

## Examining the Role of Information and Communication Technology to Improve Job Satisfaction

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### ABSTRACT

Empirical research relevant to the role of information and communication technology (ICT) in shaping business to-business salesforce jobs satisfaction remains relatively scarce. The authors propose and empirically test a causal model that theoretically represents structural relationships among factors comprising ICT and resulting salesperson job satisfaction. The finding of the study also indicate that information technology has no direct effect on job satisfaction except for the situations that the firms are high technology-oriented. However, administrative skills simplify the effect of ICT on job satisfaction. Also results indicate that ICT indirectly influences job satisfaction through salesforce administrative performance. While ICT infrastructure, training and support positively relate to administrative performance, none of them influence outcome performance significantly. In addition, salesperson technology orientation moderates the effect of both ICT infrastructure and support on job satisfaction. Managerial insights and implications from the research are discussed. Besides, we concluded that salespeople technology-orientation attenuate the influence of ICT infrastructure and support on job satisfaction.

**Key words:** Information and communication technology, job satisfaction, administrative performance, outcome performance, technology orientation

### INTRODUCTION

Nowadays, the firms are increasingly fund in ICT infrastructure, training and support. Of course, it's because they're inclined to enable their salesforce and increase their sales task abilities efficiently. Researches highlight the salesforce activities containing market intelligence, customer related management and extend sales prediction for increasing communication technologies (Gohmann *et al.*, 2005). Consequently, we can state that modern and information technology are critical and vital for the growth of the firms and increasing B2B salesforce performance. Certainly, CT has a critical impact on salesforce job performance and job satisfaction. Therefore, the sales literature has paid attention to adaption and employing information technology applications to fulfil the salesforce performance. A broad range of studies

have paid attention to salesforce automation (SFA) and CRM as two distinct sales technologies. Salesforce automation refers to the computer hardware and software's that are used by salespeople to substitute handy tasks with electronic processes (Erffmeyer and Johnson, 2001; Rivers and Dart, 1999). CRM or customer related management manages customer interplay and transactions using technology (Zoltners *et al.*, 2001). Researchers discuss that nowadays salespeople use extensive technologies that may not be organizable in the none of the categories of CRM and SFA (Hunter and Perreault Jr., 2006; Marshall *et al.*, 2012). As a result, Hunter and Perreault Jr. (2006, 2007) used a new phrase with wider meaning entitled "sales technology" for all kinds of information technologies used for sales-related tasks and outcomes. The definitions have been used, concentrated on information technologies and they didn't pay to

Table 1: Review of major empirical models in the sales technology literature

Authors	Sales technology	Exogenous variables	Endogenous variables
Speier and Venkatesh (2002)	SFA	Individual traits, role perceptions, organization characteristics	Individual perceptions of technology, person-technology fit, subjective outcomes, objectives
Jones <i>et al.</i> (2002)	SFA, TAM*	Salesperson attitudes and characteristics, normative and control beliefs	Infusion, intention to use
Rangarajan <i>et al.</i> (2005)	SFA	Task complexity, perceived usefulness	Role ambiguity, role conflict, effort, infusion
Schillewaert <i>et al.</i> (2005)	SFA, TAM	Social influence, salesperson characteristics, organizational facilitators, subjective social norm	Usefulness, ease of use, usage
Jelinek <i>et al.</i> (2006)	SFA	Individual differences, organizational factors, contextual influences	Intention to adopt, adaptation, sales performance
Park <i>et al.</i> (2010)	SFA	Usage	Information proceeding, adaptive selling behavior, sales performance, relationship quality
Eggert and Serdaroglu (2011)	SFA	Supervisor support, facilitating conditions	Technology usage, sales performance
Ahearne <i>et al.</i> (2007)	CRM	Acceptance	Sales performance
Ahearne <i>et al.</i> (2004)	CRM	Usage	Sales performance
Sundaram <i>et al.</i> (2007)	SFA, CRM	Prior attitude toward information technology	Prior intention to use, routinization, infusion, sales performance
Hunter and Perreault Jr. (2006)	ST	Internal technology support, customer approval, sales experience	Sales technology orientation, information effectiveness, planning, adaptive selling behaviors
Hunter and Perreault Jr. (2007)	ST	Training, customer's information technology expectations	Usage, relationship-forging tasks, sales performance
Mathieu <i>et al.</i> (2007)	ST	Work experience, leader commitment, empowering leadership	Self-efficacy, usage, sales performance
Ahearne <i>et al.</i> (2008)	ST	Usage	Sales performance
Onyemah <i>et al.</i> (2010)	ST	Perceived technological savvy of sales manager, coworkers and competitors	Perceived monitoring of salesperson's activities, technology usage, sales performance
Shim and Viswanathan (2007)	TAM	System features	Perceived ease of use, perceived usefulness

