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performance**

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THE IMPORTANCE OF HUMAN-RELATED FACTORS ON SERVICE INNOVATION AND PERFORMANCE

ABSTRACT

Firm size, collaboration, foreign ownership and the level of formal training for employees are just some of the key inputs considered to be important in the amount of Service innovation in Tourism firms. However work has called for a greater empirical understanding on service innovation in Tourism and deeper consideration of employment focused practices as front line employees are crucial to innovation. The relationship customers have with service providers is a key determinate of satisfaction and as such the aim of this research is to unpick further the human-related factors associated with this area of study. Data for this research paper were gathered from 201 tourism service firms located throughout Japan. Whilst the results indicate that committed front-line employees and leadership are found to be the primary antecedents of service innovation, knowledge management and instilling creativity through the firm are also key. Our results suggestion that organizations can leverage the benefits associated with human-related factors to enhance service innovation behaviours and increase business performance.

Keywords: employee commitment, human-related factors, service innovation, tourism service firms

INTRODUCTION

Whilst services dominate more than 70% of the world's gross domestic product (Chen et al., 2016) compared to new product development relatively little knowledge exists about managing innovation in a service environment (Trott, 2013). Researchers have started to note that within the service sector development of new services and customer enhancements are happening through innovation activities (Chen et al., 2016). Clear advantages for firms are being documented in relation to the survival of service providers, enhanced performance (e.g., Agarwal et al., 2003) as well as higher profits margins and market share (Murakami, 2016).

As competition intensifies in tourism firms and the operating environment becomes more challenging the management literature has shifted towards innovation rather than efficiency as the key driver of market competitiveness, growth, business success or failure (Hotho & Champion, 2011; Salunke et al., 2013; Thakur & Hale, 2013). A limited number of

organizations report utilizing formal procedures for new service development (Lightfoot & Gebauer, 2011) and problematically no strong consensus exists regarding the innovation process for service firms exists (Liu & Hong, 2016). Indeed as Divisekeva and Nguyen, (2018; p1120) note there is a "lack of empirical research that deals with the enablers and impediments of innovation in various service industries".

Tseng et al. (2020) suggest more empirical research is required to explore the effects of service innovation on improving business performance as arguably, the success of an organization is affected by the behavior of the organization (e.g., service innovation) and identifying factors exogenous (i.e., outside the organization's discretion) and endogenous (i.e., within the organization's control) are important to enhancing service innovation (Thakur & Hale, 2013). Whether this translates into a source of competitive advantage and corporate growth (Davies et al., 2006) is still under-developed (Grawe et al., 2009).

New product/service introduction often requires organizational resources such as abundant material, adequate capital equipment, R&D expenditure, effective marketing campaigns and appropriate changes in production facilities (Azadegan et al., 2019; Tajeddini, 2016; Zontek, 2016). While various resources (e.g., technology, information, finance) are important, the key that brings all the others into play is strong human resource factors (Binyamin & Carmeli, 2010; Chang et al., 2011; Lei et al., 1990; Lee et al., 2019, Rodrigues & Raposo, 2011) to unleash employee creativity (i.e., the generation of novel and useful ideas) (Wang et al., 2016), which is the underpinning of organizational innovation (Liu et al., 2017).

The world's most innovative companies are effective learning systems where human resource factors are developed and where organizations learn to sustain today's competitive advantages while preparing for future (García-Morales et al., 2007; Joshi, 2018). Human resource factors have been conceived and elaborated as integral tools that firms use to derive particular behaviors (Ahmed & Rafiq, 1992), which can "foster group innovation by influencing individual proactivity" (Lee et al., 2019, p. 839). These are regarded as the pillars of competitive gains suitable to service oriented organizations (Garg & Dhar, 2014). Studies covering innovation put emphasis on the importance of human resource factors possibly because other sources of competitive advantage are easier to access and, therefore, easier to duplicate (Chang et al., 2011; Pfeffer, 1998; Saunila, 2014). The rationale being that effective human resource management systems generally influence employees' human capital (i.e., skills and abilities) and motivation,

