

KEYS TO IMPLEMENTING PRODUCTIVE SALES FORCE AUTOMATION

SCOTT WIDMIER, *University of Akron*

MARK ROSENBAUM, *Arizona State University*

DONALD JACKSON, JR., *Arizona State University*

Salespeople are being armed as never before with automation technology that promises to both deliver vital information where and when needed and to improve communications. The rapid growth of automation is not without problems as for every two successful implementations of SFA there are three failures. The purpose of this research was to extend the understanding of factors that influence the productive adoption of SFA by salespeople. Of the factors investigated, only the presence of an initiative champion had a significant positive impact on the productivity of the SFA initiative. Perceived benefits influenced SFA productivity through its influence on the initiative champion. Initiative training had a significant and positive relationship to sales force involvement. Sales force involvement was not significantly related to SFA productivity.

INTRODUCTION

Sales force technology such as sales force automation (SFA), communication technology, and customer relationship management (CRM) has the potential to streamline the selling process allowing more to be accomplished by fewer sales representatives. A study conducted by C&C Marketing Communications for *Sales and Marketing Management* magazine found that 78 percent of respondents feel that technology is currently easing their jobs and 92 percent felt that technology will make their jobs easier in the future (Colon 1998). Other studies have found the benefits of technology to include decreasing costs (Taylor 1993), enhancing communications (Thetgyi 2000), reducing cycle time (Thetgyi 2000), and better organization and access to information (Lejfer 1999). Some have even gone as far as labeling SFA as an absolute necessity for an organization to stay competitive (Good and Schultz 1997; Peppers and Rogers 1998; Rosen 1999).

However, it has been estimated that for every two successful implementations, there are three failures (Schafer 1997). Given that the cost of automating a sales force can be upwards of \$3,500 per salesperson (Girard 1998), SFA has brought many companies pain rather than profit (Thetgyi 2000). These early reports on the effects of SFA raise more questions than they answer. How can 60 percent of SFA implementations be judged failures when 78 percent of respondents feel that technology is currently easing their jobs? What helps determine the productiveness of a SFA initiative? Few empirical studies have looked at this question, forcing managers to rely on anecdotal evidence gleaned from stories of success and failure. The purpose of this paper is to empirically examine several selected factors that may impact the productivity of sales force automation initiatives.

LITERATURE REVIEW

A broad definition of SFA is the converting of manual processes to electronic processes through the use of various combinations of hardware and software applications (Rivers and Dart 1999). SFA can vary from the relatively simple introduction of

palmtop computers to aid salespeople in the handling and managing of contacts to fully vertically and horizontally integrated systems which allow for the sharing of information among salespeople, customers, managers, and other impacted parties (Rivers and Dart 1999, Gillan 1992). The greater the complexity of SFA, the greater the expenses, impact on salespeople's and management's jobs, overall risk, and opportunities for the SFA initiative to fail (Colombo 1994).

Parathasarathy and Sohi (1997) used diffusion of innovation literature to propose a dual adoption system consisting of adoption by the organization and by the individual salesperson. Both of these groups must support the SFA initiative in order for it to be successful. They identified several organizational, environmental, and salesperson factors that influence the rate of adoption of SFA at the organizational level. The organizations most likely to adopt SFA are relatively large and resourceful, operate in an oligopolistic environment with centralized control, have a high degree of organizational standardization, have high integration into external information, have a well-coordinated vertical marketing system and have a history of adopting technology (Parathasarathy and Sohi 1997). Salespeople most likely to adopt SFA are younger, more educated, adventurous and have more experience with computer technology (Parathasarathy and Sohi 1997). Early adopters can have a positive impact while non-monetary cost, like the time and effort, may have a negative impact on the rate of salesperson adoption.

Parathasarathy and Sohi (1997) make several recommendations for increasing the adoption of SFA by salespeople. First, target the salespeople identified by demographic characteristics as being the most likely to adopt SFA. Second, reduce non-monetary costs by decreasing the amount of time and effort needed to learn and use the system. Third, make SFA adoption voluntary rather than forced. Once volunteer salespeople are seen successfully using and gaining advantages from SFA, other salespeople will be more willing to adopt the technology (Parathasarathy and Sohi 1997). These volunteer salespeople in essence are champions for the adoption of SFA.

Rivers and Dart (1999) empirically examined several factors related to the adoption of SFA by organizations. They found the breadth of the SFA justification procedure, representation of functional areas in the buying group, sales manager's predisposition towards SFA, and CEO participation positively influenced SFA productivity. The degree of involvement by top management in the purchase decision, degree of involvement of sales managers in the decision, difficulty in assessing sales force performance, perceptions of SFA costs, size of the firm, and size of the sales force had no impact on SFA productivity (Rivers and Dart 1999).

Keillor, Bashaw and Pettijohn (1997) investigated the adoption of SFA by salespeople in an empirical investigation of the relationship between experience, productivity, and attitudes towards SFA. They found that experience of salespeople was inversely related to the attitude towards SFA. This relationship was moderated by salespeople's level of productivity with the more experienced but least productive salespeople having the most negative attitudes towards SFA. Based on these findings, the authors postulated that the less experienced salespeople perhaps have more recent training that incorporated technology possibly making training one of the main drivers of their findings (Keillor, Bashaw and Pettijohn 1997).