\*TAM: Technology acceptance model

communication technology that's more general. In B2B selling communication technologies are very important. As a result, we see that nowadays skilled salesperson use extensive range of communicational systems including smartphones, apps, blogs, social networks, data ware houses and so on. So it can be said that these days salesforces use diverse communicational technologies that are out of the framework of SFA, CRM and ST (Hunter and Perreault Jr., 2006; Marshall *et al.*, 2012). For instance, pharmaceutical sales offices recently use e-detailing application based on complex and modern ICT including video conference, on line video presentation and social networks (Alkhateeb and Doucette, 2008). To perceive the importance of ICT on salesforce performance and job satisfaction we employed a holistic approach in our study. The CT has been explained well and used extensively in the literature and includes the technologies of computer communication and network, technical platforms and data base on air media and audio and video processing (Chung and Hossain, 2010; Schaper and Pervan, 2007). Without doubt ICT is a critical subject that needs to be researched well, because it has a significant importance in those organizations that employing new and sophisticated ICTs emerge in B2B selling (Marshall *et al.*, 2012). Second, the research examines the impact of firm s ICT infrastructure and support that haven't been well-researched. Applying ICTs can affect job satisfaction and outcome; hence the salespersons are using ICTs increasingly and have become a necessary part to accomplish their daily tasks. However, the firms keep on investing in ICTs especially in B2B industries. This study pays attention to the tendency and efficacy of salesforce capability to use ICT in order to meet job satisfaction. Moreover, as

turnover is too costly, the firms should try to retain salesforces. Third the former study was initially based on sales bulk as the main measure of the performance (Ahearne *et al.*, 2008). The two major dimensions of salesforce performance including administrative performance and outcome performance have been researched in the recent study (Sundaram *et al.*, 2007). Yet we know little about the outcome of these two dimensions. Researchers emphasize the significance of salesforce-related administrative performance and suggest more research about the impact of sales technology on dimensions of sales performance (Sundaram *et al.*, 2007). So in this study this suggestion will be researched. At last, although the relationship between job performance and job satisfaction has been researched for decades but their relationship has been remained as a continuing discussion. In related to this relationship there are two viewpoints in the existing literature: Which one leads to another? (i.e., job performance and job satisfaction). For the past few decades researchers are more inclined to this viewpoint that job performance has positive but weak relationship on job satisfaction (Brown and Peterson, 1993, 1994). Based on this controversy the second subject we examine whether different dimension of job performance apply different influence on job satisfaction. We can infer three branches of studies according to the former research on B2B personal selling. As shown in Table 1, the existing research on salesperson technology concentrate on SFA (Erffmeyer and Johnson, 2001) and shows great effect of SFA on sales performance (Jelinek *et al.*, 2006) and productivity according to the development, account view and shoppers profiling (Pullig *et al.*, 2002). The efficacy of sales related CRM (Ahearne *et al.*, 2007) and the influence of CRM on salesforce

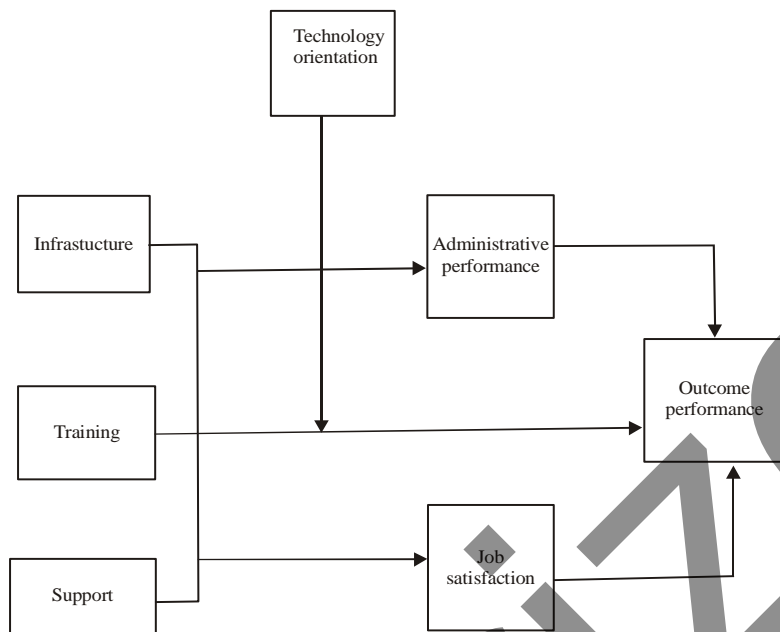


Fig. 1: Conceptual framework of information and communication technology and job satisfaction

outcome (Ahearne *et al.*, 2008) and finally call productivity all have been investigated in the second branch of studies. However, the last branch of study present the sales technology that contain information technologies that pave the way for easy and powerful performance of sales tasks (Hunter and Perreault Jr., 2007). Most sales research studies rely on a narrow concept of sales technology with a focus on a specific sales technology package and its impact on sales effectiveness. However, not all B2B salespersons access and use such information technology resources (e.g., SFA and CRM). Rather, in most cases, firms install and maintain a common set of ICTs that are used by employees, including the salesforce.