which in turn accelerate firm innovation (Jackson et al., 2014). This study addresses previous calls suggesting scholars develop more comprehensive models by exploring the driving factors on service innovation (Johns & Storey, 1998; Salunke et al., 2013; Salunke et al., 2019). With a recent study by Lee et al. (2019) highlighting the importance of HR systems in stimulating proactive behavior to enhance firm innovation establishing the level of the relationship of HR factors as an antecedent of service innovation is important. As Lee et al. (2019) note, HR systems must be taken more seriously in future research and whereas previous studies have highlighted HR areas in isolation e.g. training or selective recruitment, this work considers a more inclusive remit.

Characteristics of services (e.g., intangibility, heterogeneity, variability, inseparability, perishability, and interactivity) make it complex and difficult securing legal protection of intellectual property and measuring service innovation (Malik et al., 2019; Omerzel, 2016. Priporas et al., 2017). Some practices directly influence service innovation through encouraging the development of resources and capabilities by strengthening employees' skills and behavior or the capacities of the firm (Nieves & Quintana, 2018), however the link between human resource practices and service innovation performance is yet to be fully determined.

We need to be mindful that the tourism sector is renowned for high labor turnover and low pay and if, as Oradnini and Parasuraman (2011) note, contact employees (front line staff) are the most robust driver of service innovation both in volume and radicalness, then a wider view of human related working practices is called for.

Therefore this study analyses the human antecedents of innovation. Examining their inter-relationship and function in determining new service development and, in turn, impact on business performance. To do this the paper is structured into four sections. First the human related factors of service innovation are considered, human resource management, knowledge management, creativity, employee commitment and leadership before the paper moves on to consider the proposed research model. Following a presentation and discussion of the data the major findings and implications from the work are discussed.

Figure 1

THEORY AND HYPOTHESIS DEVELOPMENT

Service innovation

Innovation is regarded as a key factor in the survival, and performance of service providers (Agarwal et al., 2003). Innovation allows firms to generate products, and/or services, unique from competitors aiming to create value for customers (Clarke et al., 2016). Despite the fact that the rising interest in value creation of service innovation and plurality of definitions, no consensus has emerged regarding the service innovation process. A portion of this ambiguity is due to the nature of service offerings being experiential, the lack of applicability of methods measuring innovation for tangible products and difficulty of transferability of the available tested models to the heterogeneous group of sectors such as tourism service firms (Kleinknecht, 2000; Tajeddini, 2001). Service innovations can be differentiated from traditional innovation features and can be characterized as the introduction of process innovations (Snyder et al., 2016), marketing strategies, creating value for stakeholders through new or improved service offerings (Halliday and Trott, 2010; Ostrom et al., 2010).

As Hjalager (2002) notes innovation in tourism can take many forms from regular, incremental changes that enhance provision, new offers, simplifying processes, partnering to provide distinction or being more revolutionary e.g. the introduction of ordering apps in restaurants. Based on this service-dominant logic, Lusch and Nambisan (2015) view new service development as the rebundling of various resources and capabilities to generate novel, valuable and beneficially augmented values aiming to delight customers. Service innovations allow firms to depart from offering impartial products and work toward integrating products and services in order to deliver customized solutions that address customers' specific needs (Lightfoot & Gebauer, 2011). This creates more effective ways to support firms in capturing future market opportunities (Essen, 2009).

Service innovation has evolved due to the necessity for a service-centered view to value generation. Service innovation, as discussed by O'Cass and Ngo (2010), is comprised of two forms: interactive and supportive. Interactive service innovation refers to direct value creation experienced by customers (front end) or as described by Salunke et al. (2019) as the service consumption interface (frontstage). It is characterized as the degree of which a firm changes its service offerings (i.e., novel, improved offering), service delivery (i.e. novel or superior methods of service delivery process), and customization associated alterations to meet specific customers'

needs (Salunke et al., 2013). Whereas, supportive service innovation is characterized by the organization changing its service production, sourcing, and service quality. Salunke et al. (2019) argue the service provision interface (backstage) usually supports the former’.