Unfortunately, both individualism and autonomy characterize American culture and these elements actually work against an easy process of SFA process integration (Baba, Falkenburg and Hill 1996). According to Baba, Falkenburg and Hill (1996), employees may express autonomy by resisting adaptation of SFA, thus impeding learning across the organization. The actions of these intransigent employees as "anti-champions" can be countered or negated either through careful management or the recruitment of salespeople to act as "initiative champions." Empirical research conducted by (Sohal 1996) reiterates a positive relationship between the appointment of an initiative champion and successful adoption of new technologies.

HYPOTHESES

Using information gained from the research summarized above as well as from popular literature, several hypotheses relating to the productive use of SFA by salespeople were created. The following hypotheses identify common constructs relating to the productive use of SFA by salespeople, these factors can be classified into four categories: initiative training, sales force involvement, perceived benefits and initiative champions.

Initiative Training

Initiative training is a very important and often mentioned factor that can influence the productive use of SFA by salespeople. Parathasarathy and Sohi (1997) identify training as one method of reducing salespeople's non-monetary costs of adopting SFA. The prime component of non-monetary costs is time away from being in front of customers or prospects. Training can reduce the time investment of the salespeople in learning the new SFA system resulting in less time away from selling and an overall reduction in non-monetary costs (Parathasarathy and Sohi 1997).

Keillor, Bashaw, and Pettijohn (1997) supported the importance of training when they identified it as one possible explanation for the inverse relationship between experience and attitude towards SFA. Less experienced salespeople may have more recently gone through some form of sales training than more experienced salespeople. Since SFA is a fairly recent addition to sales and to sales training, less experienced salespeople may have received more SFA training than their more experienced brethren (Keillor et al. 1997).

Training has also been proposed as one of the main differences between successful SFA initiatives and failure (Thetgyi 2000, Watad and DiSanzo 2000, Rasmusson 1999, Colombo 1994). Despite the potential importance of SFA training, most companies under-budget the training and provide an average of only four days training, which may not be enough given the level of complexity of most SFA initiatives (Rasmusson 1999, Colon 1998). Thus, the first hypothesis is:

H₁: Initiative training has a positive direct effect on sales force automation productivity enhancement.

Sales Force Involvement

The level of involvement of salespeople in the SFA initiative may have a significant impact on the productive use of SFA (Francis 1998, Colombo 1994). One requirement of a successful SFA initiative is understanding the basic manual process that SFA will replace or supplement (Colombo 1994). Without this understanding there is no guarantee that the technology will even be a viable or useful replacement of the manual processes (Sager and McWilliams 1995). Salespeople have the best understanding of the manual processes, so involving them early may increase the usefulness and productivity of any SFA while avoiding potential pitfalls or problems. In addition, salespeople may feel part ownership of the SFA making them the perfect individuals to "sell" the rest of the organization on the SFA initiative (Francis 1998). Parathasarathy and Sohi (1997) identified organizational wide acceptance as a requirement of success. Thus, the second hypothesis is:

H₂: Sales force involvement has a positive direct effect on sales force automation productivity enhancement.

Perceived Benefits

Salespeople's perception of the purpose behind SFA can have an impact on their support of the SFA initiative. If the SFA being introduced promises to benefit salespeople, through helping them increase sales, then they may support the initiative wholeheartedly (Thetgyi 2000, Francis 1998, Campbell 1998, Gentle 1997). SFA may directly help salespeople increase sales by speeding up the sales-order cycle, increasing the amount and quality of information salespeople have going into sales calls, and/or freeing salespeople to be more creative or spend less time on non-order taking functions (Colombo 1994, Hill and Swenson 1994). SFA may also help salespeople increase customer satisfaction

Keys to Implementing Productive

through a better ability to meet customers' needs (Keillor et al. 1997, Good and Schultz 1997).

On the other hand, if the goal of the SFA initiative is perceived by salespeople as simply a measure to contain costs, or (worse) to gain greater control over salespeople, they may actively resist the initiative and insure that it is unproductive (Rivers and Dart 1999, Parathasarathy and Sohi 1997, Campbell 1998, Gondert 1993, Falvey 1994). This leads to the third hypothesis:

- H₃: The perceived benefit associated with new technology has a positive direct effect on sales force automation productivity enhancement

Initiative Champions

The need for salespeople acting as initiative champions to successfully guide the implementation of SFA is often repeated in the popular press. These initiative champions serve to "preach the gospel of the new technology" (Beatty and Gourdon 1991) as well as to subvert the covert actions of the "anti-technology champions" (Baba et al. 1996). Parathasarathy and Sohi (1997) proposed the importance of early volunteers in adopting SFA to the later adoption of SFA by the rest of the sales force. Initiative champions can serve as examples of the success of the SFA to the rest of the sales force. They also may be a source of both information and support to other less technologically inclined salespeople (Parathasarathy and Sohi 1997).

