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Sales force use of technology: antecedents to technology acceptance

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Abstract

This study investigates the impact of the beliefs and attitudes of field salespeople on technology usage. The sales force use of technology model developed here delineates the relationships that exist among various organizational and individual difference variables and the technology acceptance model (TAM) as conceptualized by Davis (1989) and Davis et al. (1989). Results reveal support for the TAM in a sales force context, as well as evidence that support services and personal innovativeness impact perceived ease of use of technology by field salespeople. Insights are provided for managers and sales researchers into how the knowledge developed here is useful in future work.

Keywords: Technology acceptance; Sales force; Theory of reasoned action; Perceived usefulness of technology; Perceived ease of use of technology

1. Introduction

The extant marketing literature contains little research pertaining to the function of attitudes involved in technology usage and salesperson effectiveness. The majority of prior research concerning diffusion of technology in a sales context has focused on adoption at the organizational level (e.g., see Rivers and Dart, 1999). Keillor et al. (1997) measured salespersons' attitudes toward the use of technology applications before they were implemented in the sales process and investigated the relationship between these attitudes and the salesperson's experience and productivity. Parthasarathy and Sohi (1997) identified and discussed factors that can influence the adoption and implementation of sales force automation systems. These studies began an important stream of research, but additional inquiry is warranted.

A majority of organizations expect to recoup the expense of integrating technology through the increased benefits of efficiency and productivity. Importantly, in most cases, the initial decision to adopt a particular technology is made at the organizational level, while the decision to use is left to the option of the individual (Morgan and Inks, 2001). Although a percentage of the members of any sales organization will welcome the new technology, another percentage will resist it. Since, in this context, the decision to adopt is made by other organization members, these resistant salespeople will tend to use the system to a minimal extent and only because they are required to use it (Parthasarathy and Sohi, 1997). The lack of acceptance by even some members of the sales force ultimately will lead to underutilization of the technology's capabilities. Hence, an important task for the proper and complete implementation of an information technology system is to identify the salespeople who are most likely to accept and fully utilize the system and to concurrently identify those salespeople who are most likely to resist the innovation (Parthasarathy and Sohi, 1997).

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Among the many possible influences on technology use, Davis (1989) suggests that two determinants are of particular importance: perceived usefulness and perceived ease of use. Perceived usefulness is the tendency of people to use or not use a technology to the extent they believe it will help them perform their job better. Perceived ease of use is how difficult the person believes the technology is to use and if the performance benefits of usage are outweighed by the effort of using the technology. Davis et al. (1989) have integrated perceived usefulness and perceived ease of use into a model called the technology acceptance model (TAM) to attempt to explain the level of technology acceptance.

The TAM adapts the Fishbein and Ajzen (1975) and Ajzen and Fishbein (1980) theory of reasoned action as a basis for specifying the causal linkages between two key beliefs (perceived usefulness and perceived ease of use) and users' attitudes, intentions, and actual technology usage behavior. Prior to now, the TAM was developed and has received attention primarily from information technology researchers and in other contexts outside the domain of marketing (cf. Agarwal and Prasad, 1999; Davis et al., 1989; Hu et al., 1999). The purpose of this article is to examine and extend the TAM model at the individual salesperson level by considering possible antecedents.

2. Conceptualization and hypothesis development

Developed in the information technology literature, the TAM (Davis, 1989) portrays user acceptance of information systems. The model provides a source for tracing the impact of external factors on internal beliefs, attitudes, and intentions. Davis (1989) formulated the TAM by identifying a small number of fundamental variables suggested by previous research dealing with the cognitive and affective determinants of computer acceptance and used the model as a background for portraying the relationships among these variables (please refer to the boxed portion of Fig. 1 for a portrayal of the original TAM).

2.1. Regularities expected based on the core TAM

In this article, we seek to provide evidence that the core TAM relationships hold true in a sales force setting. In addition, we will test a series of hypotheses related to the impact of individual difference variables and environmental variables on the variables within the original TAM. Such added tests were suggested by Davis et al. (1989) in their discussion of future research opportunities related to technology acceptance.

