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mpirically Testing a Model for the Intention of Firms to Use Remote Application Hosting

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Abstract

In light of the new interest in remote application hosting, or application service provision (ASP), this study aims at empirically testing the ASP Intention Model (AIM), by surveying 143 decision makers in organizations. The model, based on institutional theories, reflects factors affecting organizational intention to adopt remote application hosting: perceived business benefits of ASP, perceived ease of ASP implementation, and institution-based trust. While the first two factors have previously been suggested in organizational IT adoption models, institution-based trust was not. Besides contributing to research by validating a new model, and to practice by highlighting plausible explanations for the failure of first-wave ASP, we also argue that AIM can be generalized to other web-driven organizational applications, such as B2B e-commerce, e-markets, inter-organizational systems and web-services.

Keywords: Remote application hosting, Application service provider (ASP), ASP Intention Model (AIM), organizational IT adoption, business benefits, ease of implementation, institution-based trust, institutional theories, survey.

1 INTRODUCTION

Evidence to the Internet becoming a more established organizational information technology (IT) platform is the proliferation of Service Oriented Architecture (SOA) and web services, to the extent that the leading Enterprise Systems (ES) vendors such as SAP and Oracle are transforming their application suites from the client-server architecture to these standards. Expressing enthusiasm as to the future role of the Internet in organizational computing, Carr predicted that Internet-delivered organizational computing would eventually replace traditional IT delivery methods (Carr, 2005). Remote application hosting or application service provision - ASP (the two terms are used interchangeably), is a manifestation of web-delivered organizational IT, first launched in the late 1990s. Since, initially, ASP adoption rates did not reach forecasted levels causing many vendors to discontinue this line of business, first-wave ASPs are regarded unsuccessful. Nevertheless, a second-wave ASP is now dawning, led by Salesforce.com, and arousing renewed interest in the ASP option.

To increase understanding of the ASP adoption phenomenon, we have investigated institutional forces that affect organizational ASP adoption intention, based on theoretical foundations and on a preliminary field study grounded in first-wave ASP manifestation. Thus, the objective of this study is to empirically test the proposed theoretical model, the ASP Intention Model (AIM), using a field survey.

The paper proceeds as follows: the next section presents a literature review of the state of remote application hosting and factors affecting ASP adoption, followed by a brief theoretical conceptualization of institutional theories of organizational IT adoption, setting the stage for the model and the research hypotheses. The research methodology is presented next, followed by the results. The paper concludes with a discussion of the results and their implications for research and practice, emphasizing five potential contributions of this work. First, a new model that sheds light on organizational IT adoption is introduced and empirically supported. Second, the model can be generalized to a broader class of web-driven technologies proposed as the future platform of organizational IT. Third, this work is among the few studies that attempt to empirically validate a comprehensive model that includes multi-dimensional technology-, organization-, and environment-related factors (Jeyaraj et al., 2006). Fourth, the similarity between the proposed model and TAM suggests a new thread of multi-level analysis (Klein et al., 1999; Jeyaraj et al., 2006). Finally, the results imply at plausible explanations as to the past failure and possible future success of ASP.

2 LITERATURE AND THEORETICAL BACKGROUND

2.1 Application service providers

Application Service Providers (ASPs) are "third party service firms which deploy, manage and remotely host software applications through centrally-located services in a rental or lease agreement" (Currie & Seltsikas, 2001, p. 123). Customer organizations of ASPs are charged usage fee for remotely accessing applications and databases that reside on vendor-owned servers (Susarla et al., 2003). When ASP was introduced in the late 1990s, many predicted that this new IT sourcing model might serve firms in their quest to enhance IT effectiveness and to reduce IT costs (Kern et al., 2002). In reality, ASP adoption rate was slower than anticipated (Currie & Seltsikas, 2000), causing many first-mover ASP vendors to discontinue this line of business during the dot-com collapse of the early 2000s (Currie et al., 2004). Yet, successful second-wave ASP vendors, such as Salesforce.com, have recently re-embraced the remote hosting concept. Furthermore, leading global vendors such as Oracle and IBM have lately established remote application hosting as a new line of business. Evidently, the web is now more strongly recognized as a valid distribution and hosting infrastructure for applications and databases (Lyytinen & Rose, 2003). Nonetheless, in spite of renewed optimistic prospects expressed mainly by vendors and analysts (Meta-Group, 2004), it is yet

to be seen if firms are now more willing than before to remotely host major organizational applications and databases. This situation calls for in-depth research into organizational intention to adopt ASP, considered a disruptive, type III, organizational IT innovation (Swanson, 1994). To this end, we look into theories pertaining to organizational adoption of IT innovations.