It is extremely likely that the presence of initiative champions will also increase the effectiveness of SFA training as well as sales force involvement and insure the use of the best SFA technology and procedures given the manual process being converted. When salespeople return to their jobs after training, initiative champions may help to refresh, repeat and enhance the information learned during SFA training (Parathasarathy and Sohi 1997). They also represent a credible source of interpersonal communication about the SFA. Interpersonal information is a very important factor in influencing the decision to adopt a product (Price and Feick 1984). Finally, salespeople

Widmier, Rosenbaum and Jackson

acting as initiative champions who are involved in the earliest stages of planning the SFA initiative may provide the insight needed into the manual processes that are being automated. This leads to the fourth hypothesis:

- H₄: Initiative champions have a positive direct effect on sales force automation productivity enhancement.

METHODOLOGY

Selection of Research Subjects

The study focused primarily on manufacturing companies that employed 1-900 salespeople with an average sales staff of 91. One thousand subscribers to *Sales Marketing and Management* magazine were selected randomly to receive the questionnaire on sales force automation. A mail survey was chosen in order to insure the cross-sectional nature of the sample and to minimize the chances that multiple people from the same organization were surveyed. The cover letter sent with the questionnaire instructed that the questionnaire should be completed only by a salesperson. If the person who received the questionnaire was not a salesperson, he/she was asked to pass the cover letter, questionnaire, and return envelope to a salesperson.

Of the 1,000 questionnaires sent, 42 were non-deliverable due to individuals no longer being at a particular company and one was incomplete and excluded from the analysis. Two hundred-seventeen usable questionnaires were returned for a 22 percent response rate. Twenty two percent is considered a good response rate (Erdogan and Baker 2002). Comparing the first half of the mailings with the second half of the mailings, as well as comparing the first quarter of the mailings with the last quarter assessed the possibility of non-response bias. Such an analysis assumes that the early respondents are more interested in or aware of the topic of study whereas later respondents are more likely to be like non-respondents (Armstrong and Overton 1977). Of the variables tested, no significant differences were detected between the early and the later responses. The typical respondent was male (81 percent of the

sample), university educated (87 percent), had 1 to 20 years selling experience (76 percent) and worked for a manufacturing company (79 percent) that employed 1-50 (78 percent) salespeople.

The Conceptual Model

The proposed model for explaining the relationship between sales force automation productivity enhancement and initiative training, sales force involvement perceived benefits, and initiative champion is depicted in Figure 1. It is predicted that four variables will directly affect sales force automation productivity enhancement in a positive manner.

Variables

All of the measures used in measuring the constructs, along with their means and standard deviations are reported in Appendix A.

Sales force Automation Productivity Enhancement.

This construct was measured with three questions. The first question was assessed by responses to the question, "How has automation affected your productivity?" This question was measured on a seven-point scale where 1 = unproductive and 7 = productive. The second and third questions were responses to the statements, "Overall, I think that the new technology has helped me increase my work efficiency" and "I feel that the new technology has helped me increase my work efficiency," respectively. Both of these questions were assessed on a seven-point Likert scale. The Cronbach's alpha for this measure was .85.

Initiative Training. The construct "Initiative Training" was measured utilizing three statements. All of the statements were measured on a seven-point Likert scale (1 = highly disagree; 7 = highly agree) as perceived benefits. The first measure assessed responses to the statement, "The initiative included extensive training for salespeople to be able to use the technology." The second and third measures were assessed by responses to the statements, "Very little time was given to learn how to use the new technology" and "No training was given. Salespeople

were expected to know how to use the technology," respectively. Both of these statements were reverse coded for statistical analysis. Cronbach's alpha for this construct was .75.

Sales Force Involvement. This construct was measured utilizing two measures. The first measure assessed responses to the statement, "Management didn't ask for input from salespeople when they decided on this initiative"; this statement was reverse coded for statistical analysis. The second measurement assessed responses to the statement, "Salespeople were involved in this initiative from the start." Both questions were measured with a seven-point Likert scale. The Cronbach's alpha of these two statements was .61. However, given that their factor loadings in the structural equation model were both over .50, these measures meet the criteria for convergent validity on the construct.

