182).

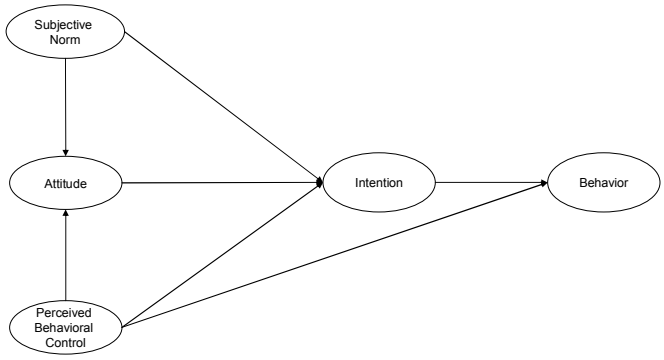

Figure 1: Theory of Planned Behavior (Ajzen 1985, Ajzen 1991)

Attitude conceptualizes "*the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question*" and subjective norm is referred to as "*the perceived social pressure to perform or not to perform the behavior.* As a general rule, Ajzen outlines that, "*the more favorable the attitude and subjective norm with respect to a behavior is, (…) the stronger should be an individual's intention to perform the behavior under consideration*". For a complete description of the theory of planned behavior see Ajzen (1991). We take TPB to structure our research model as described in section 2.4 and 3.

2.3 Non-adoption research

In 2001 Venkatesh and Brown analysed with a longitudinal investigation the adoption of personal computers in the home and proposed in 2005 a model of the adoption of technology in households (MATH) (Brown and Venkatesh 2005). In their 2001 work they analysed the drivers of adoption and non-adoption in the household context. For adopters, utilitarian, hedonic, and social outcomes, and also secondary sources are expected to have strong impact and social influence, lack of knowledge, difficulty of use and high cost to have weak ones. For non-adopters, i.e. both those who do and those who do not intend to adopt, utilitarian outcomes, hedonic outcomes, social influence, lack of knowledge, difficulty of use and high cost are still expected to have strong impact but social outcomes and secondary sources to have a weak one. Brown and Venkatesh's research indicates that for non-adopters, social influences and other barriers to adoption were important, information from secondary sources in particular. Three further barriers were discovered: rapid change in technology, high cost, and lack of knowledge. One of the main findings is that adopters and non-adopters are driven by different factors related to a household adoption decision.

2.4 Normative Beliefs in an organizational context

According to the basic theories TRA and TPB, an individual's behavioral intention is built by attitudinal and normative beliefs in accordance with the construct subjective norm as it is "*a sum of the perceived expectations of specific referent individuals and/or groups weighted by the individual's "motivation to comply" with those expectations"* (Fishbein and Ajzen 1975; Ajzen 1991). Early

research approaches analyzing technology adoption or non-adoption combined these referent individuals and/or groups under the term of '*important others*' as applied in the basic theory TRA (Venkatesh and Davis 2000; Venkatesh et al. 2000). In most of the contributions these referents included spouse, father, mother, friend, etc. in a household context (Glassman and Fitzhenry 1976; Karahanna et al. 1999; Venkatesh and Brown 2001; Brown and Venkatesh 2005 and Hsieh et al. 2008). Research work dealing with technology adoption or non-adoption in an organizational context, on the other hand mostly used an individual's peers, subordinates or superiors as example referents (Mathieson 1991; Hartwick and Barki 1994 and Hill et al 1996). All studies of the organizational context contained only referents from within the company. There has been no approach also including referents from outside the company so far.