2.2 Organizational IT Innovation Adoption

Of the various organizational IT innovation adoption theories, the institutional theories (Orlikowski & Barley, 2001; Zucker, 1987) are the most insightful in describing and explaining adoption of complex innovations. This is specifically true for IT innovations such as ASP that involve substantial uncertainties pertaining to the innovation itself and its viability and destiny (Fichman, 2004b), to the transaction environment, and to the plausibility of the innovation to be beneficial for the adopting firm. Particularly comprehensive is the Technology-Organization-Environment (TOE) framework that relates characteristics associated with the technology/innovation, the organization, and the environment to the adoption decision (Tornatzky & Fleischer, 1990; Zhu et al., 2003; Iacovou et al., 1995). Table 1 lists several dimensions suggested for these factors, along with references to previous studies.

Construct	Dimensions	Literature
Technology/Innovation characteristics	Relative advantage, compatibility, complexity, trialability, observability, technology competence, perceived benefits.	(Rogers, 1983; Zhu & Kraemer, 2005; Zhu et al., 2003; Chwelos et al., 2001; Jeyaraj et al., 2006)
Organizational characteristics	Management support, technical expertise, structure, size, scope, financial commitment, integration, readiness	(Moore & Benbasat, 1991; Chwelos et al., 2001; Iacovou et al., 1995; Jeyaraj et al., 2006)
Environmental forces	Suppliers, critical mass, available information & knowledge, knowledge sharing, IT practitioners, competitive pressure, regulatory support	(Chwelos et al., 2001; Iacovou et al., 1995; King et al., 1994; Ramiller & Swanson, 2003; Zhu & Kraemer, 2005; Zhu et al., 2003; Jeyaraj et al., 2006)

Table 1: Organizational IT innovation adoption variables - institutional theories

As depicted in Table 1, previous research elicited vendor readiness and support as a substantial environmental factor affecting the adoption decision. This factor reflects institution-based trust, defined as the belief that effective guarantees are in place to assure fulfilment of the trustor's expectations (Gefen et al., 2006; McKnight et al., 1998; Shapiro, 1987). Although previously defined at the individual level of analysis, we maintain that it is valid to transpose it into the organization level of analysis with appropriate modifications, since organization intention is shaped by individual conceptualization and by perceptions of decision makers (Zucker, 1986). These actors are unlikely to harness completely different considerations when evaluating IT adoption for their organization. On the contrary, they would presumably be more prudent in forming trust, since unfulfilled transaction expectations are likely to be detrimental to the organization and to them personally. Since dependence on an external vendor is a substantial characteristic of ASP engagement, and since accessing application remotely is a B2B form of e-commerce, we postulate that institution-based trust is the most effective construct associated with environmental uncertainties in the ASP context, as reflected in the research model presented next, based on theoretical argumentation and on a preliminary field study (Heart, 2005). The model pertains to organizations considering ASP as an alternative to in-house installed organization-wide applications. This decision might

include current applications, upgraded, or newly acquired ones, either pre-packaged or proprietary.

3 RESEARCH MODEL AND HYPOTHESES

Figure 1 presents the ASP Intention Model (AIM), a model of the determinants postulated to affect organizational intention to adopt ASP. We posit that three high-level constructs directly affect the dependent variable, but elaborate here only on the hypotheses related to the second order factors, due to space constraints. Nonetheless, we show the results of the first-level structures that support the multi-dimensionality assumption.

