Article

The Roles of Sales Technologies for Salespeople: Techno Demands and Resources Model Perspective

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Abstract: The purpose of this study is to examine the effects of a salesperson's techno-demands and techno-resources created by new sales-related information technology on salespersons' attitudinal and behavioral outcomes such as job burnout, job satisfaction, turnover intention, and sales performance. In order to test the proposed framework, data were collected from 305 salespeople in Korea. The results of a partial least squared structural equation modeling (PLS-SEM) analysis showed that techno-demands have a significant positive effect on salespeople's job burnout and techno-resources have a significant positive effect on salespeople's job satisfaction. Salespeople's job burnout has a significant positive effect on salespeople's turnover intention, whereas salespeople's job satisfaction has a significant positive effect on salespeople's sales performance. Finally, salespeople's job satisfaction has a negative effect on turnover intention. Theoretically, this study develops a new comprehensive framework of the techno demands–resources model and is empirically tested in the context of salespeople. Managerially, the findings offer important insights to practitioners to leverage techno-resources to accelerate the sales technologies for sales activities.

Keywords: techno-stress; techno-resources; job burnout; job satisfaction; turnover intention; sales performance

1. Introduction

The business processes of companies and sales organizations have become increasingly complex for customer engagement and customer-relationship building. In particular, sales organizations are interested in satisfying customer needs and building competitive advantage through the advancement of sales technology, improvement of sales processes, and re-educating the sales forces [1]. Without a well-organized and dynamic sales department against market changes, it will not be easy to achieve corporate goals [2]. In selling, salespeople play an important role in delivering value to customers. In fact, salespeople are powerful marketing resources in a digitalized business environment because they play a role in responding to changes in the sales environment in general and sales organizations in particular [3].

However, due to the advancement and change in new digital technology, salespeople are directly or indirectly affected by the process of continuously putting in technological efforts. The digital work environment of companies is accelerated by the development of digital and information technology, and the COVID-19 pandemic, that maximizes work efficiency, productivity, and performance [4–6]. A salesperson's emotional response to the rapidly developing technological changes in sales information has a positive or negative effect on the performance of a company [5–7]. In the sales literature, studies have mainly focused on the positive effects of information technology on salespeople [5,8] and the negative effects [9,10]. The prior literature on technology and sales is divided into three main streams. First, researchers have investigated the negative effects of information

technology such as technostress [11,12], and negative behavioral outcomes such as job burnout [10,13]. Second, studies on the influence of moderating variables on reducing the stress of information technology on salespeople [14,15] were conducted. Third, researchers also examined the positive outcomes of the use of new technologies such as sales-related information systems (including apps) [16,17]. However, these existing studies have the following limitations.

First, the main concern of the existing research was the technostress of salespeople that may occur due to information technology, and its antecedents and consequences. It is said that various factors such as complexity, invasion of privacy, and uncertainty, which are characteristics of sales technology or information technology, induce stress or negatively affect performance as a source of stress itself. In some studies [14,15], the moderating effects of several factors (personality characteristics, time management, and self-efficacy) that can reduce these stresses were investigated. However, there are limited studies that empirically verify resources such as information technology support, supervisor's support, and coworker's support. Second, there is a lack of research on the effects of new sales-related information technology on salespeople and the effects of these variables on salespeople's emotional responses and performance. Therefore, a process approach to measure the effect of technology demand and resources on the salesperson's emotional response and performance is needed. Third, there is a lack of research on the relationship between technical factors and sales performance mediated by the influence of salespeople on emotional responses. Therefore, it is necessary to study the effect of sales-related information technology on sales performance through the mediation of salesperson's job burnout and job satisfaction.

In order to overcome the limitations of previous studies, this study aims to comprehensively study the effects of technology demands and resources on the attitudinal and behavioral outcomes of salespeople. In doing so, this study offers the following contributions to the literature. First, the present study proposes a techno- demands and resources model by examining the effects of the technical factors of information technology rather than the job characteristics, which are the core components of the traditional job demand and resources model. Second, this study offers a comprehensive understanding of the positive and negative mediating effects of new information technology on turnover intention and sales performance through job burnout and job satisfaction. This study is intended to provide practical implications for salespeople to minimize the negative impact that may arise from new sales-related information technology and to maximize the positive impact of new sales technologies for salespeople.

2. Theoretical Background

2.1. Job Demands–Resources Model

Job demand is defined as a condition in which a salesperson has too much work to do or must complete a task in a limited time frame [5,18]. When these job demands are consistently excessive, salespeople's performance gets in the way and negatively impacts their ability to achieve goals or future performance. Salespeople feel a lot of physical and mental strain when they receive unreasonable work demands, and emotional exhaustion or exhaustion triggers a physical response; it is said to have a negative impact on job performance and organizational performance [19,20]. Dormann and Zapf (2004) defined customer-related stress as a job demand by reflecting on the social situation that occurs in the process of interaction between a salesperson and a customer [21]. And salespeople who experience uncomfortable relationships with customers experience job burnout such as reduced personal achievement, depersonalization, and emotional burnout. On the other hand, job resources play a functional role in achieving work goals, helping salespeople achieve their work goals, and helping individuals grow and develop [22,23]. Job resources can increase extrinsic motivation because they are a positive means for achieving job goals. Job resources have been studied as an important antecedent variable that predicts job commitment. The positive impact of occupational resources on individuals and organiza-

tions has been demonstrated in numerous studies [22]. In explaining the sub-concepts that describe these job resources, researchers have suggested autonomy, social support, and feedback from supervisors [24,25].