The core concept of the TAM is that a person's attitude toward using a technology is jointly determined by perceived usefulness and perceived ease of use. Technology usage is determined by behavioral intentions but differs from the theory of reasoned action in that usage is viewed as being mediated by the person's attitude toward using the technology. The attitude–behavioral intentions relationship represented in the TAM implies that, all else being equal, people form intentions to perform behaviors toward which they have positive affect. The perceived

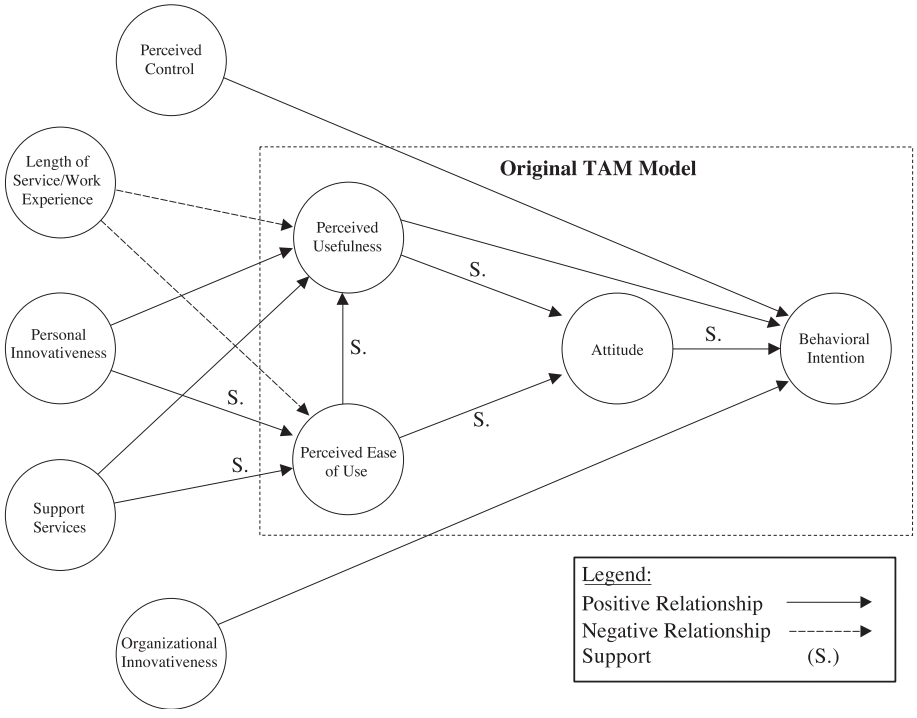

Fig. 1. Structural model and hypotheses supported.

usefulness–behavioral intentions relationship is based on the idea that, within organizational settings, people form intentions toward behaviors they believe will increase their job performance, over and above whatever positive or negative feelings may be evoked toward the behavior per se. The sales management literature is replete with evidence that enhanced performance is instrumental to achieving various rewards that are extrinsic to the content of the work itself, such as pay increases and promotions (Johnston and Marshall, 2003).

Effort saved due to improved ease of use may be redeployed, enabling a salesperson to accomplish more work for the same effort. To the extent that increased ease of use contributes to improved performance, ease of use will have a direct effect on perceived usefulness. To summarize the regularities expected based on the core TAM,

(R_1) perceived usefulness is positively related to attitude toward using technology;
(R_2) perceived ease of use is positively related to attitude toward using technology;
(R_3) attitude toward using technology is positively related to behavioral intention to use technology;
(R_4) perceived usefulness is positively related to behavioral intention to use technology; and
(R_5) perceived ease of use is positively related to perceived usefulness of technology.

2.2. Hypotheses regarding individual difference variables

As mentioned earlier, Davis et al. (1989) provided an opportunity for making an incremental contribution by suggesting that the internal psychological variables central to the TAM very likely are influenced by individual difference variables that are not explicit in their core model. Other researchers have noted the importance of individual differences in information technology acceptance (Agarwal and Prasad, 1999; Alavi and Joachimsthaler, 1992; Nelson, 1990; Zmud, 1979). Three key variables are perceived control, length of service/work experience, and personal innovativeness.

2.2.1. Perceived control

Perceived control represents an individual's beliefs concerning his or her control over various elements of the organizational environment. A key element of perceived control is decisional control (Baronas and Louis, 1988; Langer, 1983). Decisional control refers to an individual having the opportunity to choose among various possible actions. In a sales organization context, choice is primarily related to whether a particular technology is appropriate to be used in a given situation.