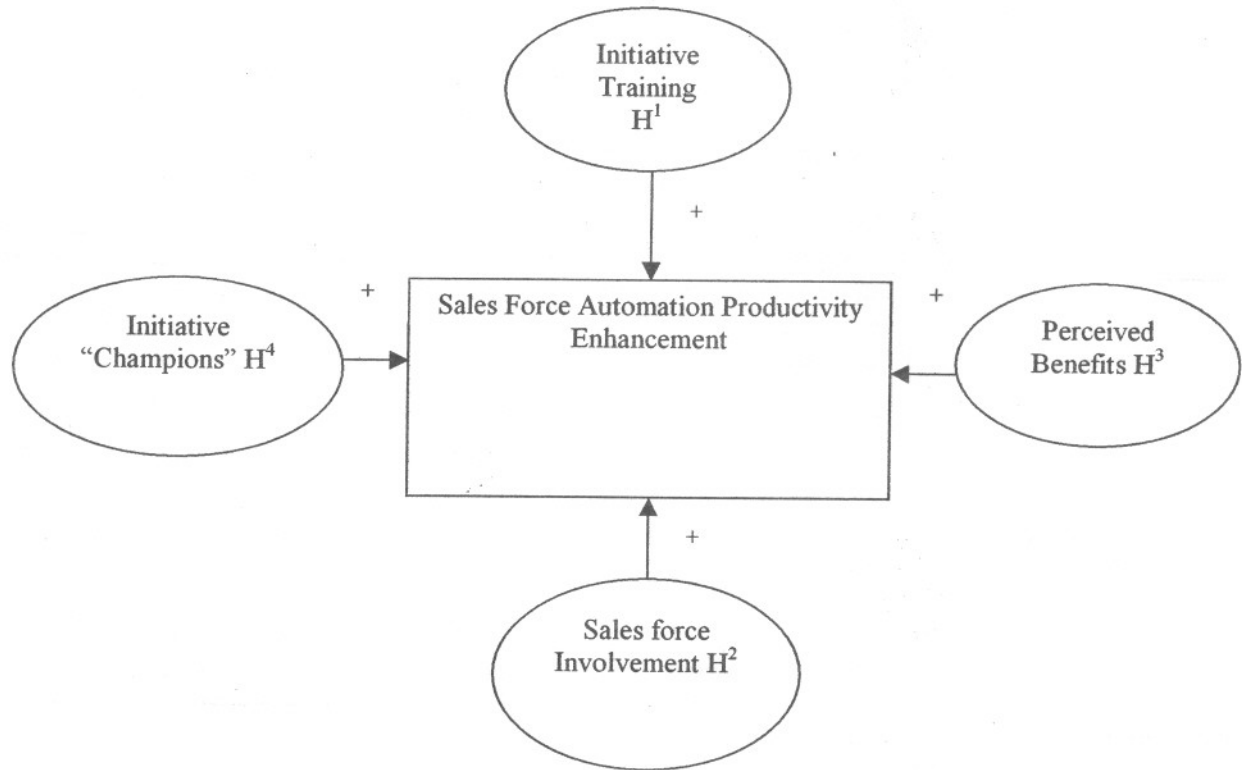
Perceived Benefits. Perceived benefits associated from the implementation of automation was assessed with three measures. The first measure assessed responses to the statement, "This initiative was done to help speed up the sales-order cycle" using a seven-point Likert scale (1 = highly disagree; 7 = highly agree). The second and third measures assessed responses to the statements "This initiative was done to help increase customer satisfaction" and "...to meet the needs of customers," respectively. The Cronbach's alpha for this scale was .72.

Initiative Champions. This construct was measured with a single-item indicator with a seven-point Likert scale. Respondents were asked to consider whether they disagree or agree with the following statement, "This initiative was championed by salespeople." A single item was used because a multi-item scale may decrease the quality of measurement according to (Mittal and Ross 1998, LaBarbera and Mazursky 1983).

RESULTS

Lisrel 8.30 was used to estimate the conceptual model depicted in Figure 1. The resulting model that was found to have the best goodness-of-fit is illustrated in Figure 2. A correlation matrix of the

Figure 1
The Hypothesized Predictors of the Efficacy of Sales Force Automation



variables included in the final theoretical model is presented in Appendix B. All of the correlation values are of a size and in the direction that would be expected.

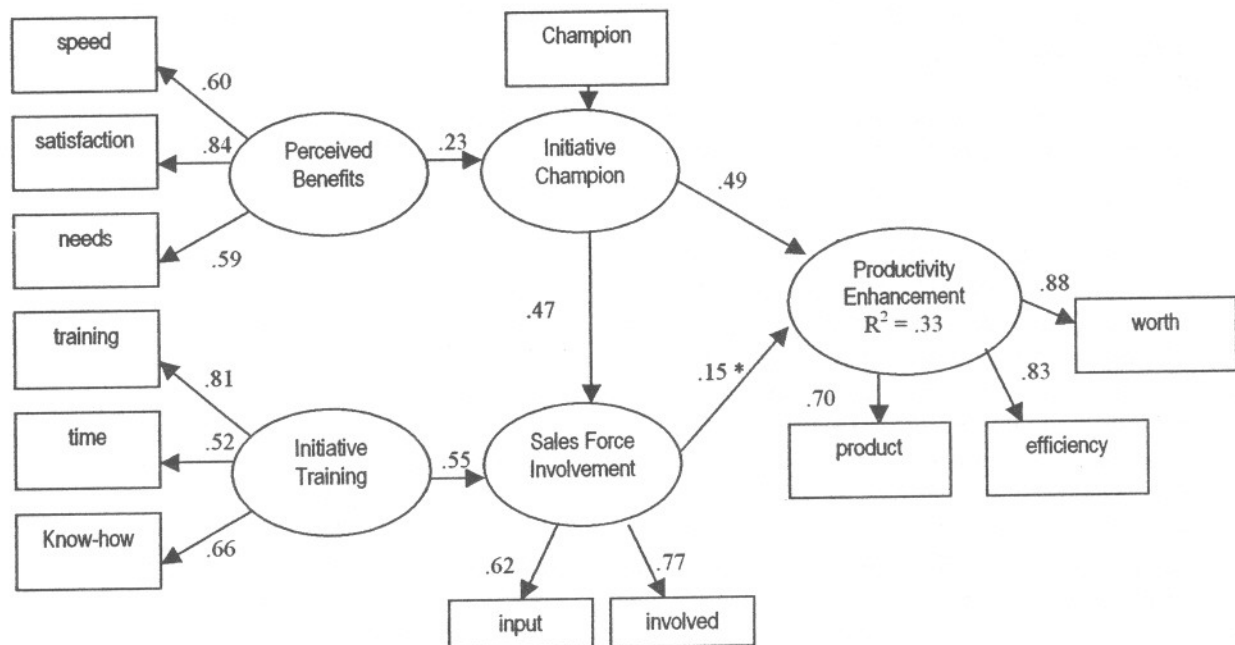
Data were collected for the items comprising each construct and analyzed to examine their reliability and validity. Exploratory factor analysis (principal component analysis with a varimax rotation) was then performed on sets of items to determine whether they represented the constructs. Analysis using Cronbach's alpha coefficient and item-to-total correlation was used to further refine the construct and to eliminate items whose inclusion resulted in lower alpha coefficients. An evaluation of the alpha scores, see Appendix A, illustrates that all the scales exceed the .70 recommended threshold (Nunnally 1978) with the exception of Sales Force Involvement which had a coefficient alpha of .61. Although this alpha is below the threshold, both items in this scale