In other words, attempts and efforts occur at the back-end to in order to facilitate and deliver new value creation and proposition (Salunke et al., 2013). Any new service offering requires solid backstage configuration and support to make sure that novel service is able to generate the new value proposition to the customers, in turn, creating value for the organization. Notably, in order to make sure effective and efficient service delivery is crucial to comprehend the process of developing and executing successful innovations in service (Chae, 2012).

Management attention to service innovation can seem limited as organizations do not usually highlight and handle their service delivery, facility, establishment and endowment in a formal and structured manner (Gebauer & Friedli, 2005). Whilst results seem invisible developments can have a substantial (albeit indirect) influence on financial performance (Kindström et al., 2013).

As opposed to many tangible product innovations that may seem to make a radical change, service innovations appear to be more incremental improvements on existing and current services with comparatively inexpensive assessment (Johne & Storey, 1998). An *ad hoc* process due to the idiosyncratic nature of intangibility of service offering and the service mind-set (Lusch & Nambisan, 2015) which make it difficult to evaluate impact (Menor et al., 2002). But innovative service organizations should not overlook the consumer insight. For example, in addition to the product innovation, Starbucks introduced the store-value-card (service innovation), which was a reloadable prepaid card to swipe, allowing customers to use it in every US-Starbucks store for the transactions. While this new service makes the payment process easier for the customers and enhances the payment timeframe, and the firm had various innovation types gaining a strong position on the market, it lost the customer satisfaction focus (Moon, & Quelch, 2003).

Concerningly previous studies (e.g., Subramanian & Nilakanta, 1996) have noted an insignificant relationship between innovation and performance, sizeable number of studies have suggested that greater levels of organizational innovation may lead to enhanced business performance. For example, prior research demonstrates that, unlike the Starbucks example, service innovations enhance customers’ service experiences (e.g., Sampson, 2012), increase the

firms' capabilities to deal with the uncertainties of environmental change (e.g., Binder et al., 2016; Brettel et al., 2015; Tsai et al., 2015), add value for the customers, employees, business owners and alliance partners (Ostrom et al., 2010; Yoon et al., 2012), offer an effective vehicle of creating sustained competitive advantage (Durst et al., 2015), and create benefits for a firm's performance (Melton and Hartline, 2010). Tseng et al. (2020) found that service innovation activities should be prioritized over other features of management decision-making, while Chen et al. (2016) suggest that firms should focus on service innovations providing bundled offerings through the marketing activities and the value-added chains with the aim of sustainability. Despite this substantial attention to exploring the outcomes of service innovation, Tseng et al. (2020) still note more work is required and that scholars should focus on interactive and relational aspects of service innovations and their impact on business performance. It is evident that the relationship between service innovation and hotel performance is a largely under-researched domain and limited research has focused on the combination of interactive (Customer focused) and supportive service innovation (Process and system focused) to various measures of business performance.

Service innovations play an important role in tourism service-based firms as not only are technological-based services substituting various long-established services, but emerging technologies are facilitating and boosting the generation of novel forms of services (Christiansen et al., 2010; Menor et al., 2002). Consequently, it would be valuable to study how value constructions of services are stabilized and the influence on interactive and supportive service innovation. Thus, we hypothesize,

H₁: *There is a significant association between interactive service innovation and tourism service firms' performance measured by (a) financial and (b) marketing outcomes.*

H₂: *There is a significant association between supportive service innovation and tourism service firms' performance measured by (a) financial and (b) marketing outcomes.*

Service innovation stimulus

Service innovation and human resource management

Service innovation in the tourism sector is a complicated and multifaceted phenomenon, with the customer employee relationship playing a key role (Divisekera & Nguyen, 2018). Previous studies show that this process involves a number of non-research and development activities,

such as managerial attitude toward change, learning orientation, and customer orientation (Tajeddini, 2011), as well as training personnel, investing in novel, tangible, production or intangible service competencies, market research, service human capital design (Chen et al., 2016), and human resources management (Prajogo & Ahmed, 2006).