2.2. Techno-Demands

In this study, a salesperson's techno-demand refers to various technical elements that constantly require mental and physical effort due to new sales-related information technology (including systems, apps, etc.) in job situations. Salespeople must adapt and respond quickly to changing job demands, often constantly evolving with new information technologies. Salespersons generally encounter stress, difficulties, and role conflicts caused by information technology in direct contact with customers [5]; so, salespersons must continuously adapt and respond to these situations, and in this process, techno-demand may occur [7,26]. In previous studies, many analyses have been conducted on job stress, which is the physical and emotional cost caused by a salesperson's job demands [27,28]. However, research on the techno-demand that arises from the rapidly changing information technology environment and personal separation is clearly different from job-related physical and emotional stresses and, thus, needs the attention of researchers.

There have been few studies on techno-demand, but various studies on techno-stress, a similar concept, have been conducted. Brod (1982) defined techno-stress as a state in which individuals and organizations feel inadequate in the process of adapting and striving to introduce and operate new technologies [29]. The researcher argued that techno-stress is a modern disease that occurs when people have difficulty learning and acquiring new computer skills. Studies have also revealed that it has a negative impact on individual health [27]. Techno-stress and techno-demand are common phenomena as they are the outcomes caused by the introduction of new information technology. Therefore, the present study examines the technology-related stresses such as techno-demand. Techno-stress, a state caused by a lack of operational adaptation efforts following the introduction of new information technology, occurs mainly in the ICT industry. Tarafdar et al. (2007) presented techno-stress as techno-overload, techno-invasion, techno-complexity, techno-insecurity, and techno-uncertainty [6]. In the present study, the five techno-stresses presented by Tarafdar et al. (2007) are considered as a salesperson's techno-demands [6].

Specifically, techno-overload occurs when salespeople are forced to do more work and perform faster work due to sales information technology. The techno-invasion occurs when a salesperson's life is infringed by new sales information technology. Techno-complexity arises as salespeople experience difficulties in the process of learning, acquiring, and handling information technology. Techno-insecurity occurs when a salesperson feels the insecurity of a job being lost or changed by another skilled person, robot, or other computerized program. Finally, there is techno-uncertainty that arises from thinking that salespeople will use ever-changing computer hardware and software, and that information technology will continue to change in the future.

2.3. Techno-Resources

Techno-resources are defined as a variety of sales-related information technology supports including organizational technical support, supervisor technical support, and co-worker technical support to the salesperson to achieve sales goals. Techno-resources are meant to stimulate salesperson growth, learning, and development. Techno-resources generate intrinsic motivation, increase job satisfaction, and maximize work efficiency and performance. Technology resources will help salespeople grow and develop by providing them with a better technological working environment [5]. In previous studies, it was found that job resources composed of various resources supported by companies and organizations such as social support, performance feedback, and techno-training are positively related to salesperson's positive behavioral outcomes [8,30]. Social resources that can come from human relationships, such as supervisor support and peer support eventually reduce

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job burnout. It was said that through this, salespeople would have a positive effect on their inner behavior with various support from companies and organizations [31].

Inferring from the results of previous studies on the positive effect of job resources, it is expected that an organization's technical resources for salespeople will help improve performance. However, since there is no study on the clear conceptual definition and components of technical resources yet, these definitions and sub-dimensional identification need to be preceded. Therefore, in this study, pre-interviews were conducted with eight salespeople to define the concept and dimension of techno-resources. These salespeople were engaged in various fields such as insurance sales, technology sales, energy sales, and education app sales. As a result of the interview, it was confirmed that a salesperson's techno-resources can be composed of techno-education, supervisor support, organizational information technology support, and coworker support. The first is information technology training support related to sales at the organizational level. It is to support the training required by the change in new information technology. Second, another form of techno-resource is the supervisor's support for information technology. Third, is the technical support from the IT support department, which means receiving technical support from the IT department. Finally, coworker support refers to information technology support from colleagues which comprises advice, coaching, and support from coworkers.

2.4. Job Burnout

Burnout often occurs when salespeople, medical field, and department store salespeople work in contact with customers and clients. The concept of job burnout is a product of long-term stress and is a collection of physical and emotional responses. Job burnout is defined as a phenomenon that appears as a result of emotional exhaustion [32,33]; job burnout was said to be a negative psychological response experienced by long-term exposure to stress [34]. Schaufeli and Enzmann (1998) defined job burnout as a negative emotional, psychological, and physiological reaction caused by excessive exposure of organizational members to long-term work environments [35]. McFarland and Dixon (2020) stated that it is difficult for a salesperson whose job is exhausted to return to the state before job exhaustion [36]. Maslach (1982) examined job burnout in three sub-dimensions: emotional exhaustion, depersonalization, and a decreased sense of personal achievement [33].

2.5. Job Satisfaction

Job satisfaction refers to the response to an individual's internal and external needs that are satisfied in the process of performing a job. Job satisfaction was defined as a state of emotional or emotional satisfaction as a result of the evaluation of the job environment based on the salesperson's values, attitudes, beliefs, and desires [37]. In another study, job satisfaction is defined as the satisfaction of needs that salespeople obtain or experience in their jobs [38].

Job satisfaction affects the service quality of salespeople, which is a key and driving force in the development of an organization which subsequently affects the business growth and profitability of the organization [39]. An important reason to promote job satisfaction is that when a salesperson who is satisfied with their job faithfully performs the given task, it creates a high performance and lowers turnover intention, which leads to loyalty with the organization [40].

The components of job satisfaction include intrinsic factors such as the job itself and job achievement, and external factors such as remuneration, interpersonal relationships in the workplace, working conditions, and working environment [41]. As for the components of job satisfaction, it was argued that independent variables should be focused on the characteristics of the job itself rather than environmental factors. In a study on the effect of organizational member autonomy and job demands on job satisfaction, it was found that autonomy had a positive effect on job satisfaction, and it was confirmed that job demands had a negative effect [42]. In addition, the relationship between the manager and the salesperson had a positive effect on sales performance, job satisfaction, and organizational

motivation. And it was confirmed that job satisfaction had a negative effect on turnover intention. Through this, it was said that technical discretion should be given to salespeople, and job satisfaction should be increased through various support programs between managers and salespeople [43].