Since ICT has a significant effect on B2B selling, it's important to perceive the overall role of ICT that leads to job performance and satisfaction.

Several models and theories advocate the suggested model (Fig. 1) including social exchange theory, job traits model of motivation and balance theory. According to the social exchange theory our behavior shaped by exchange of rewards among us. The effects of job traits on job outputs are defined by model of work motivation and finally the psychological theory of balance that seeks consistency. Factors within ICT, have effects (direct and indirect) on job satisfaction using output and administrative performance. As you see in Fig. 1, the relationship between three ICT external and internal constructs has been shown. The technology-oriented we refer to, is the natural tendency of the salesperson and required analytical skills for exerting some firm specific ICTs in doing sales-related works and duties. This orientation moderates the relationship between job satisfaction and ICT related factors. External constructs of ICT include infrastructure, training and

support. By infrastructure we mean underlying systems including workforce, hardware and software and modern internet applications that are needed to promote the firm. Training pay attention to enough ICT trainings, the salesperson need to use the ICT instruments effectively and finally support includes inputs needed for using ICT resources efficiently. Moreover, it may involve skilled work force, manning a help desk, the center for answering users ICT related questions, handling the troubles and reachable supports (Bhattacharjee and Hikmet, 2008). As Sundaram *et al.* (2007) define too, administrative performance refers to this reality that to what extent ICTs will influence time management, reporting and planning of the salesperson. Hunter and Perreault Jr. (2007) mention "preparing needed report on time" as an example of salespersons administrative performance. Also outcome performance refers to the sales results of salesperson influenced by technology" (Sundaram *et al.*, 2007). It also shows the quantitative results of his efforts (Baldauf *et al.*, 2005).

### IMPACT OF ICT FACTORS ON SALESPERSON PERFORMANCE AND JOB SATISFACTION

During several decades different models tried to suggest, describe and evaluate the effects of designing jobs on job satisfaction. For instance, in a well-known model entitled "job characteristics model" presented by Hackman and Oldham (1976), they express that job characteristics affect job satisfaction according to physiological states. For instance, skill variety and the importance of the task that an employee does, gives him/her a feeling of meaningfulness and responsibility. Besides, it seems that job enrichment leads to

job satisfaction by making the job challenging and interesting by giving the job additional dimensions including variety, independence, control and feedback (Umstot *et al.*, 1976). However, this suggestion that job characteristics affect motivation, performance, satisfaction and perceptual processes have been surveyed well in the literature (Loher *et al.*, 1985; Thatcher *et al.*, 2002). It's suggested that Job enrichment can enhance employee job satisfaction using further opportunities for growth, achievement and recognition (Neuman *et al.*, 1989). However, based on this suggestion, the present study emphasizes on the ways to achieve job satisfaction by endeavors to enrich the job. The study concentrate on job characteristics related to ICT field. The study suggests that investing in infrastructure training and support are enrichment attempts that affect salesforce perceptions about the firm and ultimately enhance their job satisfaction. Another attempt suggests that investment in information technology resources is positively related to the success of a firm (McKenney, 1995). This research propose that salesforce productivity can be increased by improving ICT infrastructure. Moreover, it has been suggested that skill utilization is a strong sign for predicting job satisfaction (Glisson and Durick, 1988). Firms investment in ICT resources is positively related to job satisfaction because the skills are significant for using ICT efficiency. According to the social exchange theory when a person encounter positive encouragement from other people is probably enhance positive attitudes and behaviors (Blau, 1983; Gouldner, 1960). It also adds that all of our relationship s follow cost-benefit analysis and looking at alternatives (Homans, 1958). Cropanzano and Mitchell (2005) states that when employers advocate their employees and put forward effective work behavior and positive attitudes of employees, the social exchange relationship probably occur. However, if employers use this theory, it is expected that firm's investment in job enrichment be an important factor in determining salespersons outputs. Therefore this study predicts as below:

- **H1a:** Infrastructure investment relates positively to job satisfaction
- **H1b:** Infrastructure investment relates positively to administrative performance
- **H1c:** Infrastructure investment relates positively to outcome performance

Prior survey proposes that training of salesforce is positively related with salesforce productivity (Farrell and Hakstian, 2001; Roman *et al.*, 2002). Based on social exchange theory our attitudes and behaviors emerge from the existing exchange between two sides and are often something more than an economic exchange (Blau, 1983). We can view at the relationship between ICT training and ICT performance as a product of social exchange theory. Salesforces that have more training, probably have more positive job-related performance and attitude because salesforce as a perception assumes ICT training as an organizational support. The perception emerges from this vision that organization attends to the employee's welfare and advocates their concerns:

- **H2a:** Training relates positively to job satisfaction
- **H2b:** Training relates positively to administrative performance
- **H2c:** Training relates positively to outcome performance

According to the social theorists organizational support can greatly determine the employees outcomes such as organizational commitment, citizenship behavior, job performance, obligation to the organization and decreased absenteeism (Eisenberger *et al.*, 2001). According to the organizational support theory and considering social exchange theory, employees enhance their attempts to do their organizational tasks in line with organizational willing and capability to exchange with desirable socioemotional resources (Aselage and Eisenberger, 2003), so it seems that this theory be proper to perceive the existing relationship between ICT support and employee performance. Similarly, it can be concluded that organizational support affect job satisfaction in different ways consists of interaction between performance and reward, referring to socioemotional needs and available help when needed (Rhoades and Eisenberger, 2002). The theory of organizational support proposes that director's actions and attitudes toward ICT affect employee's behavior. It's because organizational support decreases the existing tensions within the firm using emotional back up for salesforce (Rhoades and Eisenberger, 2002). Whatever the support be more, the salesforces feel they're happier and their job is more desirable. They also do their best to help the organization to fulfill its goals. Moreover, they tend to show their high commitment for applying ICT tools. Therefore, considering these discussions we can propose that ICT support has a positive relationship to salesperson outcome performance, job satisfaction and finally administrative performance:

- **H3a:** Support relates positively to job satisfaction
- **H3b:** Support relates positively to administrative performance
- **H3c:** Support relates positively to outcome performance

#### **Relationship between job performance and job satisfaction:**

In order to show this relationship we need theoretical support. We can use balance theory for attaining theoretical support to clarify the existing relationship between job performance and job satisfaction. The positive job performance probably leads to job satisfaction (Locke, 1970). Some former studies have been conducted that show positive relationship between these two variables (Behrman and Perreault Jr., 1982; Christen *et al.*, 2006). So based on this theory we can state that administrative performance and outcome performance are main criteria that increase job satisfaction of salesperson and positively relate to the job satisfaction.

- **H4a:** Administrative performance relates positively to sales job satisfaction
- **H4b:** Outcome performance relates positively to job satisfaction

**Moderating effect of salesperson technology orientation:**

Salesforces who are technology-oriented are able to use new and talented technologies better and more efficiently than those with low level of technology orientation to fulfill their job necessities. Organizational ICT tools including training, support infrastructure and salesforce technology alone may not lead to better job performance and job satisfaction. Increased performance leads to more efficacy and ultimately appears in the form of greater job satisfaction. According to Devaraj and Kohli (2003) the importance of IT is not in the investment in the technology but is in its application. Previous researches showed that technology-orientation influence the salesperson effective use of information about customers (Hunter and Perreault Jr., 2006; Sundaram *et al.*, 2007). Consequently enhanced performance leads to high efficacy and ultimately to job satisfaction:

- **H5a:** Technology orientation moderates the relationship between infrastructure and job satisfaction in such a way that a firm's ICT infrastructure will be a significant positive predictor (not significant) of job satisfaction when salesperson technology orientation is high (low)
- **H5b:** Technology orientation moderates the relationship between training and job satisfaction in such a way that a firm's ICT training will be a significant positive predictor (not significant) of job satisfaction when salesperson technology orientation is high (low)
- **H5c:** Technology orientation moderates the relationship between support and job satisfaction in such a way that a firm's ICT support is a significant positive predictor (not significant) of job satisfaction when salesperson technology orientation is high (low)