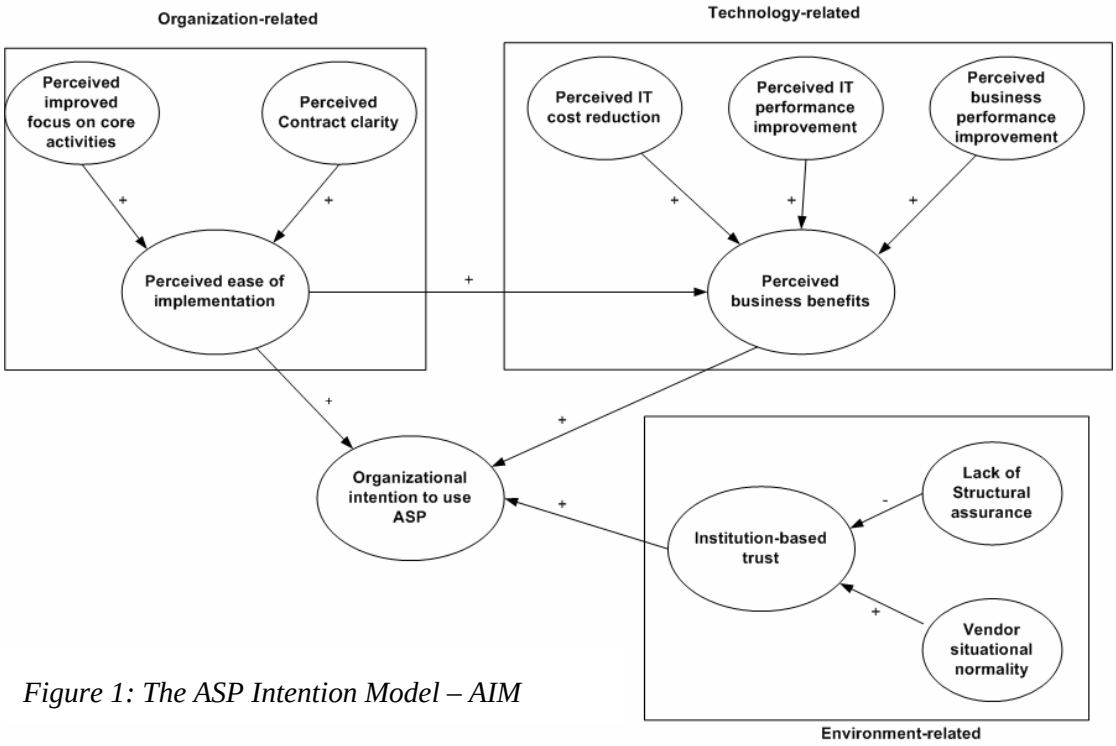


Figure 1: The ASP Intention Model – AIM

Organizational Intention to Adopt ASP is defined as the degree to which the organization considers plans to adopt ASP as a substitute for internally-installed applications. Arguably, since organizational actions are driven by individuals (Orlikowski & Barley, 2001) intention stems from, and is a reflection of, attitudes of the organization's leaders and primary decision makers (Khalifa, 2006). Intention to adopt is believed to be a strong predictor of actual adoption, therefore positively related and a pre-condition to actual adoption. Yet, due to the sensitivity and complexity of the adoption decision, positive intention would not necessarily result in immediate or eventual adoption.

Perceived Business Benefits of ASP is defined as the degree to which the organization perceives ASP adoption as more beneficial than an internally installed IT architecture. Perceived benefits refer to the cognitive-based attitude toward ASP, resulting from evaluation of the characteristics of the ASP solution and its feasibility to enhance organizational performance. It reflects the level of organizational recognition that ASP would improve organizational IT utilization, above and beyond the existing situation, perhaps even vis-à-vis competitors. Perceived benefits reflect expectations to enhance relative advantage, thus one of the strongest motivators for IT innovation adoption (Rogers, 1983; Iacovou et al., 1995; Jeyaraj et al., 2006). Based on the literature and on a preliminary field study (Heart, 2005), we posit that perceived business benefits of ASP is an aggregate multi-dimensional construct (Edwards, 2001), whose dimensions are: perceived IT cost reduction, perceived IT

performance improvement, and perceived business performance improvement as a result of ASP usage. Hence,

Hypothesis 1: Perceived business benefits of ASP positively affect organizational intention to adopt ASP.