The introduction of new technology may threaten existing feelings of control. Decreases in personal control yield negative consequences both for individuals and organizations (Baronas and Louis, 1988). Conversely, increases in perceived control may be expected to have a direct and positive influence on the successful integration of technology into a sales organization. In the information technology literature, it has been suggested that increased perceived control will increase behavioral intention to use technology (Mathieson, 1991; Taylor and Todd, 1995). Based on the above.

H_1: Perceived control is positively related to behavioral intention to use technology.

2.2.2. Length of service/work experience

Various fields of research have addressed how an individual's work-related perceptions and attitudes vary across length of service and years of work experience. This is certainly true in the sales management literature, with focus on how to motivate people in different career stages toward greater effort and improved performance (cf. Cron and Slocum, 1986a,b; Slocum and Cron, 1985). Morris and Venkatesh (2000) suggest that those individuals with greater length of service and more years of work experience are more likely to resist new technologies, and those with less service/work experience are more committed to the changes created by the new technology and therefore more motivated to accept it. Put generally, as length of service/work experience increases, so does the successful salesperson's likely commitment to the status quo since he/she has developed a successful track record and may see little reason to change. Thus,

H_2: Salespeople with more length of service/work experience will exhibit lower levels of (a) perceived usefulness and (b) perceived ease of use of technology than those with less length of service/work experience.

2.2.3. Personal innovativeness

Rogers (1995) conceptualized innovative individuals as those who adopt innovations the earliest. In a technology context, personal innovativeness is defined as the willingness of an individual to try out new technology (Agarwal and Prasad, 1998; Flynn and Goldsmith, 1993; Midgley and Dowling, 1978). The construct is conceptualized as a trait that is a relatively stable descriptor of individuals and that is invariant across situational considerations.

Salespeople who possess higher levels of innovativeness are more likely to seek multiple sources of information as they form their perceptions about a technology. This more expansive gathering of information creates greater understanding and familiarity with the technology in question. Therefore, salespeople who are more innovative will have increased likelihood of developing more positive beliefs and perceptions about a particular technology. Thus,

H_3: Personal innovativeness is positively related to (a) perceived usefulness and (b) perceived ease of use of technology.

2.3. Hypotheses regarding environmental variables

A salesperson's internal beliefs may be influenced by environmental variables. This study is concerned with those variables pertaining specifically to various organizational characteristics as perceived by the salesperson. We develop a conceptual basis for the impact of a salesperson's perceptions of support services and organizational innovativeness within the context of technology acceptance.

2.3.1. Support services

Support services (e.g., tutorials, training sessions, help lines, etc.) may serve to reduce resistance to technology by easing the learning process and increasing the perceived usefulness and perceived ease of use. The constructive part that support services can play in reducing resistance and increasing product utilization levels has been documented in prior research (Conner and Rumelt, 1991; Parthasarathy and Hampton, 1993). The availability of various types of support services should lead to a greater understanding of a particular technology's potential functionality. This in turn facilitates increased expectations of the technology's usefulness by users. Based on these ideas,

H_4: A salesperson's perceived level of availability of support services is positively related to (a) perceived usefulness and (b) perceived ease of use of technology.

2.3.2. Organizational innovativeness

Research on organizational innovation stresses the implementation stages involved in putting an innovation into use in an organization (Rogers, 1995). This is important because implementation does not always actually follow once the decision to adopt has been made by the organization. A key factor to be considered in successful implementation is the organization member's perception of the firm's general level of innovativeness.

Organizational innovativeness is the notion of openness to new ideas as an aspect of firm culture and subsequently, firm culture as central to successful implementation of innovations (Rogers, 1995). Hence, a salesperson's perception of innovativeness present in the organization should encourage the salesperson to be more receptive and favorable toward innovative technology. An element of pressure (managerial and peer) exists in an innovative organization for salespeople to adopt and use technological innovations to achieve high performance and rewards. This drive to be innovative may be expected to influence the intention to use new technology by the salesperson to increase his/her likelihood of success in the organization. Thus,

H_5: A salesperson's perceived level of innovativeness possessed by his/her organization is positively related to behavioral intention to use technology.