2.6. Turnover Intention

The turnover intention was said to indicate the attitude of a salespersons not wanting to stay in the current organization for a long time. It was defined as expressing the attitude of the mind to leave the current organization at any time without attachment to the job [44]. Turnover intention is the stage immediately before the act of turnover. Turnover and turnover intention is a process of action that is connected with one flow, and the final act of turnover is achieved through the interaction of various factors.

Several studies on turnover behavior have shown that turnover intention is the direct antecedent of turnover [45,46]. In previous studies on the function and effect of turnover, it was said that turnover has a negative effect on the organization in general and that they are seeking ways to control or alleviate voluntary turnover [47]. Darrat et al. (2016) showed that salespeople are emotionally exhausted due to an abundance of work stress because of the nature of their roles, which leads to turnover and turnover intention [48]. In addition, the researcher argued that by providing various career development opportunities to salespeople, voluntary and non-voluntary turnover intentions could be alleviated.

2.7. Sales Performance

Sales performance has been defined in different ways by different researchers. Sales performance is defined as an evaluation of a salesperson's behavior or ability in the course of sales activities [49]. Sales performance is divided into behavior performance and outcome performance [50]. Behavioral performance refers to the salesperson's work knowledge, customer relationship, kind behavior, coworker relationship, and sales-related skill acquisition [51], and outcome performance is sales volume, sales, profitability, contribution profit, and total number of customers and the number of new customers [50].

In the prior literature, Inyang and Jaramillo (2020) found that salespeople have a positive effect on sales performance when they are willing to execute sales strategies [52]. Plouffe et al. (2009) identified variables that affect salesperson sales performance are sales-orientation and customer-orientation (SOCO), adaptive selling, service behavior, and sales, and found that adaptive sales and sales techniques affect performance, but sales-orientation/customer-orientation and service behavior do not have such an influencing relationship [53]. Verbeke et al. (2011) conducted a meta-analysis by categorizing the variables that affect a salesperson sales performance into five categories, based on sales studies conducted from 1982 to 2008 [54]. As a result of the study, it was found that selling-related knowledge, adaptability, role ambiguity, aptitude, and work engagement had an effect on sales performance. In addition, it was found that the effect of the subcategory variables divided into the five categories of the salesperson's sales performance was controlled by the sales type, situation, and research method. In Chawla et al. (2020), technical drivers of sales performance, demands (perceived roles such as techno-stress creators and digital age stressors), job control, and work-related social support were added as important variables influencing sales performance [50].

3. Hypotheses Development
3.1. Techno-Demands and Job Burnout

The adoption of new technologies in sales organizations puts a lot of technological pressure on salespeople [6,55]. Based on the transactional model of stress (Lazarus and Folkman, 1984), studies have found that perceived workplace stresses, including techno-stress, lead to negative workplace outcomes [6,55,56]. New technology adoption in sales organizations will be challenging for the salespeople, which results in psychological discomfort. In other words, if salespeople do not respond flexibly to the adoption of new technologies,

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they may experience physical or psychological fatigue. The job demands–resources model also argued that job-related stressors including technology could have positive effects on strain, such as emotional exhaustion and job burnout [18,57]. Maier et al. (2019) stated that technology-related stressors have positive effects on job burnout [58]. Similarly, in the prior study, Khedhaouria and Cucchi (2019) studied the impacts of techno-stress on managers and found that techno-stress lead to negative behavioral outcomes, such as exhaustion and high burnout [59]. Based on the findings of these studies, it is argued that techno-demands, which are primarily the technology-related stressors for salespeople, could have positive effects on the burnout of salespeople in sales organizations. Thus, the following hypothesis is proposed:

H1. *Techno-demands will have a positive (+) effect on job burnout.*

3.2. Techno-Resources and Job Satisfaction

The adoption of new technologies to facilitate the sales process has many positive outcomes for an organization. Salespeople can use new information technologies to improve their efficiency and sales performance [50]. Organizations that provide technological support to their employees help them to adopt the technology quickly [60]. Technical training support and support from supervisors and colleagues have a positive effect on job enthusiasm, which enhances organizational commitment, commitment to the organization, and increases job satisfaction [8,61]. Technical support from the IT support department also increases job satisfaction by increasing organizational members' confidence in technology [62]. Based on these studies, the present study infers that techno-resources have a significant positive effect on salespeople's job satisfaction. Thus, we propose the following hypothesis:

H2. *Techno-resources will have a positive (+) effect on job satisfaction.*

3.3. Job Burnout and Turnover Intention

Job burnout is closely related to variables that reduce the productivity of employees in terms of reducing job satisfaction [63], organizational commitment [64], heightened absenteeism [65], and turnover [66]. It was found that salespersons who experienced a lot of job stress in sales activities experience job burnout, resulting in an increase in turnover intention and departure [66]. Similarly, studies showed that job burnout was found to directly affect turnover intention as an antecedent variable [48,67]. Thus, from the findings of the previous studies, it has been shown that various stress factors related to jobs and customers cause job burnout, and through this, job burnout has a significant effect on turnover intention [68,69]. Hence, in the context of the present study, we propose that the new technologies in sales trigger job burnout, which could have an effect on the turnover intention of salespeople. Thus, we propose the following hypothesis:

H3. *Job burnout will have a positive (+) effect on turnover intention.*

3.4. Job Burnout and Sales Performance

Job burnout of employees have negative organizational outcomes. Studies in the past have shown that a high level of job burnout leads to low sales performance [27,70]. Specifically, Bakker et al. (2008) found that salespeople burnout in general and experience emotional exhaustion in particular have a positive effect on the performance of the employees [27]. In another study, Kim et al. (2017) confirmed that job burnout mediates the effects of job level and task performance of the employees [71]. Based on the findings of the above studies and according to the job demands–resources model, the present study argues that the job burnout of salespeople could have a negative effect on sales performance. Thus, we propose the following hypothesis:

H4. *Job burnout will have a negative (−) effect on sales performance.*

3.5. Job Satisfaction and Sales Performance

Researchers have given exclusive attention to examining the relationship between job satisfaction and job performance [72–74]. Job satisfaction increases job satisfaction and organizational commitment, which further enhances the motivation for work that eventually leads to better sales performance [72,75]. Another meta-analytical study by Bowling (2007) found that job satisfaction had a significant impact on sales performance [76]. The job satisfaction of salespeople has a negative effect on turnover intention and showed slightly different results depending on age, tenure, and employment agency [77,78]. In a study on the effect of job stress and job satisfaction on the turnover intention of organizational members, job satisfaction was found to have a negative effect on turnover intention [43,79,80]. Based on the job demands–resources model, the present study argues that job satisfaction of salespeople has a positive effect on sales performance and a negative effect on turnover intention. Thus, it is proposed that:

H5. *Job satisfaction will have a positive (+) effect on sales performance.*

H6. *Job satisfaction will have a negative (−) effect on turnover intention.*

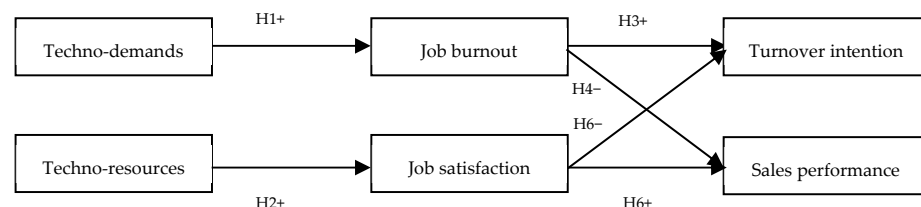Figure 1 shows the research model of the study.

Figure 1. The research model.

4. Method

4.1. Sample and Data Collection

In order to empirically test the proposed framework, a quantitative study was conducted through an online survey procedure to assess the salespeople's techno-demands, techno-resources, job burnout, job satisfaction, turnover intention, and sales performance. The online survey was conducted targeting salespeople of companies where the new information technology has already been introduced, in Korea. The period of the survey was from 21 March 2022 to 30 March 2022. The online panel was approached by a specialized research company that secured more than 800,000 people, and the sample was collected by age, such as those in their 20s, 30s, 40s, and 50s, and data were collected without any other allocation.

Frequency analysis was performed to analyze the demographic characteristics of respondents of the total 305 sample size. Based on gender, 207 (67.9%) were male, and 98 (32.1%) were females. By age group, 60 salespeople were in their 20s (19.7%), 78 salespeople were in their 30s (25.6%), 79 salespeople were in their 40s (25.9%), and 88 salespeople were in their 50s (28.9%). Table 1 shows the results in detail.

Table 1. Sample Profile.

Demographic Characteristics	Frequency	Percentage
Gender		
Male	207	67.9%
Female	98	32.1%
Age		
20–29	60	19.7%
30–39	78	25.6%
40–49	79	25.9%
50–59	88	28.9%

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Table 1. *Cont.*

Demographic Characteristics	Frequency	Percentage
Marital status		
Married	181	59.3%
Un-married	117	38.4%
Others	7	2.3%
Job experience		
Less than one year	60	19.7%
One year	79	25.9%
Two years	60	19.7%
Three years and above	106	34.8%
Types of company		
B2C	205	67.2%
B2B	76	24.9%
B2G	9	3.0%
Overseas sales	15	4.9%
Total	305	100%

4.2. Measurements

Techno-demands were defined as "various technical factors that continuously require mental and physical effort due to new sales-related information technology (including systems, apps, etc.) while performing their duties". To measure techno-demands, we used the techno-stress scale [6], which was divided into five dimensions such as techno-overload 5 items, techno-invasion 4 items, techno-complexity 4 items, techno-insecurity 5 items, and techno-uncertainty 4 items. Techno-resources consisted of four dimensions: 'techno-education, 'supervisor support', 'coworker support', and 'IT department support'. To measure techno-education, we used 4 items [8], supervisor support was measured by 4 items [61], and coworker support by 4 items [61]. IT support was measured by 3 items from [62]. Job satisfaction was measured by 6 items taken from the study [81]. Turnover intention was measured by 5 items from Mobley (1977) [82]. Sales performance was assessed by 5 items, suggested by Babin and Boles (1996) [83]. All these constructs were measured by using a 5-point Likert scale. Finally, to measure job burnout, a 10 item short questionnaire suggested by Malach-Pines (2005) was used, and it was measured on a 7-point Likert scale [84]. All of the measurement items are given in Table 2.

Table 2. Results of confirmatory factor analysis.

Constructs	Scale	Loadings	α	rho-A	CR	AVE
Techno-overload	TO1: I am forced to work much faster with new sales technologies (including systems and apps).	0.86	0.83	0.83	0.90	0.75
	TO2: My new sales technology is forcing me to do more work than I can handle.	0.86				
	TO3: New sales technology has forced me to work on a very tight schedule.	0.87				
Techno-invasion	TI1: I spend less time with my family due to new sales technology.	0.85	0.87	0.88	0.91	0.72
	TI2: New sales technologies make it necessary to keep in touch with work-related contacts even while on vacation.	0.83				
	TI3: I have to sacrifice time to stay up to date on new sales technologies.	0.84				
	TI4: I feel that my privacy is being invaded by new sales technology.	0.88				