Perceived Ease of ASP Implementation is defined as the degree to which the organization believes it is able to successfully and cost-effectively implement ASP. This determinant captures organization-related characteristics and pertains to the perceived level of discontinuity associated with the innovation implementation (Ramiller & Swanson, 2003), termed elsewhere 'organizational readiness' (Iacovou et al., 1995). In other words, it reflects the organizational readiness for implications of the adoption processes at the time of innovation assessment, and the belief that the organization can afford the resources required for a successful ASP implementation. Perceived ease of ASP implementation is posited to be an aggregate construct of expectations that an unambiguous contract can be easily formulated, and that ASP implementation would subsequently enhance the organizational ability to focus on its core activities. Hence,

Hypothesis 2: Perceived ease of ASP implementation positively affects the organizational intention to adopt ASP.

Since high perceived ease of implementation would increase business benefits perceptions, we postulate that perceived ease of ASP implementation positively affects perceived business benefits. Hence,

Proposition 3: Perceived ease of implementing ASP positively affects perceived business benefit of ASP.

Institution-Based Trust is defined as the degree to which the organization believes that effective guarantees are in place to assure fulfilment of expectations related to ASP adoption (Gefen et al., 2006). In the absence of formal third-party guarantees, decision makers would look for cues and indications in the environment, regarding the plausibility of the engagement's success (McKnight et al., 2002). Institution-based trust is fundamental in the ASP context, since the decision to adopt implies extended dependence on a risky environment such as the Internet, and on the ASP vendor. Therefore, when evaluating ASP, organizations would presumably seek guarantees and assurances that organizational applications would perform to expectations, particularly mission-critical ones. In the absence of formal third-party guarantees, subjective beliefs as to the assurance of the environment, on the one hand, and the normality of the ASP vendor situation, on the other, would serve as such cues. Therefore, and following (McKnight et al., 1998) albeit adapted to the ASP and organizational context, we postulate that institution-based trust is an aggregate multi-dimensional construct, with perceived lack of structural assurance and perceived ASP vendor situation normality as its first-level dimensions. Perceived lack of structural assurance is the degree to which the organization believes that the Internet as the most common ASP transaction environment is still risky, and hypothesized to negatively affect institution-based trust. Perceived ASP vendor situational normality is defined as the degree to which the organization believes that there are ASP vendors that are competent and have integrity, therefore hypothesized to positively affect the higher-level construct. Hence,

Hypothesis 4: Institution-based trust positively affects the organizational intention to adopt ASP.

4 RESEARCH METHODOLOGY

4.1 Instrument development

The measurement instrument development and validation was conducted in three phases: 1) *Item creation* from literature and newly phrased items where required. 2) *Item refinement* by a

panel of experts to assure clarity and validity of items. 3) *Instrument pre-test* by a group of fourteen managers (Boudreau et al., 2001): respondents were asked to fill the instrument, on a 1 (strongly disagree) to 7 (strongly agree) Likert scale, and comment on the clarity of the measurement items, based on which several statements were refined or re-phrased, yielding the final questionnaire.

4.2 Survey Administration

We e-mailed the final questionnaire to a mailing list of 400 managers, registered with a popular local professional magazine. Of the 400, 52 managers returned usable questionnaires within a period of two weeks, yielding response rate of 13% and a reasonable dispersion among industries, sizes and roles. Since the magazine was unwilling to unveil the list of 400 managers, it was impossible to assess non-response bias, but comparing early with late responses. No difference was found. Additional 91 usable questionnaires were collected after distributing it to managers attending three professional conventions, for which the response rate could not be calculated since the questionnaires were placed on banqueting tables and participants filled them voluntarily, leaving the completed questionnaire on the table. These strategies, which yielded 143 usable responses, bear limitations such as violation of randomality and inability to assess non-response bias. Hence the data would need to be tested for potential sampling bias, as described next. Data were collected from March to June 2004.

The sample size is appropriate for the model validation, since PLS-Graph version 03.00 (Build 1126) has been used as the analysis tool, requiring a sample size greater than ten times the largest number of causal links impacting a dependent variable - three in AIM (Chin, 1998).