**METHODOLOGY**

**Samples and procedure:** The data we used to investigate pharmaceutical representatives gathered by a company marketing research that's located in Iran. The pharmaceutical industry is increasingly growing their production. These are some reasons for choosing this industry: First, the availability of an extensive range of ICTs. Second, amongst these firms the support, infrastructure and training revolve. Third, they're professional salespeople. Fourth, the employer isn't capable of curbing technology thoroughly (Speier and Venkatesh, 2002; Sundaram *et al.*, 2007). Thirty large and medium companies chosen and wanted their wide list of the sales representatives. Among them 11 obliged so 562 remained, 440 representatives who had more than 3 years' experience remained. The researchers chose the sample based in seven main cities. The questionnaire tested for readability, clarity and sensibility using nine sample of nine representatives. The respondents are informed of voluntarily and confidentiality of the responses. The last meeting of respondents with physician was determined as base of the answers. Those hadn't physician visit excluded and therefore 305 remained. Twenty five of responses were uncompleted and excluded. Two hundred and

Table 2: Sample characteristics

Sample size	280 pharmaceutical sales representatives
Average work experience	5 years Male = 88% Female = 12%
Age	Median age = between 26 and 56 years
Company types	Domestically-owned company = 100%
Drug types	Prescription drugs = 53.2% Over-the-counter (OTC) = 13.5% Both = 35.9%
Physicians visited	General = 32.2% Specialist = 44.2% (dentist, ophthalmologist, pediatrician, gynecologist, cardiologist, neurologist) Both = 18.9%

eighty respondents or in other words 69% of them remained that their average experience was about six years. Ninety five percent of respondents were men with the age between 26 and 56 years old. A majority of them represent prescription drugs (53.2%), with 13.5% involving over the counter drugs and 35.9% involving both. The physicians they visited consist of general practitioners (32.2%), specialists (44.2%) and a mixture of both (18.9%). Specialists were include of dentists, ophthalmologists, pediatricians, etc (Table 2).

**Measurement:** Measurement items that have ever been used extensively in earlier researches are indicated in Table 3. We used three item scale of Cammann *et al.* (1983) to measure job satisfaction. Moreover, a partly modified scale of Sundaram *et al.* (2007) salespersons' outcome performance was measured using seven point scale. Salespersons were asked "to what extent has ICT influenced the quality of your performance" (Behrman and Perreault Jr., 1982; Hunter, 2004). Also three item scale chosen from Sundaram *et al.* (2007) was used to evaluate administrative performance (Behrman and Perreault Jr., 1982; Hunter and Perreault Jr., 2007).

This measure evaluates the quality of salespeople (call planning), time management and reporting to the overseers. Chen and Tsou (2007) four items was used to evaluate infrastructure. Rich information system literature yields this measure (Bharadwaj, 2000; Ross *et al.*, 1996; Weill *et al.*, 1996). Considering item reliability, correction and discriminant validity tests from CFA we deleted one item and added another one. We deleted "Our company has emphasized ICT stuffing and training". The added item that was used to indicate the disposition of our research was "Our Company has embraced sophisticated communication application. Three items scale from the work of Roberts *et al.* (1994) and Johlke (2006) was used to admeasure ICT training. In addition, scale of Hunter and Perreault Jr. (2006) has been chosen to evaluate ICT support. The item of "I feel that I need more help with ICT than I get" deleted because it was a poor factor. Finally, the scale of Hunter and Perreault Jr. (2006) was used to measure salesperson technology orientation including 3 items: "I extensively use ICTs to accomplish my job" and "I try to link different ICTs so that they work together well".

## RESULTS

By using structural equation modeling with the use of maximum likelihood estimation the hypothesized relationships were estimated. The CFA preceding an estimation of the implied structural theory (Hair *et al.*, 2010) through estimation of the measurement theory with the two-stage analytic technique have to follow the estimation of the hypothesized model. The CFA was used to estimate construct validity and measurement theory quality. So the structural relations among ICT factors, job performance and job satisfaction were evaluated. Moreover, we used a multi-group analysis in AMOS for testing the moderating effect of technology orientation.

**Measurement model:** A confirmatory factor analysis with five latent constructs and 18 items was performed to determine the model fitness. The goodness-of-fit indices for the measurement model are:  $\chi^2_{(152)} = 258.195$ ,  $p < 0.001$ ; Goodness-of-Fit Index (GFI) = 0.91; Root Mean Square Error of Approximation (RMSEA) = 0.042 and Comparative Fit Index (CFI) = 0.96. All indices are a reasonable fit for a model of this complexity and this sample size as indicated in Hair *et al.* (2010). We, therefore, interpret the overall model fit as acceptable and turn toward other indicators of construct validity. Table 3, shows that all factor loadings are significant and higher than 0.5 and are supporting convergent validity (Gerbing and Anderson, 1988). For all hypothesized constructs Average Variance Extracted (AVE) estimates and are higher than 0.52 and construct reliabilities are higher than 0.72 (Hair *et al.*, 2010). Thus, both AVE and construct reliabilities together, they support convergent validity of the measurement model. Since the AVE by each latent variable's measure was larger than the squared inter-construct correlation (Table 4),

discriminant validity is also demonstrated (Fornell and Larcker, 1981). According to our independent and dependent variables we acknowledged the Common Method Bias (CMB). Therefore, we tested CMB by using Harman's single-factor test on items included in our measurement model. The result of factor analysis revealed that the first factor explained only 30% of the variance which shows that CMB does not appear to be a serious problem in the data (Podsakoff and Organ, 1986). In addition, a solution including a measurement factor does not significantly improve fit, providing further evidence of a lack of CMB (Hair *et al.*, 2010).