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Table 2. *Cont.*

Constructs	Scale	Loadings	α	rho-A	CR	AVE
Techno-complexity	TC2: It takes a long time to understand and use new sales technology.	0.82	0.82	0.84	0.89	0.74
	TC3: I do not find enough time to study and upgrade my new sales technology.	0.89				
	TC4: I often find it too complex for me to understand and use new sales technology.	0.86				
Techno-insecurity	TIN4: I do not share my knowledge of sales technology with my coworkers for fear of being replaced.	0.93	0.78	0.81	0.90	0.81
	TIN5: I am increasingly reluctant to share my knowledge of sales technology with coworkers for fear of being replaced.	0.88				
Techno-uncertainty	TUN3: The sales technology hardware changes frequently.	0.95	0.81	0.92	0.91	0.84
	TUN4: The sales technology networks that are used in sales are frequently upgraded.	0.88				
Techno-education	TED1: I am impressed with the educational program for sales technology.	0.87	0.86	0.88	0.91	0.71
	TED2: I have a good impression of the educational program in sales technology.	0.84				
	TED3: Ongoing training program in sales technology is valuable for the business.	0.86				
	TED4: Ongoing educational programs related to sales technology are relevant to my work.	0.80				
Supervisor support	SSUP1: When I have difficulty with sales technology, my supervisor provides different types of support.	0.92	0.95	0.96	0.96	0.84
	SSUP2: When I am curious about sales technology, my supervisor kindly explains.	0.92				
	SSUP3: My supervisor informs me well about the sales technology needed for my job.	0.93				
	SSUP4: My supervisor gives me advice on sales technology needed for my job.	0.88				
	SSUP5: My supervisor immediately solves the sales technology that I need at work.	0.91				
IT dept. support	ITS1: The IT department has competent employees who effectively support me with sales technology.	0.93	0.90	0.91	0.94	0.84
	ITS2: The IT department quickly supports my sales technology-related requests.	0.92				
	ITS3: The IT department accurately responds to my sales technology-related requests.	0.90				
Coworker support	CSUP1: My coworkers assist me with my sales technology work.	0.90	0.91	0.92	0.94	0.80
	CSUP2: My coworkers try to help me with my sales technology problems.	0.90				
	CSUP3: When my work related to sales technology gets difficult, my coworker tries to help.	0.89				
	CSUP4: My coworker listens to me when I have difficulties with sales technology at work.	0.88				

Table 2. *Cont.*

Constructs	Scale	Loadings	α	rho-A	CR	AVE
Job burnout	BO1: Tired.	0.78	0.95	0.95	0.95	0.68
	BO2: Being disappointed in people.	0.85				
	BO3: Hopeless	0.76				
	BO4: I feel like I'm trapped.	0.84				
	BO5: I can't help.	0.85				
	BO6: I feel depressed.	0.83				
	BO7: I feel physically weak/sick.	0.89				
	BO8: I feel worthless/failure.	0.78				
	BO9: I have trouble in sleeping.	0.83				
	BO10: I am exhausted.	0.82				
Job satisfaction	JS1: In general, I am very satisfied with my job.	0.89	0.95	0.95	0.96	0.79
	JS2: I am generally satisfied with the type of work I do in this job.	0.89				
	JS3: I feel deep satisfaction working at this company.	0.90				
	JS4: I love my sales job.	0.86				
	JS5: I take pride in my sales work.	0.90				
	JS6: My sales work is rewarding.	0.89				
Turnover intention	TI1: There are times when I want to work in a job other than my current one.	0.85	0.89	0.89	0.92	0.75
	TI2: I want to move to another job in the same industry even if the working conditions are similar.	0.86				
	TI3: If I get a job offer from another company, I will change my job.	0.89				
	TI4: I am looking for information about job opportunities in other companies in the same industry.	0.86				
Sales performance	SP1: Compared to my coworker, my sales performance is high.	0.85	0.87	0.88	0.91	0.73
	SP2: I manage my business hours efficiently.	0.83				
	SP4: I achieve the company's sales goals.	0.86				
	SP5: I am good at my sales job.	0.87				

Note: Few items were deleted because of cross-loading and outer loading issues (e.g., TCA1, TUN1, TUN2, TUN3, SP3).

4.3. Common Method Bias

The common method bias was evaluated by calculating the variance inflation factor (VIF) of the latent variable suggested by Kock [85]. Results showed that all scores of the VIF for latent variables were lower than the cut-off value of 3.3, confirming that the data were not contaminated with errors of common method bias [86].

5. Results

5.1. Measurement Model Assessment

To test the proposed hypotheses, partial least squares (PLS) based structural equation modeling was used, using SmartPLS software version 3.0. PLS-SEM has received attention among researchers in the field of business and management and is a well-established software that can be used to validate structural models [87]. Specifically, PLS-SEM does not need to assume the normal distribution of the data and is suitable for complex research models [88,89]. Considering these merits of the PLS-SEM, for the present study, we used PLS-SEM.

The PLS-SEM analysis is conducted in two stages. The first stage is about the development and evaluation of the measurement model. In the second stage, the structural model is assessed, and the hypotheses are tested. In this study, techno-demands and techno-resources were assessed as second-order constructs. Specifically, the techno-demands

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were composed of five dimensions: techno-overload, techno-invasion, techno-complexity, techno-insecurity, and techno-uncertainty. Techno-resources consisted of four dimensions: techno-education, supervisor support, coworker support, and IT support.

Based on the recommendations, in the first step, the validity and reliability of the constructs are examined. In PLS-SEM, convergent validity is achieved when the measurement item has a significantly high factor loading (coefficient greater than 0.60) to the assigned construct and the average variance extracted (AVE) is greater than 0.50 [90]. The results showed that all factor loadings were greater than 0.70 ($p < 0.01$) and AVE was greater than the threshold level of 0.50 [91], thus confirming the convergent validity. The reliability of the measurement items was evaluated by calculating Cronbach's alpha coefficient and the composite reliability (CR) coefficient (Hair et al., 2012). The results showed that the Cronbach alpha (α) coefficient and the composite reliability coefficient for all of the constructs exceeded the recommended values of 0.70 and 0.60, respectively [91]. Table 2 indicates the results of the confirmatory factor analysis.