'Human-related factors' have been shown to be an indispensable element in the process of service innovation (Stephens et al., 2013). However, it is surprising that the relationship between human-related factors (i.e., effective leadership, management practices, information handling, unleashing the imagination of people) and service innovation has received little attention (cf. Prajogo & Ahmed, 2006). Notably, this relationship is vital because versatile skills allow employees to be flexible and enable them to enhance their creativity in order to develop new ideas (Martínez-Sánchez et al., 2011). As a result, organizations are able to launch innovative services to the market earlier than competitors (Martínez-Sánchez et al., 2011). Scholars suggest that "winning" strategies put an emphasis on investing to develop a culture of service and innovation (Orfila-Sintesa et al., 2005) as evidenced by several top tier firms. For example, United Airlines has created innovation by developing mentorship programs, which have resulted in higher job creation opportunities (Kanter, 1999). Previous studies (e.g., Martínez-Ros & Orfila-Sintes, 2012) have also shown that investing in a firm's human developmental factor (e.g., training, educational level of executives and staffs, creativity, risk-averse) has a notable influence on innovativeness within the service industry. The principle premise that it is an individual's efforts and social practices that establish the primary root and component of creating and sustaining a proper environment that supports new service development (Prajogo & Ahmed, 2006).

Leadership commitment and support toward innovation

Creative and innovative ideas are fostered by organizational support and leadership (Coakes et al., 2011) and when individuals are encouraged to share their experiences, values, give constructive feedback, and engage in risk-taking behavior (Azadegan et al., 2008). A commitment to leadership enables firms to create a participative culture and a positive climate (Aragon et al., 2007). Empowering leaders to adopt new practices supports and entices the adoption of creative or innovative ways of working (Hassi 2019).

This leadership commitment could be regarded as a key, non-technological driver, in the process of innovation management, leading to the development of managerial support, organizational and individual learning, and employee motivation. Despite remarkable diversity amongst successful leaders in terms of abilities, style, personality, and interests, leadership commitment is regarded as being capable of shaping organizational culture and plays a significant role for successful market-driven change (Aggarwal, 2018; Day, 2000). It also plays an essential role of shaping values regarding customer orientation among employees (Liaw et al., 2010) and translates organizational-level commitment into customer service and employees' actions (Clark et al., 2009).

Effective leadership establishes the exploitation of opportunities (Thakur, 1999), which creates a culture that enables knowledge exchange (Yang, 2007) and develops an organization towards a learning organization (Schuckert et al., 2018). de Brentani and Kleinschmidt (2004), assert that leadership interaction with primary clients can facilitate new service offerings by providing critical support for innovation champions, whilst innovation can be encouraged by communicating ideas for improvement via an intentionally participative managerial approach and a positive manner (Binder et al., 2016).

Human Resource Management

Innovations often originate on an individual level, they need to be understood, developed and implemented by the whole organization requiring social stimuli (Van de Ven, 1986).

Despite excellent additions to research (Hotho & Champion, 2011) within this field, Prajogo, and Ahmed (2006) observe empowerment and involvement as two key practices aimed at building innovative behaviors within organizations. The dimension of empowerment for service innovation can be conceptualized as giving power and autonomy to employees to exercise their discretion and opinion to solve problems as customer contact employees. This also allows them to exercise control over job-related situations and decisions, which might contribute to improving employee and customer relations (Ottenbacher & Harrington, 2010). For example, in hospitality management, one principle of the Ritz-Carlton states "each employee is empowered". This means when an employee encounters a customer with a particular inquiry, she or he should break away from his or her regular duties and responsibilities to resolve the problem (Raub, 2008). In effect, this dimension requires changing the mindset of top management

moving from a more conventional top-down, control-oriented management style to a flexible, decentralized style. By this practice, a service firm can build trust with employees by transferring more responsibilities and empowering them with available resources. They can then explore new ideas, creative methods, and practices along with providing opportunities for personal initiatives. Prior research shows that employee involvement contributes to market orientation (Naqshbandi et al., 2019), spillover effects (Ilies et al., 2009.), customer-oriented behaviors, customer satisfaction and retention (Simons & Roberson, 2003), customer intimacy in buyer-seller relationships (Heide & John, 1992) and innovations (Binder et al., 2016).