**Hypothesis testing:** The fit indices for the hypothesized model are with the guidelines from Hair *et al.* (2010) ( $\chi^2_{(153)} = 259.9$ ,  $p < 0.001$ ; GFI = 0.94; RMSEA = 0.042; CFI = 0.95).

**Direct effects:** The result of hypotheses 1a-1c in Table 5 predicts that ICT infrastructure is positively related to job satisfaction, outcome performance and administrative performance, respectively but do not support a direct effect of infrastructure on job satisfaction ( $\beta = 0.065$ ,  $t = 0.549$ ,  $p > 0.05$ ) and outcome performance ( $\beta = 0.085$ ,  $t = 0.822$ ,  $p < 0.05$ ). However, infrastructure significantly predicts administrative performance ( $\beta = 0.360$ ,  $t = 3.24$ ,  $p < 0.01$ ). Hence, hypothesis 1b is supported but hypotheses 1a and 1c are not. Hypotheses 2a-2c explains a positive impact of ICT training on job satisfaction, administrative performance and outcome performance, respectively. Results do not support the hypothesized training-job satisfaction relationship ( $\beta = 0.042$ ,  $t = 0.155$ ,  $p > 0.05$ ) and training-outcome performance ( $\beta = 0.271$ ,  $t = 1.11$ ,  $p > 0.05$ ) relationships. However, as shown in Table 5, training significantly and positively relates to administrative performance ( $\beta = 0.589$ ,  $t = 2.28$ ,  $p < 0.05$ ). Thus, these results indicate support for hypothesis 2b but not

Table 3: Measurement items, standardized CFA factor loadings, Average Variance Extracted (AVE) and composite reliabilities

Constructs and items	Factor loading	Composite reliability	
Job satisfaction		0.82	0.64
I am satisfied with my job	0.758		
I like working at my company	0.879		
Infrastructure		0.88	0.66
Our company has allocated a generous budget for purchasing ICT hardware	0.756		
Our company has allocated a generous budget for purchasing ICT software	0.771		
Our company has embraced sophisticated Internet applications	0.859		
Training		0.76	0.56
I have received enough ICT training to do my job well	0.642		
The ICT training that I have received is useful	0.782		
Support		0.88	0.67
My company adequately equips me with ICT tools	0.821		
My company has adequately supported me on the use of ICT in my sales job	0.814		
Administrative performance		0.87	0.72
ICT improved my planning ability	0.822		
ICT improved my reporting ability to my supervisor	0.832		
Outcome performance		0.84	0.55
Help in identifying major accounts in the territory and promote sales to them	0.684		
Assist in generating sales of company's new products	0.713		
Help in meeting sales targets	0.763		
I extensively use ICTs to perform my job	0.837		
I try to link different ICTs so that they work together well	0.812		
Compared to others in salespeople, I am technology oriented	0.620		

for hypotheses 2a and 2c. Consistent with hypothesis 3b, ICT support positively enhances sales administrative performance ( $\beta = 0.443, t = 2.11, p < 0.05$ ); however, it does not influence job satisfaction ( $\beta = 0.009, t = 0.040, p > 0.05$ ) or outcome performance ( $\beta = 0.249, t = 1.06, p > 0.05$ ). Thus, hypotheses 3a and 3c are not supported. As predicted by hypothesis 4a, administrative performance positively relates to salesperson job satisfaction ( $\beta = 0.212, t = 2.02, p < 0.05$ ). Similarly, outcome performance positively impacts job satisfaction ( $\beta = 0.384, t = 3.92, p < 0.001$ ), supporting hypothesis 4b.

**Indirect effects:** For testing the significance of the indirect effects, authors estimate the indirect effects of ICT factors on job satisfaction through administrative performance using the bootstrap estimation procedure in AMOS. Results reveal a significant and positive indirect effect of infrastructure on job

satisfaction ( $\beta = 0.351, p < 0.01$ ) through administrative performance. Similarly, the indirect effects of support on satisfaction ( $\beta = 0.142, p < 0.05$ ) and training on satisfaction ( $\beta = 0.212, p < 0.05$ ) via administrative performance are significant.