have path coefficients to the construct that exceed .50, indicating convergent validity. Thus, it was decided to retain both measures in the final model.

The parameter estimates for the relationships depicted in Figure 2 are presented in Table 1. Although only direct effects were predicted in the model, indirect effects, along with error covariances, are reported in the text when they are significant.

The model statistics reported at the bottom of Figure 2 indicate that the theoretical model fits the original data set quite well. The total coefficient of determination for the construct, SFA Productivity, is .33. The Chi-square statistic is low (62.02) and nonsignificant ($p = .06$). The goodness-of-fit index is .95; the adjusted goodness-of-fit is .91, both exceeding the minimum value of .90 which is usually considered acceptable (Bagozzi and Yi 1988, Baumgartner and Homburg 1996). The root-mean-

Figure 2
Structural Model with Completely Standardized Coefficients^a



Goodness-of-fit: $\chi^2(46, N = 187) = 62.02, p = .06$. $GFI = .95$. $AGFI = .91$. $RMSEA = .04$.

^a: variables defined in Appendix A

All paths significant $p < .01$, except those designated by “*”

Table 1
Completely Standardized Coefficients and t-Values

Relationship	Standardized Coefficient	t-value
Speed—Perceived Benefits	.60	6.05
Satisfaction—Perceived Benefits	.84	6.05
Needs—Perceived Benefits	.59	6.03
Training—Initiative Training	.81	5.58
Time—Initiative Training	.52	6.81
Know-how—Initiative Training	.66	5.58
Product—Productivity Enhancement	.70	10.08
Efficiency—Productivity Enhancement	.83	10.08
Worth—Productivity Enhancement	.88	12.28
Involved—Sales Force Involvement	.77	6.35
Input—Sales Force Involvement	.62	6.35
Perceived Benefits—Initiative Champion	.23	2.67
Initiative Champion—Sales Force Involvement	.47	5.25
Initiative Training—Sales Force Involvement	.55	4.61
Initiative Champion—Productivity Enhancement	.49	5.67
Sales Force Involvement—Productivity Enhancement	.15	1.50*

Note: All t-values are significant $p \leq .01$ except those designated with “*” which represents no significance.

square of approximation is .04, thus below the maximum value of .08, which further indicates reasonable model fit (Browne and Cudeck 1993). The variance explained for each of the endogenous variables ranges from .051 for Initiative Champions to .56 for Sales Force Involvement. The fact that Initiative Champions was assessed with only one exogenous variable is most likely a cause of the low R^2 .

Discriminant validity between the endogenous latent variables was examined by performing, one at a time, Chi-square differences tests between a model in which a factor correlation was fixed at 1.0 and the original (unrestricted) confirmatory factor analysis model. Because every restricted model had a significantly poorer fit than the unrestricted model, it is concluded that the degree of discriminant validity was sufficient (Fornell and Larcker 1981). Additionally, convergent validity was examined by analyzing the completely standardized path coefficients on each respective construct; given that all meet or exceed .50, the criteria for convergent validity is met.

Looking at the parameter estimates, Initiative Training had a positive, direct effect on Sales Force Involvement ($b = .55$; $p < .01$) and all of the measures that comprised the construct (Initiative Training) had path coefficients equal to or greater than .50. Thus, the construct (Training) meets the criteria for convergent validity. The statement, "No training was given. Salespeople were expected to know how to use the technology" (which was recoded for statistical analysis) was permitted to correlate with the statements "very little time was given to learn how to use the new technology" (recoded) and "the initiative was done to help speed up the sales order cycle." The correlations were .20 and -.12 respectively and both were significant ($p < .01$). Both of these correlations make theoretical sense because all three variables are attempting to assess a measure of time. Since Initiative Training had only a direct effect on sales force involvement and lacked a direct or indirect effect on Initiative Champions and SFA Productivity, Hypothesis 1 was not supported.