In 2005 Brown and Venkatesh modelled a 'normative beliefs' construct within their MATH model to determine social influence in a household context and measured its relevance for behavioral intention to adopt IT or not. They divided 'normative beliefs' into the influence of family and friends, of secondary sources and of workplace referents (Brown and Venkatesh 2005). We aim to adapt this procedure in order to form a 'normative beliefs' construct for an organizational context. We apply this construct in an organizational environment to two separate groups: the influence of workplace referents and that of competition referents. As yet few papers have dealt with this issue. A study conducted by Kamal (2006) hypothesized the impact of external forces on the adoption of IT innovations. In another, Themistocleous et al. (2004) assumed that *'increased external competition often propels organizations to search for new ways to increase their productivity and seek a competitive advantage'*. As companies nowadays are threatened by a talent shortage on the worldwide labor markets (Agarwal and Ferratt 2002; Frank et al. 2004; Trauth et al. 2008) recruiting presents one of the major issues for IT executives (Luftman et al. 2006) and leads to increased external competition with other companies. Active search within the CV databases of job portals such as Monster or networking communities like LinkedIn or Facebook offers companies competing in the hunt for talent new opportunities to recruit candidates given the background of rapidly increasing number of users. Interestingly, compared to the classic way of posting job ads in newspapers and job portals and waiting for applications, this method of staff recruitment is only used by a small number of enterprises from large to small (Eckhardt et al. 2008). We assume that this low usage is related to the significant influence both of workplace and competition referents. Therefore, in an organizational context, we test the effect of these normative beliefs on the behavior intention of non-adopters. To do this we follow the approach of Venkatesh and Brown (2001), who hypothesized a significant effect of secondary sources on non adoption in households. Burgelman (1991) pointed out that in an organizational context external referents e.g. business rivals, NGOs, local communities, consumer reports etc can influence strategy. We adapt those approaches to the organizational environment and expect to find that the influence of both workplace and competition referents will have a significant impact on the non-adoption of information systems in organizations.

3 RESEARCH MODEL AND CONSTRUCT DEVELOPMENT

In this section, we develop our research model based on our findings from the literature review in section 2. Ajzen's theory of planned of behavior (1991) is used to analyze the empirical results of a survey by assessing the impact of the influence of workplace and competition referents' and of the classical TPB constructs of attitude, perceived behavioral control, and the intention of an individual not to use an information system.

3.1 Hypotheses and Research Model

In section 2 we reviewed IS literature on IT adoption and usage, especially for non-adoption and normative beliefs. As we discussed we will use the theory of planned behavior by Ajzen (1991) and model of adoption of technology in households (MATH) by Brown and Venkatesh (2005) to explain IT non-adoption in an organizational context. We will answer our research question by testing

hypotheses which observe the impact of the influence of workplace referents' and competition referents' influences as well as the classical TPB constructs. Our hypotheses were formed based on an extensive review of literature (see section 2) and several expert interviews conducted before our survey (Eckhardt et al. 2008).

Our general hypothesis is that non-adoption by individuals can be explained by the same constructs as those used in the TPB for explaining adoption by individuals especially by those pointed out by Brown and Venkatesh (2005) for household decisions.

Figure 2 illustrates our research model based on the theory of planned behavior and the model of adoption of technology in households (MATH).

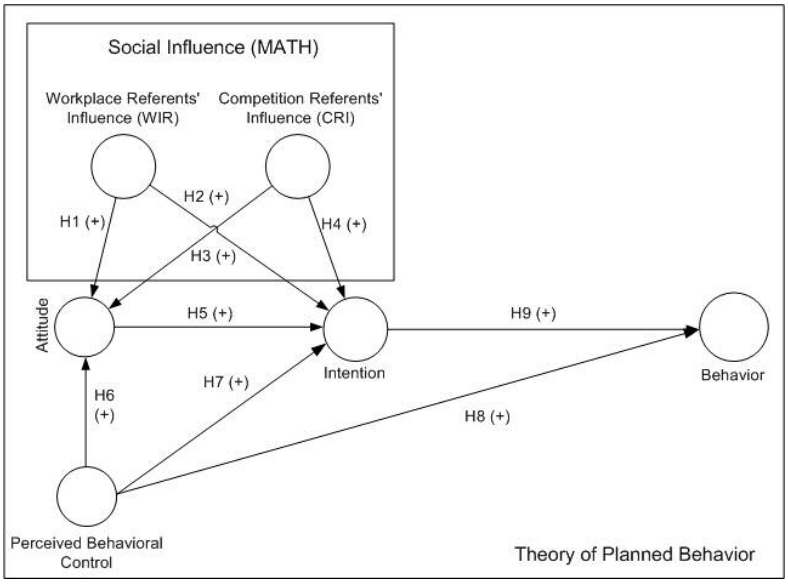

Figure 2: *Research Model*

Based on our general hypothesis and our research model as illustrated by Figure 2 we will test nine specific hypotheses as follows:

Social influence is one of the major factors influencing non-adoption behavior by individuals in households. Brown and Venkatesh (2005) modeled social pressure as workplace referents' influence. In the context of CV-databases workplace referents' influence is that both operating departments and the executive board expect the human resources department to use modern technologies like CV-databases to search for new talent. Based on Ajzen's (1991) hypothesis that subjective norm influences attitude and intention, our hypothesis anticipates non-adoption in an organizational context:

H1: Workplace Referents' Influence has a positive effect on Attitude.

H2: Workplace Referents' Influence has a positive effect on Intention.

Furthermore Brown and Venkatesh modeled social influence as secondary sources. As discussed in chapter 2.4 in an organizational context competitors may influence the development of business strategies and in the highly competitive environment of the 'war for talent' in particular, companies need to find a competitive advantage faster than they would when there is little competition. Therefore both the advice and the monitored behavior of referents in other firms may have an impact on the individual adoption behavior. Extending Brown and Vekatesh's (2005) as well as Ajzen's (1991) approach of subjective norm, we hypothesize that

H3: Competition Referents' Influence has a positive effect on Attitude.

H4: Competition Referents' Influence has a positive effect on Intention.

As discussed in chapter 2.2 the theory of planned behavior is the basis for our research model. Therefore we hypothesize as Ajzen (1991) did as follows:

H5: Attitude has a positive effect on Intention

H6: Perceived Behavioral Control has a positive effect on Attitude.

H7: Perceived Behavioral Control has a positive effect on Intention.

H8: Perceived Behavioral Control has a positive effect on Behavior.

H9: Intention has a positive effect on Behavior.

Based on these hypotheses our research model is tested as a structural equation model (SEM) using Partial Least Squares (PLS) for validation.

3.2 Methodology

We used a paper-based questionnaire to empirically test our hypotheses. Our research model has been operationalized and transferred into a structural equation model (SEM). We analyzed the SEM with the Partial Least Squares (PLS) approach (Bagozzi and Yi 1988, Chin 1998). For the calculation of our results we used SmartPLS (Ringle et al. 2005). The level of significance for support or rejection of hypotheses were chosen as p=0.975.

Each construct in our research model is represented by a set of indicators. We measured all reflective indicators on a 7-point Likert scale using scales from "strongly agree" to "strongly disagree"; additionally behavior was measured reflective on a 5-point Likert scale from "very often" to "never". Table 3 below presents the operationalization of our constructs in the field of CV-databases. The usage level of CV-databases, as discussed in chapter 2.4, in a competitive environment like the "war for talent" is low and therefore CV-database are an interesting research subject to discuss non-adoption drivers. The original survey was written in German; hence, items from the questionnaire described in the following have been translated. The indicators where designed following the proposition of Ajzen (1991), Davis (1989) and Venkatesh and Brown (2005).

Construct	Indicator
Attitude (ATT)	AT-1: I'm satisfied with the quality of candidates when I use CV-databases.
	AT-2: I'm satisfied with the quality of candidate's data when I use CV-databases.
	AT-3: I'm satisfied with the level of approval of the operating department with suggested candidates when I use CV-databases.
Workplace Referents' Influences (WRI)	WRI-1: Operating departments of our company demand the use of modern technologies.
	WRI-2: The executive board of our company wants a extensive use of IS.
Competition Referents' Influences" (CRI)	CRI-1: Colleagues in other firms are working a lot with CV-databases.
	CRI-2: Colleagues in other firms have recommended the use of CV-databases.
Perceived Behavioral Control (PBC)	PBC-1: Our employees in recruiting have a lot of experiences of using the internet.
	PBC-2: Our employees in recruiting have a lot of experiences of using information systems.
	PBC-3: Our employees in recruiting have a lot of experiences of searching in CV-databases.
Behavior (BEV)	Bev-1: How often do you use CV-databases?
Intention (INT)	Int-1: I will use CV-databases in future.
	Int-2: The use of CV-databases will be further on important to us in the future.
	Int-3: I plan to use CV-databases in the recruiting process.