To validate the discriminant validity, we used the Fornell and Larcker (1981) criterion, which suggested that the discriminant validity of the latent construct is maintained if the square root of the AVE of each latent variable is greater than the correlation between the latent variables [92]. All latent variables satisfied this condition as shown in Table 3.

Table 3. Correlation matrix and square roots of AVE in diagonal.

Constructs	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Burnout	**0.82**												
2. Co-worker support	0.00	**0.89**											
3. IT dept. support	−0.04	0.53	**0.92**										
4. Job satisfaction	−0.30	0.32	0.33	**0.89**									
5. Sales performance	−0.07	0.21	0.18	0.48	**0.85**								
6. Supervisor support	0.00	0.56	0.52	0.31	0.29	**0.91**							
7. Techno-insecurity	0.32	0.08	0.17	−0.01	0.06	0.10	**0.90**						
8. Techno-complexity	0.27	0.18	0.03	−0.01	0.02	0.07	0.39	**0.86**					
9. Techno-education	0.09	0.36	0.48	0.37	0.29	0.44	0.14	0.07	**0.84**				
10. Techno-invasion	0.24	0.06	−0.03	0.06	0.21	−0.06	0.31	0.35	0.12	**0.85**			
11. Techno-overload	0.29	0.06	0.02	0.04	0.27	0.01	0.42	0.39	0.21	0.55	**0.86**		
12. Techno-uncertainty	0.12	0.12	0.14	0.17	0.30	0.17	0.33	0.26	0.31	0.33	0.41	**0.92**	
13. Turnover-intention	0.57	−0.03	−0.08	−0.27	0.03	−0.01	0.23	0.24	0.06	0.21	0.29	0.17	**0.86**

In addition, Heterotrait–Monotrait (HTMT) was also used to evaluate discriminant validity. HTMT is a new approach to assess discriminant validity. The results showed that most values of HTMT were lower than the cutoff value of 0.85, indicating the discriminant validity [93]. The values of HTMT are shown in Table 4.

Table 4. Results of HTMT.

Constructs	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Burnout													
2. Co-worker support	0.04												
3. IT dept. support	0.05	0.58											
4. Job satisfaction	0.31	0.34	0.35										
5. Sales performance	0.09	0.23	0.20	0.52									
6. Supervisor support	0.03	0.60	0.56	0.32	0.31								
7. Techno-insecurity	0.37	0.10	0.21	0.07	0.08	0.11							
8. Techno-complexity	0.31	0.21	0.07	0.06	0.05	0.08	0.48						
9. Techno-education	0.10	0.41	0.54	0.40	0.33	0.49	0.16	0.08					
10. Techno-invasion	0.27	0.08	0.04	0.07	0.24	0.08	0.38	0.41	0.13				
11. Techno-overload	0.33	0.08	0.05	0.05	0.32	0.03	0.52	0.47	0.25	0.65			
12. Techno-uncertainty	0.13	0.14	0.17	0.20	0.36	0.19	0.40	0.31	0.36	0.39	0.49		
13. Turnover-intention	0.62	0.06	0.09	0.30	0.06	0.03	0.27	0.28	0.07	0.23	0.34	0.20	

In the current study, techno-demands and techno-resources are higher-order constructs. Therefore, we evaluated the reliability and validity of the higher-order constructs before estimating the structural model. Sarstedt et al. (2019) proposed a two-stage approach to validate the higher-order constructs [94]. This approach is generally adopted by researchers in management and marketing studies [94–96]. According to this approach in the first

stage, we check the reliability and validity of the measurement model with lower-order constructs. After confirming the reliability and validity of lower-order constructs, we calculate the latent variables for higher-order constructs and re-evaluate the reliability and validity of the higher-order constructs. The results of the confirmatory factor analysis of techno-demands and techno-resources as higher-order constructs are presented in Table 5. The findings showed that the values for the reliability and validity of the higher-order measurement model have fulfilled all of the thresholds of the psychometric characteristics of the measurement model [91].

Table 5. Results of confirmatory factor analysis of higher-order construct.

Higher-Order Constructs	Lower-Order Constructs	Loadings	α	rho_a	CR	AVE
Techno-demands	Techno-insecurity	0.74	0.75	0.77	0.83	0.50
	Techno-complexity	0.70				
	Techno-invasion	0.71				
	Techno-overload	0.79				
	Techno-uncertainty	0.55				
Techno-resources	Co-worker support	0.77	0.79	0.79	0.86	0.61
	IT dept. support	0.80				
	Supervisor support	0.80				
	Techno-education	0.75				

5.2. Structural Model Assessment

The results showed that techno-demands have a significant positive effect on job burnout (H1: $\beta = 0.38$, $p < 0.01$). The techno-resources have a significant positive effect on job satisfaction (H2: $\beta = 0.43$, $p < 0.01$). While job burnout had a significant positive effect on turnover intention (H3: $\beta = 0.54$, $p < 0.01$), the negative relationship between job burnout and sales performance (H4: $\beta = 0.08$, $p > 0.05$) was not supported. Job satisfaction has a significant positive effect on sales performance (H5: $\beta = 0.50$, $p < 0.01$), and a significant negative effect on turnover intention (H6: $\beta = -0.12$, $p < 0.05$). Table 6 and Figure 2 present the results in detail.

Table 6. Results of structural equation modeling.