Quite surprisingly, although Sales Force Involvement had a positive, direct effect on SFA productivity, it

was relatively small (.15) and not significant. Thus, Hypothesis 2 was not supported, Sales Force Involvement did not have a direct effect on SFA productivity. Two of the variables between the two constructs, "input" and "efficiency" were permitted to correlate, however, the correlation was small and not significant. In addition to directly effecting SFA Productivity, Initiative Champions had a positive, direct effect on sales force involvement ($b = .47$; $p < .01$). Thus, it appears that Initiative Champions are not only critical in affecting final SFA productivity, but that having Initiative Champions is critical for further encouraging Sales Force Involvement.

The perceived benefits associated with new technology (speed up the sales order cycle, help increase customer satisfaction and meet the customers' needs) all directly affected initiative Initiative Champions ($b = .23$; $p < .01$). All of the three path coefficients that measure the construct, perceived benefits, measure above .50, thus a key criteria for convergent validity is met. Hypothesis 3 was therefore supported, perceived benefits have an indirect effect on SFA Productivity through Initiative Champions.

It is apparent from the standardized coefficient loading illustrated in Table 1 that Initiative Champions had a positive, direct effect on SFA Productivity ($b = .49$; $p < .01$). Thus, Hypothesis 4 was supported, Initiative Champions had a direct effect on SFA Productivity.

DISCUSSION AND MANAGERIAL IMPLICATIONS

This research emphasizes the importance of management involving key salespeople in the implementation of SFA as initiative champions. The presence of these initiative champions has a direct and positive impact on the overall productivity enhancement of the SFA initiative. As early adopters of the SFA technology, initiative champions can showcase the advantages of SFA to the rest of the sales force encouraging greater adoption and use of SFA. In addition, being members of the sales force, information from initiative champions regarding SFA may be perceived as more unbiased than information

coming from managers. Initiative champions also represent a ready source of answers for the less technology savvy salespeople as they go through the process of learning SFA. Instructions delivered through initiative champions may be timely and more directly applied than instructions learned through a training session. Finally, initiative champions recruited out of the sales force may be more knowledgeable than managers in the manual processes being automated, leading to better selection and application of SFA technology.

Managers should be aware that the likelihood of finding initiative champions to support SFA is related to the sales force's perception of the purpose of introducing SFA. Initiative champions were more likely to be present when the perceived purpose of SFA was to increase the sales productivity of salespeople either through reduced sales-order cycle time or increased customer satisfaction. Initiative champions were less likely when the perceived purpose of SFA was to control costs or gain greater control over salespeople. SFA perceived as having direct benefits to the sales force may excite individual salespeople into stepping forward as initiative champions. These positively perceived benefits then become the tools used by initiative champions to increase the involvement of the sales force and increase the productivity of the SFA. Thus, managers should actively downplay the cost containment and/or control aspects of SFA and emphasize the direct benefits of SFA to salespeople in the form of increased productivity and income.

One surprising outcome of this research was that Sales Force Involvement, while positively related to SFA Productivity, did not have a significant impact on it. One explanation for this finding can be found in the nature of the dependant variable. SFA Productivity is an outcome variable that does not measure the characteristics of the process that leads to that outcome. While Sales Force Involvement may not have the impact of an initiate champion on the final outcome of the SFA initiative, it may have significant impact upon the speed and/or efficacy of the automation process. Thus, managers still may want to focus attention on increasing the involvement of the sales force.

One potential tool for increasing the involvement of the sales force in the SFA initiative is the presence of an Initiative Champion. This research showed a significant positive relationship between the presence of an Initiative Champion and Sales Force Involvement. Initiative Champions may serve to communicate benefits of SFA to the sales force that increase the salesforce's involvement with and support of the SFA initiative. Managers may also be able to increase Sales Force Involvement through the use of SFA training. This research showed a significant positive relationship between SFA training and the involvement of the sales force. Training may influence Sales Force Involvement by raising salespeople's awareness of the benefits of SFA and comfort with using SFA.

Training, however, had no significant direct impact on the productivity of SFA in this research. This again may be due to the outcome nature of the dependant measure used in this study. It is possible that training will increase the speed and/or efficacy of the adoption of SFA. Another possibility is that training cannot overcome poor choices made at the start of the SFA initiative. If the automated process proves inappropriate or inferior to the manual process it is designed to replace, no amount of training is going to raise the productivity of SFA. Finally, these results may point to the generally inadequate nature of existing SFA training. According to *Sales and Marketing Management's* third annual "State of Sales and Marketing Technology Study", companies are providing, on average, only four days training, which may not be enough given all of the issues of distance, technical support, and the complications of changing salespeople's behavior (Colon 1998).

LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

As with most research there are several limitations to this study. First, only the outcomes of the SFA initiative, in the form of productivity, was examined in this study. While this was the dependant variable of interest, it is possible that the addition of some process variables would have shed additional light on the effects of perceived benefits, initiative training, initiative champions, and sales force involvement on

Keys to Implementing Productive

SFA initiatives. Future research should look specifically at the impact of sales force involvement and SFA training on the speed and efficacy of the SFA adoption process. This could highlight the importance of these factors to managers faced with the task of initiating SFA.