3. Methodology

This study employed a cross-sectional survey of sales organization members. A narrow range of industries was targeted to control for various extraneous factors, especially the range of technology types utilized. The focus of the study is at the individual salesperson level of analysis. As such, measurement is centered on individual salespeople as they relate to the constructs operationalized within the framework, as well as individual-level issues of performance and technology.

3.1. Sample

A sample of salespeople members was drawn from three firms. The industries represented the following North American Industry Classification System (NAICS) service sectors: Administrative and Support and Waste Management and Remediation Services (Sector 56), Information (Sector 51), and Transportation (Sector 48). Use of a relative small number of firms was important to obtain responses from salespeople who have as similar as possible conceptualization of "technology," as well as firms utilizing a similar array of technology. In each firm, the technology to be considered had been adopted by the organization as a whole, while the level of usage was determined by the individual salesperson.

Respondents consisted only of those salespeople holding field sales positions within their company. Field salespeople were chosen because of their unique role as boundary spanners and the relative autonomy in their interaction with the forms of technology provided by the organization. Interviews with managers within the sampled sales organizations provided evidence that the various sales activities performed by the salespeople are quite consistent with activities performed by other salespeople in many other industries.

3.2. Procedure

The chief sales executive of each organization was solicited for his/her cooperation to participate in the study. The questionnaire was delivered electronically to the sales executive in the organizations that agreed to participate. The executive subsequently distributed the questionnaire with his/her own appeal letter to the company's sales force using a template provided by the researchers. The instructions to participants explained the project and assured each participant that only the researchers would have access to specific responses.

An additional step was undertaken to ensure that respondents shared a similar conceptualization of "technology." Each respondent was queried about a specific list of technology tools utilized in day-to-day activities. This list was drawn from interviews with sales managers and sales-

people in the participating organizations and represents current-day tools that salespeople use such as email, voicemail, fax, cell phone, PDA, indoor electronic organizer, customer contact software, and the like. On the questionnaire, the respondents indicated whether or not they used each of these particular technologies and if so, how much. Then participants were reminded to consider these same tools when responding to the remaining items on the questionnaire. Analysis of the considered technologies revealed a high level of consistency among participants.

3.3. Description of Sample

In total, 478 salespeople were contacted, and 224 responded to the items on the questionnaire. Of those 224, six questionnaires were eliminated from the study because of insufficient data. Having 218 usable responses resulted in overall effective useable response rate of 46%. Table 1 contains demographic information for the individual respondents. The respondent pool consists of individuals with various levels of academic achievement and with a significant amount of aggregate work and sales experience.

3.4. Measurement

Where possible, the scales utilized in this study were taken from the extant literature with minor modifications as needed to fit the current study's context. The scales, their sources, and the items are summarized in Table 2.

4. Results

The analysis of reliability provides evidence that the scales exhibit adequate psychometric properties, with Cronbach's (1951) alpha greater than 0.70. Table 3 contains the reliabilities for each of the scales.

The development of the scales to measure organizational innovativeness and support services followed accepted scale development procedures (Gerbing and Anderson, 1988; Nunnally, 1978). Based on the analysis, three of the original six items of the organizational innovativeness scale were dropped (see Table 2).

Table 1
Respondent demographic information

Characteristic	Frequency	Percentage
Gender		
Male	133	61.0
Female	85	39.0
Education		
High School	22	10.1
Some College	40	18.3
Two-year degree	22	10.1
Four-year degree	111	50.9
Some graduate work	13	6.0
Graduate degree	10	4.6
	Mean (years)	Range
Age	39.7	22 to 63
Total work experience	18.5	1 to 46
Sales experience	11.1	0 to 35
Sales management experience	2.6	0 to 20
Time with current company	5.5	0 to 28

4.1. Data analysis

Testing the proposed model proceeded in the recommended two steps (Anderson and Gerbing, 1988). Using LISREL 8.50 (Jöreskog and Sörbom, 2001), the measurement model was fit to the data. After examination of the fit for the measurement model, the structural model was analyzed for fit to the data. As recommended, all of the latent variables were allowed to covary, and the loading of each latent variable on its first measured indicator variable was fixed to unity to estimate a metric for the latent variables. Using the covariance matrix and specifying the measures to act as indicators for the latent variables, a measurement model was fit to the data. The CFA results show adequate fit of the model (χ^2=3266, p<0.001, df=1120, RMSEA=0.066, NNFI=0.91, CFI=0.93). This fit provides support for the appropriateness of the relationship between the intended latent constructs and their indicators.