Table 1: Operationalization of constructs

4 RESULTS

4.1 Demographics

In 2007, our questionnaire was sent to managers in Germany's Fortune 1,000 companies. Overall, 184 usable questionnaires were returned out of a total sample of 1,000 (response rate 18.4%). To test our general hypothesis we use the data of those 156 HR-Managers who indicate that they use CV-databases infrequently or never. By removing all data sets where more than 50% of the values were missing, 78 data sets remained for model validation.

4.2 Model Validation

4.2.1 Measurement of Reflective Indicators

The quality of the reflective measurement model is determined by (1) content validity (2) indicator reliability, (3) construct reliability and (4) discriminant validity (Bagozzi 1979).

Content validity describes the degree of how the measured results stand for the content-semantic part of the construct (Vinzi et al. 2003 and Nunnally 1994). A condition for the content validity evaluation is a very precise content definition for the constructs. So we discussed our constructs in detail with several experts during our case study research (Eckhardt et al. 2008) in order to ensure their content validity (Churchill and Gilbert 1979).

Indicator reliability In the model tested, all loadings are significant at the p=0.999 level and above the recommended 0.6 parameter value. Only indicator PBC-1 is significant on p=0.995 level. All indicator loadings under 0.4 parameter value were excluded beforehand (Hulland 1999). Significance tests were conducted using the bootstrap routine with 500 samples (Chin 2000).

	Original Sample	Sample Mean (M)	Standard Deviation (STDEV)	Standard Error (STERR)	T Statistics (|O/STERR|)
BEV-1	1	1	0	0	0
PBC-1	0.6301	0.6082	0.2335	0.2335	2.6981
PBC-2	0.8343	0.804	0.1573	0.1573	5.3024
PBC-3	0.8893	0.8472	0.1301	0.1301	6.8374
ATT-1	0.9132	0.9045	0.039	0.039	23.4204
ATT-2	0.8594	0.8613	0.0535	0.0535	16.072
ATT-3	0.8456	0.8244	0.0933	0.0933	9.0614
INT-1	0.92	0.9198	0.0309	0.0309	29.745
INT-2	0.9029	0.9012	0.0294	0.0294	30.7042
INT-3	0.9397	0.9388	0.019	0.019	49.4911
WRI-1	0.855	0.7655	0.2655	0.2655	3.2206
WRI-2	0.8317	0.7693	0.2662	0.2662	3.1243
CRI-1	0.8804	0.875	0.0648	0.0648	13.5893
CRI-2	0.8734	0.8626	0.0711	0.0711	12.2839

Table 2: Indicator Reliability

Construct reliability demands that the indicators which are related to the same construct should have a strong correlation to each other (Fornell and Larcker 1981). The construct reliability was tested using the composite reliability (CR) and the average variance extracted (AVE). The estimated values were above the recommended thresholds of 0.6 for CR and 0.5 for AVE (Bagozzi and Yin 1988). Table 3 provides an overview for relevant quality criteria.

	AVE	Composite Reliability	Cronbachs Alpha	Communality	Redundancy
ATT	0.7625	0.9058	0.8448	0.7625	0.0991
BEV	1	1	1	1	0.1425
CRI	0.769	0.8694	0.6997	0.769	0
INT	0.8482	0.9437	0.9109	0.8482	0.083
PBC	0.6279	0.8323	0.7437	0.6279	0
WRI	0.7114	0.8313	0.5947	0.7114	0

Table 3: Quality Criteria Overview

Discriminant validity can be evaluated by looking at the cross-loadings. The loadings of our reflective indicators are higher for their respective constructs than for any other (Table 5). Additionally, the square root of the AVE for each construct is higher than correlations between constructs (Table 4). Therefore, discriminant validity of the latent variables is high (Fornell and Larcker 1981 and Hulland 1999).