The second limitation of this study is that it cast a wide net over a large number of companies in order to get a broad view of factors leading to SFA Productivity. While this is totally appropriate given the exploratory nature of this research, little information was gained about the process individual companies went through when initiating SFA. Future research could focus on the SFA initiative from start to finish and examine such issues as when in the course of the initiative did champions arise, when was the sales force initially involved, the quality and length of SFA training, and the stated and perceived purposes of the SFA. While this would limit the generalizability of the findings, it would make for a rich source of data with which to investigate the productivity of SFA.

The third limitation was the study of only a limited set of independent variables. The goal of this research was not to provide an extensive listing and testing of all factors that might impact SFA Productivity. This was an exploratory study focused on some of the main variables identified in both managerial and academic literature. Future research could focus on additional variables such as level of experience with technology, type of industry, and the functions of the sales process being automated.

There are several other suggestions for future research that build from this study. The results suggest an in-depth exploration of initiative champions. Who are these individuals and what makes them become initiative champions? At what points during the process do initiative champions have the greatest impact? The results also suggest an exploration of just what constitutes SFA training. According to *Sales and Marketing Management's* survey, 72 percent of training is through instructor-led classes. How do these compare to other methods such as video training (32 percent), external agency

Widmier, Rosenbaum and Jackson

courses (29 percent), multimedia/ CD-ROM (28 percent)?

SFA research is a new area of research. It is hoped that this article will raise additional interest in research into this increasingly crucial aspect of sales and sales management.

REFERENCES

- Armstrong, S.J., and T.S. Overton (1977), "Estimating Non-Response Biase in Mail Surveys" *Journal of Marketing Research*, (August), 396-402.
- Baba, M., D.R. Falkenburd, and D.H. Hill (1996), "Technology Management and American Culture: Implications for Business Process Redesign," *Research Technology Management*, (November/December), 44-54.
- Bagozzi, R.P., and Yi (1988), "On the Evaluation of Structrual Equation Model," *Journal of the Academy of Marketing Science*, (Spring), 73-94.
- Beatty, C.A., and J.R. Gourdon (1991), "Preaching the Gospel: The Evangelists of New Technology," *California Managment Review*, 33, 73-94.
- Browne, M.W., and R. Cudeck (1993), "Alternative Ways of Assessing Model Fit," In K. A. Bollen and J. S. Long (Eds.), *Testing Structural Equation Models* (pp. 136-162). Newbury Park, CA: Sage Publicatoin.
- Campbell, Tricia (1998), "Beating Sales Force Technophobia," *Sales and Marketing Management*, v150n13(December), 68-72.
- Colombo, George W. (1994), *Sales Force Automation*, New York: McGraw-Hill.
- Colon, Ginger (1998), "Plug and Play: Executives Reveal the Secret to Simplifying Their Jobs and Boosting Their Reps' Performance: Technology," *Sales and Marketing Management*, (December), 64-67.
- Erdogan, B. Zafer, and Michael J. Baker (2002), "Increasing Mail Survey Response Rates from an Industrial Population," *Industrial Marketing Management*, 31, 65-73.
- Falvey, Jack (1994), "On Guard!," *Sales and Marketing Management*, 146(January), 41.