The hypothesized structural model represents an acceptable fit of the data (χ^2=3870, p<0.001, df=1159, RMSEA=0.078, NNFI=0.88, CFI=0.89). Bollen (1989) observes that cut-offs are arbitrary, and that a more relevant standard may be to compare the fit of one's model to the fit of other models of the same phenomenon. This is especially relevant when researching a new area not yet represented in the literature. To date, little research has appeared in the literature directed toward the phenomena of interest in our study. In addition, further examination of the standardized residuals and modification indices resulting from the structural model did not indicate any theoretically meaningful changes. Therefore, the hypothesized model was deemed acceptable for further analysis.

4.2. Hypothesis test results

The parameter estimates and the corresponding t-values that are provided by fitting the hypothesized model to the data allow for testing the hypotheses. The results of the hypothesis tests are shown in Table 4 and summarized pictorially in a path diagram in Fig. 1.

A review of the standardized path coefficients shows that four of the five expected regularities within the core TAM were supported in the context of our sample of salespeople, and two of the eight new hypothesized paths were supported. Within the core TAM, perceived usefulness and perceived ease of use are both related to attitude toward

Table 2
Summary of sales force use of technology model measures[a]

Construct/item	Source
Perceived usefulness	Davis (1989), Chin and Todd (1995)
Using technology[b] increases my productivity.	
Using technology improves my job performance.	
Using technology enhances my effectiveness on the job.	
Using technology makes it easier to do my job.	
Overall, I find technology useful in my job.	
Perceived ease of use	Davis (1989), Adams et al. (1992)
Learning to operate technology is easy for me.	
I find it easy to get the technology to do what I want it to do.	
My interaction with the technology is clear and understandable.	
Overall, I find the technology easy to use.	
Attitude	Ajzen and Fishbein (1980)
Using technology in my current job is a good idea.	
Using technology in my current job is beneficial to my customers and management.	
Intention to use	Ajzen and Fishbein (1980)
I intend to use technology in my job when it becomes available to me.	
I intend to use technology for my customers as often as needed.	
To the extent possible, I would use technology with my customers and management frequently.	
Perceived control	Green (1998)
I can always decide what parts of technology you will use.	
I can always decide when you will use technology techniques.	
The use of technology allows me the opportunity for creativity in your job.	
Length of service/work experience	New Scale
How many years of full time professional sales experience do you have?	
How many years working in any full time position do you have?	
Personal innovativeness	Agarwal and Prasad (1998)
If I heard about a new technology, I would look for ways to experiment with it.	
Among my peers, I am usually the first to try out new technologies.	
In general, I am hesitant to try out new technologies.[d]	
I like to experiment with new technologies.	
Support services	New Scale
My firm provides sufficient training for new technology given to sales force members.	
My firm provides sufficient tutorials for new technology given to sales force members.	
My firm provides sufficient training/help manuals for new technology given to sales force members.	
Overall, my firm provides sufficient support services for new technology given to sales force members.	
Organizational innovativeness	New Scale
The upper management of my firm has a positive attitude toward change.	
My supervisor has a positive attitude toward change.	
In my firm, power and control are concentrated in the hands of relatively few individuals.[c,d]	
The employees of my firm possess a high level of knowledge and expertise.	
In my firm, rules and procedures are strictly enforced.[c,d]	
The employees of my firm are linked to each other by interpersonal networks.[c]	

[a] All measures employed 1–7 Likert-type scales, except length of service/work experience.
[b] When answering the questions, respondents drew from a common set of technologies used within their jobs.
[c] This item dropped from the final scale.
[d] Reverse-scored item.