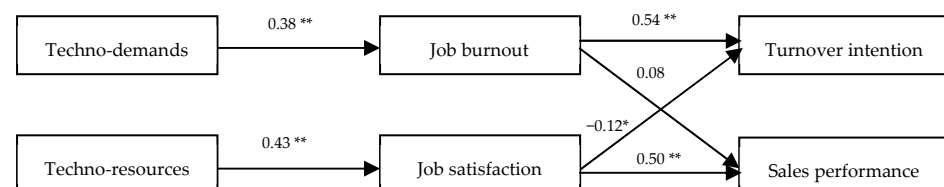| Proposed Hypotheses	Estimate	t-Values	*p*-Values	CI (2.5%)	CI (97.5%)	Results
H1:Techno-demands $\rightarrow$ Job burnout	0.38	7.40	0.00	0.28	0.48	Supported
H2: Techno-resources $\rightarrow$ Job satisfaction	0.43	7.86	0.00	0.33	0.54	Supported
H3: Job burnout $\rightarrow$ Turnover intention	0.54	11.43	0.00	0.44	0.62	Supported
H4: Job burnout $\rightarrow$ Sales performance	0.08	1.19	0.23	-0.05	0.20	Not supported
H5: Job satisfaction $\rightarrow$ Sales performance	0.50	9.25	0.00	0.39	0.60	Supported
H6: Job satisfaction $\rightarrow$ Turnover intention	-0.12	2.25	0.02	-0.21	-0.02	Supported

Figure 2. Results of SEM. ** $p < 0.01$, * $p < 0.05$.

In addition to an assessment of the size of the path coefficients, their significance was obtained using the bootstrapping option (5000 resample). The R^2 values of the endogenous latent construct were also obtained using the PLS algorithm procedure. Table 6 shows the results of R^2, Q^2, and f^2. As the endogenous latent construct, the R^2 value for job burnout is 0.14, which means that techno-demands accounted for a 14% variance in burnout. The

R^2 of job satisfaction is 0.18, which shows an 18% variance for techno-resources. The R^2 of turnover intention is 0.34, showing a 34% variance accounted for burnout and job satisfaction. Finally, the R^2 of sales performance is 0.24, which indicates a 24% variance for job satisfaction and burnout. Table 7 provides the results of R^2, Q^2, and f^2.

Table 7. Results of R^2, Q^2, and f^2.

Endogenous Latent Constructs	R^2	Q^2	f^2
Job burnout	0.14	0.13	0.16
Job satisfaction	0.18	0.17	0.22
Turnover intention	0.34	0.09	0.39
Sales performance	0.24	0.09	0.30

As another fit index, Henseler et al. (2015) presented SRMR (Standardized Root Mean Squared Residual) in PLS-SEM [93]. In general, SRMR is less than 0.10, and lower than 0.08 is considered a good fit. In this study, it was 0.08, indicating a good fit index [94–97]. On the other hand, an NFI of 0.90 or higher is recommended, and 0.80 or higher is acceptable, but in this study, 0.81 was in an acceptable range.

5.3. Mediation Test of an Alternate Model

In an alternative model, the indirect relationships of the current research model were examined. There are four mediating relationships in the model. Specifically, burnout acts as a mediating variable between techno-demands and turnover intention as well as between the techno-demands and sales performance. Similarly, job satisfaction acts as a mediating variable between techno-resources and sales performance, as well as techno-resources and turnover intention. To examine the significance of indirect effects, the bootstrapping technique (5000 re-sample) was applied and fixes no importance on the normality of data distribution [98] and determines mediation effects. According to the recommendation, when both direct and indirect effects are significant, partial mediation is anticipated, whereas when the direct effects are not significant and direct effects are significant, then there is full mediation [99]. The results of the mediating effects are indicated in Table 6 in detail. The results showed that burnout partially mediates the relationship between techno-demands and turnover intention, whereas there is no mediation between techno-demands and sales performance. Similarly, job satisfaction fully mediates the relationship between techno-resources and turnover intention, whereas there is no mediation between techno-resources and sales performance. Table 8 presents the results in detail.

Table 8. Results of mediation effects.

Relationships	Total Effect			Direct Effect			Indirect Effect				
	β	T	*p*	β	T	*p*	β	T	*p*	5.0%	95.0%
Techno-demands → Job Burnout → Turnover intention	0.34	5.57	0.00	0.17	2.65	0.01	0.17	4.85	0.00	0.10	0.24
Techno-demands → Job Burnout → Sales performance	0.02	3.32	0.00	0.21	3.56	0.00	−0.01	0.47	0.64	−0.06	0.03
Techno-resources → Job satisfaction → Sales performance	0.28	4.40	0.00	0.11	1.52	0.13	0.18	5.27	0.00	0.11	0.24
Techno-resources → Job satisfaction → Turnover intention	−0.05	1.02	0.299	0.01	0.17	0.86	−0.06	4.85	0.00	−0.12	−0.01

6. Discussion and Conclusions

Due to the development of information technology, the internal as well as external environment of the company has changed rapidly. As a result, the members of the corporate organization are performing their job activities in a work environment that utilizes various information technologies for corporate change. Salespeople are also engaged in sales

activities using new information technology for sales performance. The development of information technology has a positive aspect of maximizing sales performance through rapid decision making and improvement of work productivity and efficiency, along with a negative impact caused by the mala-adaptation of new information system use [5,7].

In recent studies in the field of business administration, research has been conducted on the relationship between techno-stress caused by the development of new information for salespeople [9,10]. However, there was a lack of research on the effects of technology demands and resources on job turnover and job satisfaction. Therefore, in this study, an integrated study was conducted on the results caused by the technology demands and resources of salespeople due to the introduction of sales technologies in sales. This study empirically confirmed the negative influence of techno-demands in terms of high job burnout and the turnover intention of salespeople. These findings validate the previous findings that job-related demands have positive effects on job burnout and job turnover intention [6,18,65]. Specifically, this study has discussed the technology-related stressors and their effects on the behavioral outcomes of salespeople which provides a new understanding to the literature.

Next, the study found that techno-resources have significant positive effects on the job satisfaction and sales performance of salespeople. These findings are inconsistent with the previous studies on the relationship between job resources and positive outcomes of employees [8,61,62]. This study has advanced the literature by discussing the different forms of job support such as supervisor support, departmental support, co-worker support, and technology training with respect to the new sales technologies.