- Fornell, C., and D. F. Larcker (1981), "Evaluating Structural Equation Model with Unobservable Variables and Measurement Error," *Journal of Marketing Research*, (February), 39-50.
- Francis, Bob (1998), "Sales Connection: Sales Force Automation Projects Require Organizational Support," *PC Week*, v15n24(June 15), 121.
- Gentle, Michael (1997), "Sales Force Automation: You are in Trouble When...", *Computerworld*, 31(45), 35.
- Gillan, Clare (1992), "White Paper: Sales Force Automation," *Sales and Marketing Management*, 144(December), 19-30.
- Girard, Kim (1998), "Stats Not Good for Sales Technology," *Computerworld*, v32n14(April 6), 29.
- Gondert, Stephen (1993), "10 Biggest Mistakes of SFA," *Sales and Marketing Management*, 145(February), 52-57.
- Good, David J., and Roberta J. Schultz (1997), "Technological Teaming as a Marketing Strategy," *Industrial Marketing Management*, v26n5(September), 413-422.
- Hill, Ned C., and Michael J. Swenson (1994), "Sales Technology Applications: The Impact of electronic Data Interchange on the Sales Function," *Journal of Personal Selling and Sales Management*, 14(Summer), 79-88.
- Keillor, Bruce D., R. Edward Bashaw, and Charles E. Pettijohn (1997), "Salesforce Automation Issues Prior to Implementation: The Relationship Between Attitudes Toward Technology, Experience and Productivity," *Journal of Business and Industrial Marketing*, v12n3-4(Summer), 209-220.
- LaBarbera, Priscilla A., and David Mazursky (1983), "A Longitudinal Assessment of Consumer Satisfaction/ Dissatisfaction: The Dynamic Aspect of the Cognitive Process," *Journal of Marketing Research*, (November), 393-404.
- Lejfer, Sidney (1999), "Bringing Business Intelligence to Sales Force Automation," *The American Salesman*, v44n5(May), 26-30.
- Mittal, Vikas, and Jr. William T. Ross (1998), "The Asymmetric Impact of Negative and Positive Attribute-Level Performance on Overall Satisfaction and Repurchase Intentions," *Journal of Marketing*, (January), 33-47.
- Nunnally, J.C. (1978), *Psychometric Theory* (Vol. 2nd), New York: McGraw-Hill.
- Parathasarathy, Madhavan, and Ravipreet S. Sohi (1997), "Salesforce Automation and the Adoption of Technological Innovations by Salespeople: Theory and Implications," *Journal of Business and Industrial Marketing*, v12n3-4(Summer), 196-209.
- Peppers, Don, and Martha Rogers (1998), "Don't Resist Marketing Automation," *Sales and Marketing Management*, v150n9(September), 32-34.
- Price, L.L., and L.F. Feick (1984), "The Role of Interpersonal Sources in External Search: An Informational Perspective," *Advances in Consumer Research*, v11n1, 250-256.
- Rasmusson, Erika (1999), "The 5 Steps to Successful Sales Force Automation," *Sales and Marketing Management*, (March), 35-40.
- Rivers, L. Mark, and Jack Dart (1999), "The Acquisition and Use of Sales force automation by Mid-Sized Manufacturers," *Journal of Personal Selling and Sales Management*, v19n2(Spring), 59-73.
- Rosen, Michele (1999), "Arming the Sales force," *Insurance and Technology*, v24n2(February), S4-S5.
- Sager, Ira, and Gary McWilliams (1995), "Do You Know Where Your PCs Are?," *Business Week*, (March 6), 73-74.
- Schafer, Sarah (1997), "Supercharged Sell," *Inc., Technology Supplement*, v19n9(June), 42-51.
- Sohal, A.S. (1996), "Assessing AMT Implementation: An Empirical Field Study," *Technovation*, (August), 377-384.
- Taylor, Thayer C. (1993), "Getting in Step with the Computer Age," *Sales and Marketing Management*, (March), 52-59.
- Thetgyi, Olivia (2000), "Radical Makeovers: How Three Companies Use Strategic Planning, Training, and Support to Implement Technology on a Grand Scale," *Sales and Marketing Management*, (April), 78-88.
- Watad, Mahmoud M., and Frank J. DiSanzo (2000), "Case Study: The Synergism of Telecommuting and Office Automation," *Sloan Management Review*, v41n2(Winter), 85-96.

Appendix A
Scale Items, Means and Standard Deviations

The following statements were measured on a 7-point Likert scale. 1=Highly Disagree; 7=Highly Agree		
The questionnaire read: The following section asks questions regarding the implementation of automation in your company. In order to answer the following questions, please recall the latest automation of a selling function that was initiated by your company.		
Perceived Benefits	1. The initiative was done to help speed up the sales-order cycle (speed) 2. The initiative was done to help increase customer satisfaction (satisfaction) 3. The initiative was done to meet the needs of customers (needs) Coefficient alpha = .72	5.26/1.54 5.61/13.1 5.14/1.60
Initiative Training	1. The initiative included extensive training for salespeople to be able to use the technology (training) 2. Very little time was given to learn how to use the new technology (recoded) (time) 3. No training was given. Salespeople were expected to know how to use the technology (knowhow). Coefficient alpha = .75	3.78/1.76 4.31/1.82 4.97/1.98
Sales Force Involvement	1. Salespeople were involved in this initiative from the start (involved) 2. Management didn't ask for input from salespeople when they decided on this initiative (recoded) (input) Coefficient alpha = .61	4.53/1.84 5.03/1.94
Productivity Enhancement	1. How as the automation affected your productivity (scale is 1-7, 1=unproductive; 7 = productive) (product) 2. Overall, I think this initiative was worth the time and money spent on it (worth) 3. I feel that the new technology has helped me increase my work efficiency (efficiency) Coefficient alpha = .85	5.36/1.12 5.46/1.44 5.72/1.41
Project Champion	1. This initiative was championed by salespeople (champion)	4.38/1.76

Appendix B
Correlation Matrix for Variables Included in the Structural Model

	Product	Efficiency	Worth	Speed	Satisfaction	Needs	Training	Time	Know-how	Involved	Input	Champion
Product	1.00											
Efficiency	.628**	1.00										
Worth	.698**	.728**	1.00									
Speed	.203**	.078	.140*	1.00								
Satisfaction	.254**	.142*	.248**	.484**	1.00							
Needs	.264**	.165*	.224**	.385**	.488**	1.00						
Training	.107	.161*	.176*	.099	.187**	.173*	1.00					
Know-how	.059	.176*	.148*	-.036	.046	.104	.440**	1.00				
Involved	-.062	.083	.046	-.068	.129	.065	.524**	.550**	1.00			
Input	.190**	.258**	.241**	.045	.256**	.105	.390**	.247**	.240**	1.00		
Champion	1.80*	.268**	.222**	-.007	.197**	.101	.311**	.313**	.337*	.491**	1.00	
	.342**	.437**	.492**	.081	.230**	.107	.189**	.038	-.065	.394**	.238**	1.00