Knowledge management

Managing knowledge concerns the ability to identify and apply new knowledge effectively (Macpherson, 2005; Powell et al., 1996) and deals with a set of organizational skills, practices, and patterns by which knowledge can be acquired, disseminated, transferred, and exploited within the organization (Lukjanska, 2011). Notably, knowledge management shows how an organization leverages its knowledge internally and externally. It can be argued that organizations are able to build capabilities and organizational learning by strengthening cross-functional operations and core competency (Grant, 2001). In effect, the right people (e.g., employees) receive the right knowledge at the right time which allows them to disseminate and implement information in ways that strive to develop new methods, effective partnerships, adopt insights and experiences which eventually enable firms to satisfy market needs and develop organization's competitiveness (Grant, 2001). Firm's intellectual assets include both explicit (recorded) and tacit (personal know-how) which have a positive effect on organizational performance (Dalkir, 2005). Often this knowledge, along with skills and know-how, is tacit and embedded in organizations through patterns of activity (Macpherson, 2005).

Innovation is also associated with new forms of knowledge management (e.g., information handling) (Moscardo, 2008). The ability to create, adopt and disseminate knowledge and put it into the innovation process generates added value for the organization and improves organizational outcomes but is a challenge for any firm (Lukjanska, 2011). The management of knowledge is conceptualized as a strategic resource that facilitates the development and sustaining of innovative techniques along with effective collaborations (Alvarez & Barney, 2004). The ability to acquire and transfer knowledge through effective communication is one of

the main competitive advantages of service firms (Reid et al., 2004). Arguably, employees are encouraged to accumulate tacit knowledge derived from their personal experiences and to transfer to others within their firms (Alvarez & Barney, 2004). This stresses that firms must endorse organizational learning to boost knowledge that can be utilized in the future; as a result, it facilitates the firm to achieve continuous improvement (Baker & Sinkula, 1999). The flow of knowledge, its adoption, and application in the service industry is a critical constituent in an innovation interactive and supportive development.

Creativity Management

Although the existing theory in the domain of creativity is diverse, most scholars observe it as a combination of knowledge in the minds of people that allows flexible thinking in the generation of something new and useful (Milosevic & Combs, 2018). Employee creativity is known as the main contributor to new service development and sustains a competitive advantage in dynamic environments (Li & Sandino, 2018). Creativity happens in the course of unleashing the imagination of people through playfulness and fun (Godfrey, 1996), intrinsic motivation (Wang et al., 2016), creative personality (Shane & Nicolaou, 2016), openness to experience (Tajeddini & Trueman, 2008). Notably, employees may have a new, fresh and brilliant idea but unless that idea brings a better solution to a field, it remains simply a novel idea. Therefore, creativity management is essential for an innovative service environment. While there is a consensus that creativity can effectively enhance new product development (e.g., Prajogo & Ahmed, 2006), noticeably few studies have been dedicated to how strategic creativity management promotes service innovation. This paper extends previous studies (e.g., Wright & McMahan, 1992) and examines the effect of patterns of planned human resource deployments to allow an organization to influence on employees' attitudinal and behavioral creativity, and in turn, boost interactive and supportive innovation. Therefore, we hypothesize:

H₃: *Stimulus factors are positively related to (a) interactive service innovation and (b) supportive service innovation.*

H₄: *Stimulus factors are positively related to business outcomes measured by (a) financial performance and (b) marketing performance.*

Employee Commitment

Past research suggests that employees attitude towards work plays a tremendous role in delivery service, new product and service innovation (Melton & Hartline, 2013). Academics (e.g.,