6.1. Theoretical Implications

This study aimed to examine the impacts of sales technologies (systems, apps, etc.) on the attitudinal and behavioral outcomes of salespeople. Following are some of the important theoretical implications of the current study.

First, based on the job demands–resources model [22], the technology demands–resources framework was developed and empirically tested in the context of salespeople. By doing so, this study conceptualized and tested the techno-demands and techno-resources of the sales technologies. This study found that techno-demand is a higher-order construct that comprises techno-overload, techno-invasion, techno-insecurity, techno-uncertainty, and techno-complexity. Similarly, this study conceptualized and tested the techno-resource as a higher-order construct, which comprises techno-education, departmental support, supervisor support, and coworker support.

Second, this study has comprehensively examined the negative and positive effects of new technologies that salespeople are experiencing when technologies are adopted in the sales job [5,7]. Recently, there has been a lot of discussion about the changes in existing and new jobs due to the fourth industrial revolution. However, studies are limited which comprehensively explain the phenomenon. Specifically, this study has shed light on the positive and negative effects of sales technologies on job burnout and job satisfaction of salespeople.

Third, drawing on the newly developed technology demands–resources framework, this study also examined the effects of salespeople's job burnout and job satisfaction on the turnover intention and sales performance of salespeople in the context of companies where the new sales technologies are adopted to run the sales activities.

Finally, in this study, an alternate model is empirically tested for the mediation effects of job burnout and job satisfaction in the relationships. The findings showed that job burnout mediates the effect of techno-demands on turnover intention. Therefore, it was found that the techno-demands have a great influence on the continued sales activities in the same workplace for salespeople who use information technology and directly contact customers. Similarly, the results demonstrated that job burnout does not mediate the relationship between techno-demands and sales performance. Furthermore, job satisfaction has fully mediated the relationship between techno-resources and sales performance.

6.2. Managerial Implications

This study has the following managerial implications. First, we understood the importance of the role of salespeople in sales activities in a changed work environment, where the use of smart devices is high due to the development of information technology. It also suggests ways to support salespeople in companies. In the meantime, it is true that various organizational resources (promotion, performance compensation, various training, etc.) were supported and considerable job demands (performance pressure, etc.) were utilized to improve the sales performance of salespeople. However, this study confirmed the importance of techno-resources. It also suggests that salespeople need various supports that can be provided by companies [97], such as technical training support, information technology support from supervisors and colleagues, and technical support from IT support departments.

Second, companies should consider ways to reduce the techno-demands received by salespeople. Techno-overload suggested that the next-generation ERP system should be introduced to maximize work efficiency to cope with the increased work volume and faster work speed. In the case of techno-infringement, it is necessary to introduce a system in which all information technology devices are shut down together after the end of business hours to block factors that infringe on the lives of salespeople [100]. In addition, techno-complexity suggests that supervisor support through a real-time remote support system and peer support through a communication platform to help salespeople who lack work skills [99]. Techno-instability suggests introducing the RPA (Robotic Process Automation) system so that salespeople can focus on more valuable sales activities rather than repetitive tasks. Therefore, it is suggested to reduce anxiety about the future, such as a job change due to new information technology. Similarly, techno-uncertainty suggests forming a new hybrid type of team rather than the existing team composition. It is suggested to operate a team that can flexibly respond to continuous changes in new information technology [101].

Third, companies should pay attention to the burnout of salespeople due to new information technology. To reduce the burnout of salespeople, companies and organizations will need to conduct various healing programs such as emotional support and emotional cultivation training. The introduction and operation of a one-week vacation program for employees is worthy of consideration [102]. In addition, the most important sub-factors that cause job burnout should be identified through regular surveys of salespeople in relation to techno-demands. Measures to reduce or eliminate job burnout should be prepared and implemented.

Fourth, companies should pay attention to the possibility of increasing the job satisfaction of salespeople through various support for new information technology. To increase the job satisfaction of salespersons, companies need to consider the efficiency and effectiveness of information technology support measures and operate customized support plans for each company. There is a high need to improve employee satisfaction by identifying priorities and influence levels among human support such as support for colleagues and supervisors, technical support from the information system department, and organizational support of the company [103].

6.3. Limitations and Future Research Direction

The limitations of this study are as follows. First, in this study, techno-demands were defined and measured as technical factors that continuously require mental and physical effort due to new information technology. However, a clear distinction between techno-demands and techno-stress was not made due to a similar conceptual approach. Although, the scale offers significant reliability and validity; however, further studies are needed to develop and validate a new scale for techno-demands in future studies. In addition, techno-resources were made from the perspective of information technology support in terms of corporate, supervisor, and peer support. However, research should be conducted to approach techno-resources in a multidimensional manner by classifying them in detail with individual salesperson resources (e.g., sales technology efficacy, technology readiness, etc.).

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Second, the characteristics of the population could not be sufficiently reflected due to spatial, temporal, and cost constraints in data collection for the sample. For instance, males attributed 68% of the sample, despite the fact that we tried to overcome some of these limitations by collecting data from representative samples of the population in Korea. Therefore, in future research, more extensive and systematic data collection are needed to generalize the findings.

Third, it is necessary to increase generalization by expanding the scope of the study to not only salespeople but also frontline service employees. In this study, salespeople were considered as the primary sample. Therefore, in future research, an approach is needed to confirm whether this research model and variables are also applied to the service workers which will be instrumental to increase the external validity.

Fourth, in this study, the moderation effects are not examined and only the influence of the antecedent on outcome variables was investigated. However, by conducting research on various moderating effects, the framework could be improved further; thus, it opens a new research avenue for future studies.

Finally, this study is exclusively based on a cross-sectional survey method which collected the data from the respondents in a self-reported manner. Therefore, the addition of alternate methods and multiple source data will help to further generalize the findings of this study.

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