Table 3
Scale means, standard deviations, reliabilities, and correlations

Scale (number of items)	Mean	S.D.	1	2	3	4	5	6	7	8	9
1. Perceived usefulness (5)	31.82	4.36	0.97[a]								
2. Perceived ease of use (4)	21.27	4.46	0.44[b]	0.89							
3. Attitude (2)	12.71	1.44	0.73[b]	0.53[b]	0.80						
4. Intention to use (3)	18.77	2.20	0.64[b]	0.54[b]	0.76[b]	0.85					
5. Perceived control (3)	15.53	3.30	0.37[b]	0.55[b]	0.51[b]	0.51[b]	.80				
6. Length of service/work experience (2)	29.61	16.07	−0.21[c]	−0.31[b]	−0.17	−0.17	−0.09	0.78			
7. Personal innovativeness (4)	17.53	3.40	0.14	0.60[b]	0.33[b]	0.45[b]	0.48[b]	−0.12	0.81		
8. Support services (4)	18.80	6.08	0.22[c]	0.29[b]	0.19[c]	0.19[c]	0.2[b]	−0.26[b]	0.09	0.95	
9. Organizational innovativeness (3)	16.83	3.14	0.19[a]	0.25[b]	0.17	0.18	0.12	−0.07	0.08	0.57[b]	0.77

[a] Measures with only two items report correlations; measures with more than two items report Cronbach's alphas.
[b] Correlation is significant at the 0.01 level (two tailed).
[c] Correlation is significant at the 0.05 level (two tailed).

Table 4
Test results

Paths		Standardized coefficient	*t*-value	Outcome
Core TAM (R—Regularity)				
R_1 (+)	Perceived usefulness → attitude	0.57	7.60[a]	Supported
R_2 (+)	Perceived ease of use → attitude	0.31	4.05[a]	Supported
R_3 (+)	Attitude → behavioral intentions	0.93	5.31[a]	Supported
R_4 (+)	Perceived usefulness → behavioral intentions	−0.15	−1.10	Not supported
R_5 (+)	Perceived ease of use → perceived usefulness	0.58	2.60[a]	Supported
Extended TAM (H—Hypothesis)				
H_1 (+)	Perceived control → behavioral intentions	0.03	0.48	Not supported
H_{2a} (−)	Length of service → perceived usefulness	−0.09	−0.97	Not supported
H_{2b} (−)	Length of service → perceived ease of use	−0.09	−1.24	Not supported
H_{3a} (+)	Personal innovativeness → perceived usefulness	−0.15	−0.67	Not supported
H_{3b} (+)	Personal innovativeness → perceived ease of use	0.81	7.59[a]	Supported
H_{4a} (+)	Support services → perceived usefulness	0.03	0.30	Not supported
H_{4b} (+)	Support services → perceived ease of use	0.20	3.15[a]	Supported
H_5 (+)	Organizational innovativeness → behavioral intentions	0.03	0.42	Not supported

[a] $p<0.001$.

technology. Attitude toward technology is directly related to behavioral intentions to use technology. However and unexpectedly, perceived usefulness is not directly related to behavioral intentions to use technology. In addition, perceived ease of use is related to perceived usefulness.

For the individual difference relationships, one of the hypotheses (H_{3b}) is supported. Personal innovativeness is directly related to perceived ease of use. It is also important to note that, although the relationships between length of service/work experience and perceived usefulness and perceived ease of use are not statistically significant, the sign of the path coefficient is negative in both cases which is the direction posited. For the organizational relationships, one of the hypotheses (H_{4b}) is supported, providing evidence that perceived level of availability of support services is positively related to perceived ease of use.

5. Discussion

The results provide support for the core concepts of the TAM model (perceived usefulness and perceived ease of use in technology acceptance) among salespeople. A salesperson that believes the new technology will be useful may be expected to have a more positive attitude toward that particular technology. This usefulness is primarily the subjective probability that using the technology will increase his/her job performance within the organizational context. In addition, salespeople who believe that the new technology will be relatively easier to implement may be expected to have a more positive attitude toward the technology. This is critical because, in many cases, a salesperson has a tremendous amount of discretion concerning whether to use or not use a particular technology and the degree to which he/she will use it.

The effort saved due to improved ease of use may be directed toward other tasks, enabling the salesperson to accomplish more work for the same effort. In this context, the salesperson is enabled to work smarter not harder (Sujan, 1986; Sujan et al., 1988). To the extent that this increased ease of use contributes to working smarter to improve performance, ease of use will have a direct effect on usefulness. Finally, the relationship between attitude toward using technology and behavioral intention to use technology implies that, all else being equal, salespeople will form intentions to use the new technology because of their positive affect toward it. Taken in sum, we believe the evidence offered for the TAM in a sales context is compelling and should prove valuable to sales organizations and their managers.