Karatepe et al., 2009) view employees as the main driver of competitive advantage rather than as a cost suggesting that the right employees increases the likelihood of success for any organizations. A long-term committed workforce is a prerequisite for building a long lasting relationship with customers (Boshoff and Allen, 2000). Employee commitment is considered as the psychological attachment or state experienced by an individual for the company and committed employees believe in the organization's goals and values (He et al., 2011). Committed individuals value effective performance, compliance with directives, commit themselves to deliver high quality service to customers on behalf of the firm and the responsibility of to constantly contribute experiences, skills, and knowledge to creating superior value for customers (Chen, 2007). In contrast, it can be argued that if the employee commitment decreases, firms may face low quality service and products, unsatisfied customers, higher turnover and absenteeism. Ottenbacher and Harrington (2010) observe innovations as the result of "a professionally-managed organizational development process" in which entrepreneurial spirit and research and development often are merged with effective, inspiring, well-respected leadership, coupled with sound employee relationship management, and significant market considerations.

The importance of a committed workforce lies in the fact that it allows the organization to sense the alterations in the market, evaluate customer needs and wants, and deliver excellent value to customers. In a study to explore the determinants of service innovation, Yang et al. (2014) find that committed employees contribute greatly to the process of idea generation in new service development competencies. Studies show that committed workforce tends to increase creativity in new service development process when there is a match between their personalities and the characteristics of the jobs they perform (e.g., Schemmann et al., 2016). Since committed employees are effective to better fit of different types of innovations with the target market and the firm' design and structure, as well as to support the advancement of successful innovations (Zach, 2016), we propose that that there is a positive moderating impact upon employee commitment on the relationship between human-related factors and service innovation. That is, employees' committed behavior would enhance the impact of innovation stimulus (human-related factors) for supporting interactive and supportive innovation.

The significance of employee commitment in the services sector might seem obvious and are strongly supported by the literature; however, only a few studies could empirically confirm this significance and focus on its moderating role between the relationship between innovation

stimuli and service innovation. Yet, the evidence bearing on the possibility of employee commitment to service innovation is very limited. Therefore, this study also theorizes and tests the role of employee commitment in moderating the relationship among the human-related (stimulus) factors and service innovation (Figure 1). Findings may assist tourism service executives to improve their understanding regarding the effect of human-related factors on service innovation activities and in turn, the effect of service innovation on financial and marketing performance. Furthermore, as service development becomes imperative for tourism organizations, the results can highlight the role of a committed workforce on the relationship service innovation outcomes. A systematic analysis of the antecedent of service innovations and the dimensions of service innovation in tourism service firms is hence crucial and will allow the industry to enhance performance (Chen & Chen, 2010). Therefore, we assume,

H₅: *Employee commitment moderates the relationship between stimulus factors of innovation management and interactive service innovation, such that this relationship is stronger in highly employee commitment than in more poorly employee commitment.*

H₆: *Employee commitment moderates the relationship between stimulus factors of innovation management and supportive service innovation, such that this relationship is stronger in highly employee commitment than in more poorly employee commitment.*

METHOD

Sixteen in-depth interviews formed the foundation for this study aiding discovery of the determinants of service innovation, the relationship between the variables, and performance outcomes. Qualitative data was collected from three tour operations, one travel agency and seven hotels in Tokyo, alongside five interviews in Kyoto. The interview process was carried out over six month periods in 2017. Top managers and executives were key informants due to their familiarity with the research topic. The interviews were informal, lasted between 35 and 60 minutes, beginning with broad questions about the professional background of the informants and moving on to specific facets of service innovation, human-related factors and employee commitment. Following the guideline of Lucas (2005), all interviews were digitally recorded for information precision, transcribed and documented. During the interviews, notes were taken and later compared to transcripts. After interview sixteen, saturation was attained with no further insights being obtained. NVivo software was used for qualitative content analysis. The findings indicate that some managers have institutionalized service innovation in their firms. For