	ATT	BEV	CRI	INT	PBC	WRI
ATT	0.8732					
BEV	0.1942	1.0000				
CRI	0.3704	0.1153	0.8769			
INT	0.3183	0.3786	0.0846	0.9210		
PBC	0.1755	0.3141	0.1989	0.1077	0.7924	
WRI	0.1580	0.0057	0.2566	0.0906	0.3247	0.8434

Table 4: Constructs Correlation

	BEV	PBC	ATT	INT	WIR	CRI
BEV-1	1.000	0.314	0.194	0.379	0.006	0.115
PBC-1	0.078	0.630	0.022	0.029	0.206	0.200
PBC-2	0.203	0.834	0.183	0.107	0.378	0.005
PBC-3	0.349	0.889	0.148	0.091	0.210	0.279
ATT-1	0.197	0.128	0.913	0.323	0.149	0.303
ATT-2	0.191	0.201	0.859	0.213	0.172	0.428
ATT-3	0.110	0.123	0.846	0.309	0.082	0.215
INT-1	0.318	0.050	0.213	0.920	0.018	-0.034
INT-2	0.315	0.070	0.341	0.903	0.067	0.108
INT-3	0.402	0.162	0.312	0.940	0.147	0.135
WRI-1	-0.060	0.259	0.158	0.044	0.855	0.227
WRI-2	0.075	0.290	0.107	0.112	0.832	0.206
CRI-1	0.246	0.235	0.340	0.030	0.269	0.880
CRI-2	-0.048	0.112	0.310	0.120	0.180	0.873

Table 5: Cross Loadings

4.3 Structural Model

After the measurement model specification, we analyze the structural model. The squared multiple correlations (R^2) express the significance of the four endogenous variables. The corresponding t-values show the level of significance using the magnitude of the standardized parameter estimates between constructs. The path coefficients in the research model are significant as shown in Figure 3.