Moving beyond the core TAM, results of the hypothesis tests indicate a more innovative salesperson is more likely to perceive new technology to be less cumbersome to implement. This belief is likely related to the salesperson's interactions with past technologies and ability to effectively use such technologies without significant drawbacks. Results also reveal that perceived level of availability of support services is positively related to perceived ease of use. As salespeople interact with a technology, problems may arise. These problems may be related to the use of the technology internally (e.g., administrative work, communication within the firm) or when dealing directly with customers. The more the salesperson believes adequate sources of support exist, the more likely he/she will believe that these types of problems will be handled effectively, thus making successful utilization easier.

6. Managerial implications

Investment in information technology continues to grow for sales organizations interested in maximizing the efforts of their sales force. However, just because technology is available, utilization by individual members of the sales

force is not guaranteed. It is important for sales organizations to understand that salespeople can believe that a particular technology may be useful, yet, at the same time, believe the task of learning to use it is too arduous (high usefulness/low ease of use). In the salesperson's mind, the various costs associated with this difficult effort may outweigh any potential benefits to be derived from successful implementation of the technology. Thus, perceived ease of use can be an important differentiator when it comes to technology acceptance.

Research has shown an increase in the number of activities that salespeople must perform in the normal course of daily operations, indicative of a general trend toward sales job enlargement (Marshall et al., 1999). Salespeople possess a limited amount of time for customer contact and are under constant pressure to use what time they have more productively. In such conditions, salespeople are quick to analyze which tools will be used and which will be abandoned based on the tool's potential to aid in goal attainment.

The support for the relationship between personal innovativeness and perceived ease of use in our study reinforces the importance that management work to implement hiring and professional development practices designed to foster and reward personal innovativeness among salespeople. Not only do salespeople who would be considered more innovative adopt sales technology earlier, they also tend to use the technology more (Agarwal and Prasad, 1999; Rogers, 1995).

Training programs on technology applications administered as part of an overall array of high-quality technology support services can go a long way toward reducing apprehension and precipitating attitude adjustment among salespeople toward technology. Along with training, sales organizations must develop the type of support tools that will allow the salesperson to feel comfortable taking the risk to begin moving down the learning curve on new technology. Often, salespeople have fewer sources of readily available technology assistance versus other organization members due to the inherent isolation of many sales jobs. This added barrier of salesperson isolation necessitates a greater degree of support and different modalities of support than is readily available in more traditional organizational locations and settings.

7. Limitations and future research

Although we were careful to assess the degree to which salespeople in our sampled firms perform sales activities that are consistent with those performed by other salespeople in other industries, one might still view our sample as a limitation. However, as mentioned earlier, the trade-off we had to consider was that salespeople in the limited firms sampled exhibited a similar conceptualization of "technology" and a similar array of available technology for use in their firms. A second potential limitation pertains to the fact that the salespeople queried for this study held positions only in the field. Because they are only one part of the overall sales organization, it may be that our results would not hold for those salespeople who are integral to successful implementation of technology but are not positioned in the field (e.g., inside salespeople, telemarketers, etc.).

Because of the limited amount of prior research on technology acceptance by salespeople, we are enthused about the opportunities to expand on the findings presented in this study. First, although Rogers (1995) has discussed the impact of technological complexity on innovation, most of the empirical studies in the extant literature have examined technology acceptance related to relatively simple end user technologies. A potentially interesting area for future research is whether the constructs and relationships present in this study would be applicable to technologies that are considerably more complex. Would the underlying attitudinal theory of reasoned action be appropriate in the case of technologies that are more intricate and would different relevant antecedent variables emerge that are not present here?

Another opportunity involves longitudinal research methods. By choosing a longitudinal method, the researcher can more closely examine questions concerning change, developmental processes, and causation. Tracking technology acceptance through Rogers (1995) stages of diffusion of innovation could lead to the assembly of a richer information set and might broaden the scope of the relationships of interest.

Finally, a possibility exists that various other constructs may influence the technology acceptance process and the outcomes stemming from that process. Some potential constructs are technology champions, similarity of experience, and the control/reward system utilized by the firm. Each of these would be a worthwhile construct to include in future models.

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