example, one respondent put a high value on Japanese culture and noted that "... to serve dishes to our overnight guests, our staff used to offer Japanese hospitality "*omotenashi*", by bringing dishes to the guest rooms with the tray service and had to keep distance from the door. But recently we have introduced robots to deliver dishes to keep the privacy of our guests and enhance customer fulfilment". The connotation of "*omotenashi*" is a genuine form of hospitality, meaning true from the heart of the host. This reflects the idea that the notion of culture can influence the working environment in organizations. This cultural element continued as one respondent stated: "it is the policy and organizational culture to make every possible effort to increase customer satisfaction" stressing the crucial role of human resources and their development to enhance service innovation and productivity. "Innovation is not only the result of the change but also it should be seen as an ongoing process...". He further added that "...what affects this process is the individuals and their creativity which are the source of innovation". Similarly, "traditional Japanese innovation is the result of all efforts to pursue perfection in the details of product or service.... ". Further to this notion of process and trying to perfect services, observing the key successes of traditional Japanese firms. "I believe that 'strong loyalty' and 'strong commitment' of Japanese employees toward their firms are the pillar of their success. These employees regard their companies as the place to work until they retire". The respondents agreed, "Japanese innovation is synonymous with the 'organizational knowledge creation' using 'the employees' wisdom".

The Sample

Following preliminary content analyses in 2017, we gathered a mailing list of 750 tourism service firms from cities within Japan. The tourism industry offers an excellent research setting for five reasons. First, there has been exponential growth of tourism firms calls for further investigation (cf. Tussyadiah & Pesonen, 2016). Second, it is difficult to outperform rivals solely through promotion or price. Rather tourism service firms compete with rivals through product/service innovation, which demands human involvement (Deutscher et al., 2016). Third, service firms usually aim to institutionalize the procedure of new service development by mobilizing innovation teams which are involved with both interactive (i.e., the front-end) and supportive (i.e., back-end) service innovation (O'Cass & Ngo, 2010). Fourth, while low entry barriers and staff qualification levels can make tourism enterprises less competitive; a firm that

provides quality, innovative and attractive tourism services can gain competitive advantage (Zehrer & Hallmann, 2015). Fifth, Murakami (2016) argues that innovation in the services industry is critical for revitalizing the Japanese economy, as the share of the manufacturing industry is declining steadily.

This master list of 750 Japanese tourism service firms was obtained from publicly available data in Japan. We screened and eliminated duplicate firms that were in multiple databases. Following Dillman (1991) direct mail questionnaires were sent. Tourism firms consisted of accommodation, events and conference, transportation, food and beverage, travel, tour operators, and destination marketing organizations. The respondent's opinions and insights were utilized to gain an evaluation of circumstances within the firm. The questionnaire was designed to test the nature of human-related factors as service innovation stimulus, and the link with service innovation and performance. The items on the questionnaire were translated from English into Japanese by two bilingual speakers using the conventional back-translation approach to ensure exactness of the original scales in the Japanese language (Steenkamp & Baumgartner, 1998).

The survey was pre-tested utilizing four scholars to ascertain the measurement scales were suitable. To test the items were applicable for informants; a subsequent pre-test was conducted with fifteen tourism service executives. Managers were invited to respond to the questionnaires due to their experience, position, and knowledge about the organization's operations. The fifteen pilot respondents were removed from the main list leaving a total of 735 remaining tourism firms which were sent mail surveys accompanied by self-addressed and stamped return envelopes over a period of five months. Two surveys per firm were used to diminish common method variance and to reduce the single source bias. The CEOs and senior managers were requested to introduce one or two more respondents from their firms, who were the most experienced about operations, new service process, business performance to complete the survey. No explicit incentive was provided and a total of three reminders were used. Of the 254 responses, 29 completed surveys were removed because of extreme missing data. Another 24 were eliminated because firms responded with only one survey— generating a final sample of 201 companies (27.3 % response rate). We made a series of 40 phone calls to respondents and conducted additional mail surveys to assure key informant quality. T-tests were utilized to early and late informants to verify any possible issue with non-response error. Variables such as

organizational age, organizational size, organizational type, experience, and attitude were incorporated to assess t-values. The results of t-values were between .28 and .73, indicating no considerable differences between these two groups ($p > .05$), thereby the likelihood of a non-response bias was minimum.