5 DATA ANALYSIS AND RESULTS

5.1 Sample characteristics

Of the 143 respondents, 39 (27%) are Chief Executive Officers (CEOs), 12 (8%) are deputy CEOs, 5 (3%) are Chief Financial Officers (CFOs), 28 (20%) are Chief Information Officers (CIOs), and 51 (36%) hold other managerial positions such as marketing managers, Chief Operations Officers (COOs), product managers etc. Eight (6%) respondents did not specify their roles. The distribution of the number of years served in that role is as follows: 10 (7%) of the respondents hold the role for less than a year, 30 (21%) for 1-3 years, 26 (18%) for 3-5 years, and 71 (50%) for more than five years. Six (4%) respondents did not answer this question. Hence, the majority of respondents are both experienced managers and veterans in their organizations. Of the organizations to which the respondents belong, 88 (62%) are in the service sector while 45 (31%) are in the manufacturing sector. Only 21 (14%) of the respondents were actual ASP users.

5.2 Respondents Homogeneity Testing

Before analyzing the data, it was necessary to verify that the various respondents are representative of the same population, i.e. none of the groups (grouped first by round of data collection and then by demographic affiliation) in the data set significantly differs from other groups in perceiving the AIM constructs. To this end, we tested each of the demographic variables, including the data collection round number (1 – 4), in order to detect effects on the mean and standard deviation of the AIM constructs. We performed one-way analysis of variance (ANOVA) using SPSS for each of the demographic variables on each of the constructs (calculated as the weighted average of the value of measuring items that converged on the construct). Only ‘ASP actual usage’ significantly affected AIM constructs, with actual users (14% of respondents) generally more positive concerning all AIM constructs. This limitation has been dealt with by analyzing the data first for the whole sample, and then excluding actual ASP users. No major differences have been found.

5.3 The measurement model

Three tests were used to determine the convergent and discriminant validity of the measurement model (Gefen et al., 2000; Chin, 1998): loading of statements, composite reliability of constructs and average variance extracted (AVE). The hierarchical assumptions of the multi-dimensional constructs was also validated by showing that the beta coefficients of the causal paths from the dimensions to the higher-level constructs are significant and substantial (β>.2), that they explain a substantial amount of the variance in the higher-level constructs (R-square), and that the high-level constructs fully mediate their effect on the dependent construct (Edwards, 2001; Pavlou & Fygenson, 2006; Chin, 1998). Due to space constraints, these results are only presented on the model (Figure 2), yet more detailed evidence can be obtained from the author. Table 2 shows that all factors demonstrate good reliability with values>0.8 (Chin, 1998). Likewise, all AVE square-root values are greater than the required 0.707, and greater than inter-factor correlations, particularly for the high-level constructs and the dependent factor, attesting discriminant validity. Loadings were calculated using a confirmatory factor analysis (CFA) as suggested by (Gefen, 2005). Table 3 shows that all item loadings are greater than 0.7, and all items load more on their respective factors than on other factors. Although some cross loadings exist, this can be acceptable when reliability is established and when scales are new (see for example Agarwal & Karahanna, 2000).

	ITC	ITP	BP	Benefits	Focus	Cont	Ease	Assur	SitNorm	InsTrust	Intent
Comp. Reliability	0.896	0.936	0.949	0.910	0.947	0.925	0.827	0.945	0.889	0.840	0.894
ITC	**0.861**										
ITP	0.459	**0.910**									
BP	0.496	0.755	**0.928**								
Benefits	0.655	0.728	0.762	**0.877**							
Focus	0.591	0.591	0.61	0.635	**0.925**						
Contract	0.38	0.226	0.226	0.280	0.216	**0.897**					
Ease	0.424	0.244	0.238	0.340	0.303	0.69	**0.784**				
Assur	-0.338	-0.213	-0.322	-0.379	-0.258	-0.257	-0.274	**0.901**			
SitNorm	0.384	0.345	0.408	0.413	0.379	0.268	0.304	-0.259	**0.817**		
InsTrust	0.353	0.397	0.544	0.546	0.408	0.179	0.166	-0.360	0.500	**0.798**	
Intent	0.514	0.449	0.593	0.665	0.531	0.243	0.363	-0.549	0.372	0.587	**0.825**

*Bold numbers on the diagonal represent the square root of AVE.