**Moderating effects:** In this section we separate the sample into high and low technology orientation groups by following the moderation analysis using the multi group analysis in AMOS procedure. Then by following conventional procedures author tested invariance between two groups (Hair *et al.*, 2010). Therefore first to compare a constrained model which imposes equality constraints on the parameters across groups with an unconstrained baseline model that allows these parameters to vary across groups. Second, to examine the detriment in relations with the structural invariance constraint a chi-square difference for moderation is tested. Results showing that the technology orientation as a moderator changes the relationship between ICT factors and job satisfaction, therefore, the unconstrained and constrained models differ ( $\Delta\chi^2 = 35.898, df = 4, p < 0.05$ ). Table 6 shows the results of the individual variable moderation analysis. Significant chi-square differences exist for invariance constraints on the infrastructure  $\rightarrow$  job satisfaction ( $\Delta\chi^2 = 4.56, df = 1, p < 0.05$ ) and support  $\rightarrow$  job satisfaction ( $\Delta\chi^2 = 2.76, df = 1, p < 0.1$ ) coefficients. Thus, H5a have a significant positive influence of infrastructure on job satisfaction in the high technology orientation group ( $\beta = 0.776, p < 0.05$ ). However, infrastructure is not a significant predictor of job satisfaction ( $\beta = 0.071, p > 0.05$ ) due to low technology orientation group. This suggests that the influence of ICT infrastructure on the salesforce's job satisfaction is significantly higher when their technology orientation is high than low. Similarly, hypothesis 5c predicted, that ICT support is a stronger predictor of job satisfaction when technology orientation is high ( $\beta = 0.502, p > 0.10$ ) than low ( $\beta = 0.083, p < 0.05$ ). In other words, ICT support is more important for the salesforce with higher levels of technology orientation. Contrary to the prediction (hypothesis 5b), technology orientation does not moderate the relationship between ICT training and job satisfaction. This means that the role of ICT training is not significantly different between the high ( $\beta = 0.212, p > 0.05$ ) versus the low ( $\beta = 0.041, p > 0.05$ ) technology orientation groups. Overall, the results support a moderating role of technology orientation on the relationship between ICT factors and job satisfaction.

Table 4: Inter-construct correlations and descriptive statistics

Parameters	1	2	3	4	5	6
Infrastructure	1.00					
Training	0.76	1.00				
Support	0.71	0.72	1.00			
Outcome performance	0.51	0.54	0.54	1.00		
Administrative performance	0.44	0.73	0.71	0.50	1.00	
Job satisfaction	0.32	0.41	0.41	0.41	1.00	
Mean	4.90	5.02	5.02	5.43	5.31	5.11
Standard deviation	1.24	1.32	1.28	0.92	1.26	1.16

Significant at the 0.01 level

Table 5: Structural parameter estimates

Parameters		Estimate	SE	t-value	p
Job satisfaction	$\leftarrow$ Infrastructure	0.065	0.124	0.549	0.579
Administrative performance	$\leftarrow$ Infrastructure	0.360	0.113	3.24	0.001***
Outcome performance	$\leftarrow$ Infrastructure	0.085	0.086	0.822	0.408
Job satisfaction	$\leftarrow$ Training	0.042	0.319	0.155	0.873
Administrative performance	$\leftarrow$ Training	0.589	0.320	2.28	0.21*
Outcome performance	$\leftarrow$ Training	0.271	0.245	1.11	0.262
Job satisfaction	$\leftarrow$ Support	0.009	0.198	0.04	0.967
Administrative performance	$\leftarrow$ Support	0.443	0.209	2.11	0.033*
Outcome performance	$\leftarrow$ Support	0.249	0.166	1.06	0.279
Job satisfaction	$\leftarrow$ Administrative performance	0.212	0.097	2.02	0.044*
Job satisfaction	$\leftarrow$ Outcome performance	0.384	0.102	3.92	***

\*\*\* $p < 0.001$ , \*\* $p < 0.01$  and \* $p < 0.05$

Table 6: Summary of moderation analysis

Hypothesized paths	(t-value)		Tests for invariance	
	High	Low	$\Delta\chi^2 (\Delta df = 1)$	Significance
Infrastructure $\rightarrow$ job satisfaction	0.776 (2.30)**	0.071 (0.828)	4.56	***
Support $\rightarrow$ job satisfaction	0.502 (1.909)*	0.083 (0.514)	2.76	*
Training $\rightarrow$ job satisfaction	0.212 (0.723)	0.041 (0.313)	0.83	ns