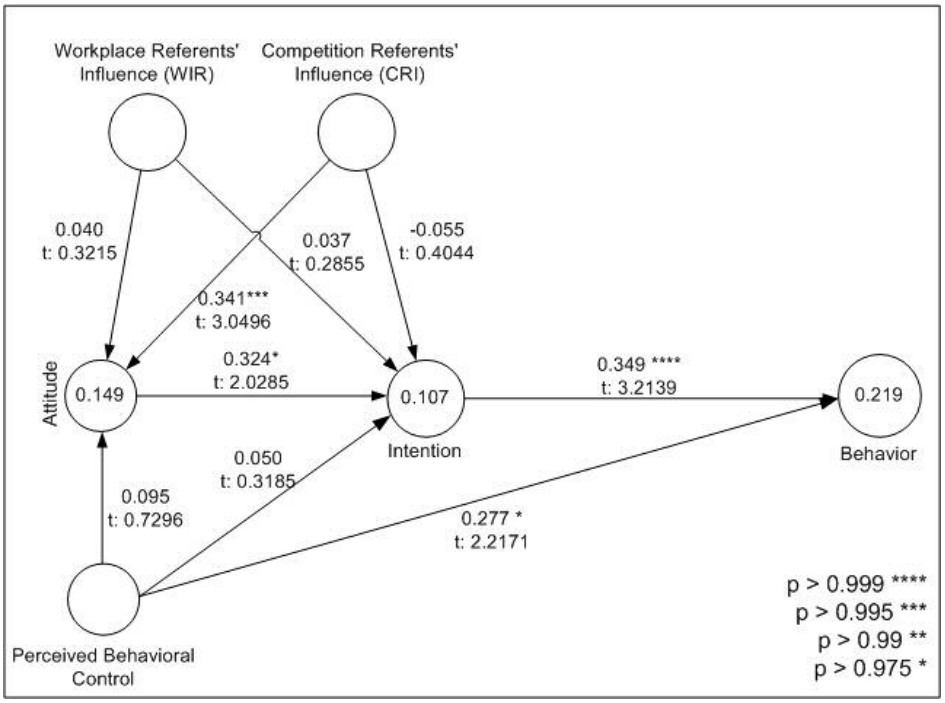

Figure 3: Validation of Structural Model

5 DISCUSSION, LIMITATIONS AND CONCLUSION

Do individual non-adoption drivers for household adoption decisions have a significant influence in an organizational context as well? was our starting research question. The validation of our research model (section 4) indicates that there is indeed significant influence but that influence varies. Because of its low level of significance and the different prefixes, as hypothesized, the influence of WRI on ATT, of INT, CRI on INT and of PBC on ATT and INT must be discarded. The non-adoption behavior is significantly influenced by INT, PBC and attitude by CRI. Therefore, we can conclude that the intention to perform a specific behavior is a mediator for normative and attitudinal beliefs as it is in classical adoption models such as TAM. Moreover the significant influence of Attitude on Intention has been evaluated as well by our results.

For social influence modeled as "Workplace Referents' Influence" and "Competition Referents' Influence" one can conclude that for non-adoption research CRI has a significant influence on Attitude. WRI cannot be validated as a significant influence on either Attitude or Intention. The division of social influence into WRI and CRI shows that one must consider the influence of different social groups, which can have a different significant influence depending on whether it is in an organisational context or a household one. Based on our validation, we can conclude that for organisations in a competitive environment CRI has a significant influence on Attitude, but WRI does not. For household decisions, as Brown and Venkatesh (2005) showed, WRI is important.

'Perceived Behavioral Control' has a significant influence on Behavior alone. Therefore PBC, modeled as knowledge of information technology and especially about searching in databases, has a direct impact on an individual's behavior not to use an IS. Consequently "lack of knowledge" as previously tested for household adoption decisions, is shown to be relevant in an organizational context, too.

Finally, our general hypotheses can be supported because non-adoption usage behavior can be explained by the same constructs used both for non-adoption and for adoption in households. Evidence can be provided that social influence, especially that of competition referents, is an active factor, and that social influence also affects perceived behavioral control.

Finally, our general hypotheses can be supported because non-adoption usage behavior can be explained by the same constructs used for non-adoption in households and for adoption. Evidence can be provided for the influence of social influences especially competition referents and for perceived behavioral control.

Future research can continue the analysis of non-adoption by individuals in an organisational context by comparing a single research model in a single setting applied to adopters and non-adopters as Venkatesh and Brown (2001) have done in the household context. We expect interesting insights from future research trying to discover significant differences for adopters and non-adopters. Based on these findings a framework for dealing with unsuccessful implementations of IS can be evaluated for the benefit of future projects. Analysis of mistakes of the past or the present, allows justified answers for future actions. Furthermore our research shows that social influence must be examined more thoroughly. WRI and CRI are two possible social influence sources, but there must be others. Future research must analyse social influence and evaluate which social influence groups are important in organisational and household contexts. The results of our initial testing of WRI and CRI lead us to expect differences here.

Practitioners can benefit from these insights as well. Knowing why an individual is not adopting an IS is the basis for developing information systems that will be adopted and therefore support different business functions. For example if non-adoption is grounded in perceived behavioral control and an employee feels unable to use an IS because of lack of knowledge, a company can start training programs. Therefore, academic research into non-adoption has practical value as well.