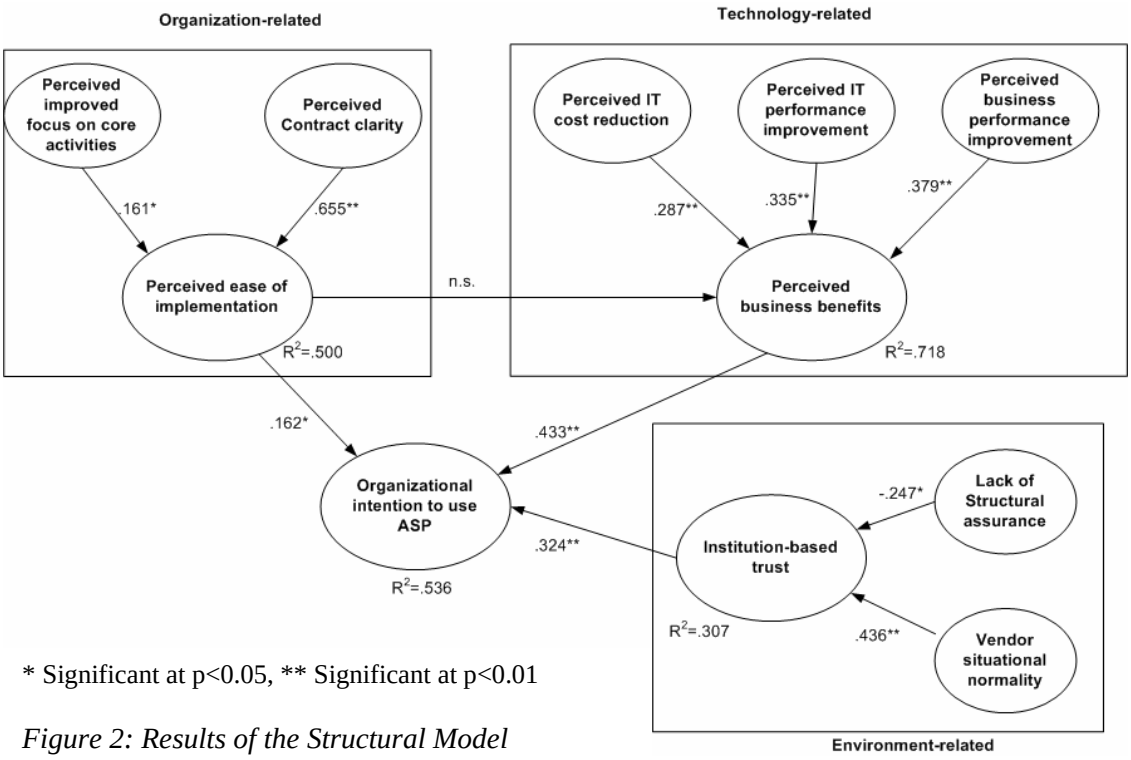
Table 2: Reliability, construct cross-correlations, and AVE

	benefits	Ease	InsTrust	Intention
ben1	0.89	0.34	0.48	0.56
ben2	0.91	0.28	0.54	0.57
ben3	0.85	0.28	0.42	0.64
ease1	0.33	0.82	0.24	0.35
ease2	0.26	0.78	0.03	0.26
ease3	0.22	0.79	0.07	0.24
instrst1	0.44	0.08	0.77	0.42
instrst2	0.48	0.17	0.89	0.57
instrst3	0.51	0.21	0.82	0.50
i1	0.65	0.34	0.48	0.84
i2	0.56	0.27	0.62	0.88
i3	0.67	0.33	0.50	0.89
i4	0.38	0.26	0.37	0.78

Table 3: Confirmatory factor analysis results for the high-level constructs

5.4 The structural model

Figure 2 presents the results of the structural model.