\*\*\*Significant at 0.05 level, \*\*at 0.10 level, ns: Not significant

## DISCUSSION

We examined the impact of Firms job characteristics and job enrichment endeavors including ICT training, infrastructure and support on salesforce job satisfaction. We found that ICT increases salesforce efficiency. Moreover, it was converted to a necessary part of B2B sales representative's daily task. The findings also demonstrate that ICTs is positively and indirectly related to salesforces job satisfaction via administrative performance. In other words, ICT training, support and infrastructure leads to better administrative tasks that ultimately influences salesperson's job satisfaction. Whereas the firms have ongoing contest in employing sales technology efficiently to enhance their income, sales managers are enforced to justify the sales technology investments (Petersen, 1997; Speier and Venkatesh, 2002). However, our findings give the managers a hand to justify the investment in the salesforce technology, training and support. Nowadays, B2B firms should not depend on out of date and traditional technologies for sales. It's because an extensive collection of new and up to date technologies are increasingly presented and the managers should accept to use them. In line with the vast and ongoing use of ICTs including blogs, mobile applications, social media and network etc., in B2B selling the companies should be careful to employ salespeople with good ability to learn how to use ICTs resources. Also, training programs should call out previous existing preventions among salespeople with low technology-orientation. According to the findings the inherent tendency of salesforce and his/her expertise for applying ICT tools positively affect sales task and job satisfaction. Salespeople who are more technology-oriented, as support, training and infrastructure increases, they indicate higher levels of job satisfaction. As a result the firms may be inclined to enhance the salesforce willingness to adopt and apply ICT tools in their routine job activities. Moreover, findings show that salespeople and to the great extent older ones, encounter with technophobia and being sought to use only a few technology tools among the existing technologies (Donaldson and Wright, 2004; Greenberg, 2004; Parthasarathy and Sohi, 1997; Speier and Venkatesh, 2002). Since nowadays most of the B2B shoppers use online trade networks, salespeople are to increase their technology-orientation to keep pace with opponents and make effective bilateral relationships. Consequently, the critical and significant notions for the managers will be intentionally employing the salespeople with ability for acquiring and using ICTs to be in line with technology progress in their tasks. An exclusive finding of this study is the greater conducive impact of ICTs on administrative performance rather than outcome performance. Of course this fact is in line with arbitrary wisdom that ICTs applications are highly used to make the selling tasks easier and more convenient rather than enhancing the sales bulk directly. The managers should organize their endeavors in order to improve sales related ICTs training,

infrastructure and support that make the selling task easy. However, the manager should not suppose the administrative performance trivial and insignificant because sales-related administrative jobs are very important to build efficient relationships with customers to produce sales. Moreover, administrative jobs supply what the sale task need, that is they're supplementary. The relationship between the dimensions of job performance and job satisfaction is the another significant outcome of our study. Salesperson's outcome performance influence job satisfaction more positively than administrative performance. So the results present more vindication for the firm's investment in ICTs that are related to sales generation. In addition ICT training courses should highlight both administrative performance and outcome performance (sales-oriented skills). Based on balance and social exchange theories and job characteristic model of Oldham in our study we enjoyed the marketing literature suggesting and examine the existing relationship among the job enrichment endeavors and sales ICTs related skills and job satisfaction. Although some researchers suggest direct influence of information technology on the satisfaction (Counte *et al.*, 1985; Henry and Stone, 1995). The finding of the study also indicate that information technology has no direct effect on job satisfaction except for the situations that the firms are high technology-oriented. However, administrative skills simplify the effect of ICT on job satisfaction. Besides, we concluded that salespeople technology-orientation attenuate the influence of ICT infrastructure and support on job satisfaction. Ultimately, our research employing a holistic approach used a term more general than SFA and CRM, entitled sales technology and contributed well to the literature in this field.

We encountered some limitations in doing this research. First, collected our data in Pharmaceutical sales agents in Iran and in a specific points. The researchers in the future can collect data in the more extensive cultural, demographical and geographical regions or markets. Moreover, since more variabilities can influence job satisfactions, the next studies can cover the relationship between the salesperson's individual characteristics including the need for applying information technologies, perceived innovative works and self-efficacy in the relationship between ICT and job satisfaction. In addition, more studies should be done to show the relationship between demographic variables including age and gender and also education on job satisfaction. Studies suggest that special motivational factors cause job satisfaction in the work environments whereas the lack of hygiene factors lead to dissatisfaction (Herzberg *et al.*, 1959). According to our study results ICT by itself doesn't directly lead to job satisfaction and it depend on salespersons technology orientation. When the salespeople's technology - orientation is low, CT doesn't lead to job satisfaction and vice versa. Moreover, the researchers can practically examine the two dimensions of Herzberg's motivational-hygiene theory.



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