One of the major limitations of our research is that it only addresses one of the multiple possible factors that can influence the actual system usage of individuals, as proposed by Benbast and Barki (2007). There are many more factors to be conceptualized in future research. The influence of competitors and their behavior is moreover influenced by the behavior of the individual, just as the individual is influenced by them. These connections must be analyzed by future research as well. Another limitation is that we have operationalized behaviour only as a single-item construct. This may bias our results as well. In addition our results may be affected by common method variance. A third limitation is that we tested our hypotheses with data from companies of one country and in one specific area of interest (HR) only. It is possible that greater business process maturity in primary processes and better alignment with business goals will bring about more ‘objective’ IS usage and therefore lessen the impact of competitors’ activities. Conversely, especially given the competitive environment of new technologies, it is more likely that imitating competitors’ will become even more prevalent. Common reasons include reducing technology risk (if it works there it will work for me), individual risk (nobody gets fired for buying SAP) or conforming to public (or financial market) expectations (outsourcing as a ‘trend’). We thus expect interesting insights from future research trying to incorporate individual and firm level externalities like these into adoption and diffusion models.

References

Agarwal, R., and Ferratt, T.W., “Enduring Practices for Managing IT Professionals”, *Communications of The ACM,* (45:9), 2002

Ajzen, I, “The Theory of Planned Behavior”, *Organizational Behavior and Human Decision Processes* 50, pp 179-211, 1991

Ajzen, I., and Fishbein, M., “Understanding attitudes and predicting social behavior”, *Englewood Cliffs, NJ: Prentice-Hall*, 1980

Bagozzi, R. P., "The Role of Measurement in Theory Construction and Hypothesis Testing: Toward a Holistic Model", in: *Conceptual and Theoretical Developments in Marketing,* O.C. Ferrell, S.W. Brown and C.W. Lamb (eds.), Chicago, pp. 15-32, 1979

Bagozzi, R. P., and Yi, Y., "On the Evaluation of Structural Equation Models", *Journal of the Academy of Marketing Science* (16), pp 74-94, 1988

Benbasat, I., and Barki, H., “Quo vadis, TAM?”, *Journal of the Association for Information Systems*, Volume 8, Issue 4, pp. 211-218, 2007

Brown, S. A. and Venkatesh, V., “Model of Adoption of Technology in Households: A Baseline Model Test and Extension Incorporating Household Life Cycle”, *MIS Quarterly* (29:3), pp.399-426, 2005

Burgelman, R. A., "Intraorganizational Ecology of Strategy Making and Organizational Adaptation: Theory and Field Research", *Organization Science*, Vol. 2, No. 3, pp. 239-262, 1991

Chin, W. W., "The Partial Least Squares Approach to Structural Equation Modelling", in: *Modern methods for business research,* G.A. Marcoluides (ed.), Lawrence Erlbaum Associates, London, pp. 295-336, 1998

Chin, W. W., "Frequently Asked Questions – Partial Least Squares & PLS-Graph", 2000

Churchill, J. R., and Gilbert, A., "A Paradigm for Developing Better Measures of Marketing Constructs,“ *Journal of Marketing Research* 15 (2), pp. 77-94, 1979

Davis, F. D., “Perceived Usefulness, Perceived Ease of Use and User Acceptance of Information Technology”, *MIS Quarterly,* (13:3, pp. 319-339), 1989

Dewan, S. and Riggins, F.J., “The digital divide: current and future research directions”, *Journal of the Association for Information Systems*, Vol. 6 Issue 12, p298-336, Dec. 2005

Eckhardt, A., Laumer, S., Weitzel, T. and Koenig, W., “Recruiting Trends 2008 - Eine empirische Untersuchung mit den Top-1.000-Unternehmen in Deutschland sowie den Top-300-Unternehmen aus den Branchen Energieversorgung, Gesundheit und Wellness sowie Informationstechnologie“, 2008

Fishbein, M., and Ajzen, I., “Belief attitude, intention, and behavior: An introduction to theory and research”, Reading, MA: Addison-Wesley, 1975

Frank, F.D., Finnegan, R.P., Taylor, C.R., “The race for talent: retaining and engaging workers in the 21st century”, *Human Resource Planning*, Vol.27, No. 3, pp 12-25, 2004

Fornell, C., and Larcker, D. F., "Evaluating Structural Equitation Models with Unobservable Variables and Measurement Errors", *Journal of Marketing Research*, 18, pp. 39-50, 1981