* Significant at p<0.05, ** Significant at p<0.01

Figure 2: Results of the Structural Model

As previously recommended (Chin, 1998; Gefen, 2005), bootstrapping was performed to test the statistical significance of path coefficients using t-tests, resulting in all but one hypotheses supported (Figure 2). Model fit is assessed by percentage of variance explained in the dependent variable (R-square), and by the size of the beta coefficients (β>0.2) (Chin, 1998). As depicted in Figure 2, the model explains substantial variance in the intention to use ASP (R^2=53.6%), and all but two statistically significant path coefficients are greater than 0.2. The results support the hypothesized significant effect of perceived benefits and of institution-based trust on the intention to use ASP, while perceived ease of implementation is a much weaker determinant of organizational intention. Likewise, multi-dimensionality of the constructs is also supported, corroborating the suggested structures.

As mentioned above, in order to cater for the positive ANOVA tests for respondents who are actual ASP users, the model has been run again, excluding 21 cases of actual ASP users (n=122), yielding similar results and a marginal drop in the explained variance of the dependent construct (R^2=46.5%).

6 DISCUSSION AND CONCLUSIONS

6.1 Limitations and future research

Several limitations need to be addressed. First, the data gathering strategies might have introduced bias, although the ANOVA tests did not detect such biases, except for a minor sub-group of actual ASP users. This issue was further tested and proved immaterial. Second, we did not carry the pre-test of the survey instrument on a large enough sample, causing the measurement and structural models to be assessed on the same sample. Additionally, in light of cross-loadings of measurement items, the measurement instrument needs to be further

validated and refined in future research. Third, the sample size of 143 respondents is quite small and a larger sample size would be preferable. Fourth, more research is called for in order to elicit other factors that might affect the adoption intention, particularly if enhanced to include other online services. Fifth, organizational characteristics such as size, industry affiliation, structure and management characteristics have not been included in this model, and are suggested for further research. Finally, having conducted the research on firms of various sizes and industries in one country might hinder generalizability as well as mask influential institutional factors. Thus, it is suggested that future research further validates the model with a more restricted sample (one industry, controlled organizational size, etc.), and in other countries. Clearly, qualitative research in the form of interviews and case studies is also recommended, in order to gain deeper understanding of the proposed factors, their relationships, and perhaps other, influential determinants.

6.2 Contribution and implications for research

The present study introduces AIM, a new model that includes three major factors affecting organizational intention to adopt ASP. Although based on theoretical foundations of institutional theories for organizational IT adoption such as TOE, only a handful of empirical studies have tested all three factors (Jeyaraj et al., 2006). Further, institution-based trust has previously been identified at the individual level of analysis, rather than at the organizational context. Hence, this study has pioneered in operationalizing and measuring organizational, technological and environmental factors, including institution-based trust, that affect IT adoption in the ASP context. Overall, the model explains above 50% of the variance in the intention to use ASP, indicating that the factors composing the AIM indeed reflect major determinants affecting the ASP adoption intention.

Complying with previous studies, the results affirm perceived business benefits as a major determinant affecting ASP adoption (Currie et al., 2004; Meta-Group, 2004), yet more importantly, the multi-level aggregate construct is also supported, composed of expectations of IT cost reduction, IT performance improvement, and business performance improvement as a result of ASP adoption. These results are in line with previous literature discussing the main drivers of ASP adoption and IT innovation adoption in general, but reinforce the assertion that tangible, quantifiable benefits, rather that intangible ones, are a strong pre-condition for adoption (Kern et al., 2002). Additionally, for the last decade researchers looked into the alignment of IT and business strategies, arguing that IT investments can best be converted to business value when such alignment exists (Henderson & Venkatraman, 1993). The dimensions of perceived business benefits suggest that organizations also evaluate this option as a step forward towards such alignment (Ross, 2003). Thus, ASP adoption as a facilitator of improved IT and business alignment is suggested for future research.

Highlighting the structure and dimensions of ease of implementation as a determinant of organizational intention to adopt ASP is also new, supporting the assertion that organizations appreciate the complexity of ASP adoption as a disruptive, Type III, IT innovation. Of particular interest are the two proposed dimensions, perceived ease of formulating a clear contract, and perceived ability to focus on core activities that certainly need further validation in future research.

While the above two major factors as determinants of organizational IT adoption decision have been previously established, albeit less detailed (Chwelos et al., 2001), the present study introduces a somewhat overlooked factor in the organizational context – institution-based trust. The results support the significance of institution-based trust in the context of ASP adoption intention, second only to the effect of perceived business benefits (judged by the size of the beta coefficient). It also empirically validates the multi-hierarchy aggregate structure of this construct at the organizational level of analysis (McKnight et al., 2002). Of particular interest is the importance of perceived vendor situational normality, suggesting that potential adopters gauge the vendor situation in the ASP market as a cue for its plausibility and viability. Absence of major IT vendors might be a negative sign as to its destiny (Fichman,

2004a). Perceptions of the environment's assurance also play a significant role in building this type of trust, which, much similar to the individual level of analysis, is arguably a pre-requisite for favourable intention to adopt ASP.

The significance of the proposed factors implies at the plausibility of ASP becoming a viable sourcing option in the foreseeable future, specifically in light of Carr's prediction (Carr, 2005) that we are now nearing an era of utility computing, where software would mainly be delivered over the Internet as a service similar to delivery of utilities, rather than as a product. The results advance understanding of important conditions required in order for ASP vendors and their offering of Software as a Service (SaaS) to thrive as the next standard of organizational IT, as elaborated in the next section.

Although focusing on ASP, this IT innovation is just one of a larger class of web-driven organizational technologies. We argue that the proposed model is generalizable to other Internet-driven, risky organizational applications, such as B2B e-commerce, e-markets, inter-organizational systems, and web-services, advocated as perhaps the future infrastructure of organizational IT.

Finally, the results point at a similarity between the technology-adoption intention mechanism for the individual and for the organizational levels of analysis. As extensively demonstrated by previous research of the Technology Acceptance Model (TAM), the most significant predictors of intention to use IT by an individual are perceived usefulness and perceived ease of use, where the former affects intention more strongly than the latter (Davis, 1989), resembling the results of the present study. This similarity calls for a multi-level analysis, comparing and synthesizing factors affecting individual adoption decisions and organizational ones. Such analysis will enrich our perceptions of IT adoption in general (Klein et al., 1999; Jeyaraj et al., 2006).

6.3 Implications for practice

The findings can be used by prospective adopting organizations to better elicit the critical factors affecting the ASP adoption intention, and by vendors to assess what is required for a future success of ASP.

Decision makers in organizations should look for real, tangible benefits, but also assess organizational readiness for the rather disruptive nature of ASP adoption (Swanson, 1994). Likewise, ASP vendors should notice the importance of real business value, but far and foremost, they should appreciate the critical role of institution-based trust in the readiness of organizations to adopt ASP, much like the principal role it plays in the individual intention to adopt e-commerce.

In the past, the slower than anticipated ASP penetration was largely attributed to lack of a real business benefit (Currie et al., 2004). The study's results lend support to these assumptions, by demonstrating the importance of the perceived business benefits factor and its tangible dimensions. Thus, ASP vendors need to demonstrate real understanding of their customers' organizational environment and business goals, as opposed to the 'one size fits all' strategy demonstrated by several first-wave ASP vendors. Yet, business benefits alone are hardly sufficient for eventual ASP adoption. ASP vendors need to make sure they can enhance initial trust in the ASP environment, achievable only when this environment is perceived assured and normal. In the absence of formal guarantees and regulations, participation of major IT vendors is a positive cue. In contrast, lack of interest of leading IT vendors such as IBM, SAP, and Oracle, might indicate abnormal vendor environment, hindering institution-based trust. Moreover, since previous research established vendor size and reputation as a substitute for formal assurances (Jarvenpaa et al., 2000), small, newly-established ASP vendors, who lack these characteristics, are advised to partner with reputable leading IT vendors who now, at least judged by the information on their web-sites, express explicit and hopefully genuine interest in the remote IT services market.

6.4 Conclusions

The proposed AIM model and the results of the present study demonstrate the need for the remote application hosting market to mature in terms of business value proposition and ease of implementation, as well as in establishing trust via the institution-based trust mechanism, for the second wave of ASP to succeed. Perhaps the recent success of ASP vendors such as Salesforce.com, and the explicit interest of major IT companies in becoming ASP vendors indicate a more promising direction the market is heading to. Yet, whether the remotely hosted software-as-a-service option is likely to replace the current software-as-a-product preference of customer organizations is yet to be seen.

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