Glassman, M., and Fitzhenry, N., “Fishbein’s Subjective Norm: Theoretical Considerations and Empirical Evidence”, *Advances in Consumer Research*, pp. 477-480, 1976

Hartwick, J., and Barki H., “Explaining the Role of User Participation in Information System Use”, *Management Science*, Vol. 40, No. 4 , pp. 440-465, 1994

Hill, M., Mann, L. and Wearing, A., “The Effects of Attitude, Subjective Norm and Self-Efficacy on Intention to Benchmark: A Comparison between Managers with Experience and No Experience in Benchmarking”, *Journal of Organization Behavior*, 17, 4, 313-327, 1996

Hirschheim, R., “Introduction to the Special Issue on ‘Quo Vadis TAM – Issues and Reflections on Technology Acceptance Research’”, *Journal of the Association for Information Systems*, Volume 8, Issue 4, pp. 203-205, 2007

Hsieh, J.J.P.-A., Rai, A. and Keil, M., “Understanding Digital Inequality: Comparing Continued Use Behavioral Models of the Socio-Economically Advantaged and Disadvantaged”, *MIS Quarterly,* 32, 1, pp 97-126, 2008

Hulland, J., "Use of Partial Least Squares (PLS)", in: *Strategic Management Research: A Review of Four Recent Studies. Strategic Management Journal*, 20 (4), pp. 195-204, 1999

Kamal, M.M., “IT innovation adoption in the government sector: identifying the critical success factors”, *Journal of Enterprise Information Management*, 19, 2, pp. 192-222, 2006

Karahanna, E., Straub, D.W. und Chervany, N.L., "Information Technology Adoption across Time: A Cross-Sectional Comparison of Pre-Adoption and Post-Adoption Beliefs", *MIS Quarterly*, 23, 2, S.183-213, 1999

Luftman, J., Kempaiah, R. and Nash, E., “Key Issues for IT Executives 2005”, *MIS Quarterly Executive*, Vol. 5, No 2, pp. 81-99, 2006

Mathieson, K., “Predicting User Intentions: Comparing the Technology Acceptance Model with the Theory of Planned Behavior,” *Information Systems Research,* 2, 3, 173-191, 1991

Nunnally, J. C., and Bernstein, I. H., “Psychometric Theory”, *(3rd ed.) McGraw-Hill*, New York, 1994

Ringle, C. M., Wende, S. and Will A., SmartPLS 2.0 (beta), www.smartpls.de, 2005

Themistocleous, M., Irani, Z. and Kuljis, J., “Extending the information system lifecycle through enterprise application integration: a case study experience”, *Proceedings of the 37th Annual Hawaii International Conference on System Sciences (HICSS’04)*, pp. 1-8, 2004

Trauth, E.M., Quesenberry, J.L. and Yeo, B., "Environmental Influences on Gender in the IT Workforce", *The DATA BASE for Advances in Information Systems,* 8 Volume 39, Number 1, 2008
Venkatesh, V. and Brown, S. A., "A longitudinal investigation of personal computers in homes: adoption determinants and emerging challenges", *MIS Quarterly* (25:1), pp.71-102, 2001
Venkatesh, V. und Davis, F.D. (2000), "A Theoretical Extension of the Technology Acceptance Model: Four Lonitudinal Field Studies", *Management Science*, Vol. 45, Nr.2, S. 186-204
Venkatesh, V., Morris, M.G. und Ackermann, P.L. (2000), "A Longitudinal Field Investigation of Gender Differences in Individual Technology Adoption Decision-Making Processes", *Organizational Behavior and Human Decision Processes*, Vol. 83, Nr. 1, S. 33-60
Venkatesh V., Morris M. G., Davis G.B. and Davis F.D., "User Acceptance of Information Technology: Toward a Unified View", *MIS Quarterly* Vol. 27, No. 3, pp. 425-478, 2003
Vinzi, V. E., Lauro, C., and Tenenhaus, M., "PLS Path Modeling", *Working Paper*, DMS, University of Naples, 2003