Measures and variables

Multiple-item scales obtained from prior research when lined up with the conceptual facets of each concept for measuring human factors, strategic orientation and service innovations. Leadership (four items) and people management (five items) were quantified using the scale Samson and Terziovski (1999). Knowledge management and creativity management were quantified using four items for each derived from the Inventory of Organizational Innovativeness (IOI) Model (see, Darroch and McNaughton, 2002 and Tang, 1999). Employee commitment was evaluated using seven items developed by Jaworski and Kohli (1993). Service innovation was operationalized using 12 items for interactive and supportive service innovation measures adopted from Salunke et al. (2013). To effectively capture a firm's performance, multiple dimensions were adopted using 10 items capturing a range of financial success and customer satisfaction over the last 3 years (see, Azadegan and Pai, 2008) and Ottenbacher and Harrington (2010). Since this scale used both financial and marketing aspects of firm performance in tandem it allowed us to demonstrate a balanced perspective of how firms perform in the short and long term. The informants were requested to rate the variables on a seven-point Likert-type scale. While perceptual marketing performance was assessed based on customer retention, customer loyalty, customer satisfaction, reputation, perceptual financial performance was evaluated based on profit goals, sales goals, return on investment (ROI), return on sale (ROS), return on asset (ROA) and market share.

Controls

Organizations of different age, size, and type demonstrate different behaviors (Divisekera & Nguyen, 2018), and managers with different experience and attitudes towards innovation can show difference towards change, in turn, influencing service innovation performance. To avoid non-causal relationships between human factors, strategic orientation, supportive and interactive service innovation, we included firm size, age, managerial attitude toward change, the years of

experience of the informants and firm service type as controls. The organizational size was quantified as the logarithm of the total number of full-time workers to avoid skewness. Organizational age was assessed as the logarithm of the number of years since the formation of the organization. Managerial attitude toward change was operationalized using two items suggested by Zhou et al. (2005).

The years of experience was calculated as the logarithm of the number of years the informant had worked with the company and other project-oriented service enterprises and were codified as a dummy variable “type 1”, while non-project-oriented services and other enterprises as “type 0” as controls. The base framework for our sample explicates approximately 4 per cent of the variance in the performance variables. Firm size→ financial performance (coefficient= .048, p=.582; t-statistic= .551) and marketing performance (coefficient= -.137, p=.115; t-statistic= -1.583); firm age → financial performance (coefficient= -.013, p=.860; t-statistic=-.177) and marketing performance (coefficient=-.137, p=.600; t-statistic= -.525); managerial attitude toward change→ financial performance (coefficient=.019, p=.776; t-statistic=.285) and marketing performance (coefficient=.053, p=.550; t-statistic=.598); years of experience→ financial performance (coefficient=-.090, p=.230; t-statistic= -1.204) marketing performance (coefficient=-.020, p=.785; t-statistic= -.274); and service type→ financial performance (coefficient= .068, p=.234; t-statistic= 1.192) marketing performance (coefficient = .061, p= .413; t-statistic= .821). The major effects model in conjunction with the control variables explicates 5.5% variance in the performance variables.

RESULTS

Psychometric characteristics of the scales

To evaluate the dimensionality of scales, we used both exploratory and confirmatory factor analyses. Exploratory factor analysis using both oblimin and varimax rotations were carried out for all measures. The results of analyses support the unidimensionality of all scales. The measurement and structural relationship of the research models were concurrently examined and the results validate the four latent variables of human-related factors (service innovation stimuli), two latent variables of performance and two latent variables of service innovation. The factor loadings of exogenous and endogenous constructs are ranged from .70 to .89 and the Cronbach

alphas, which range from .710 to .915. To evaluate the internal consistency of the construct indicators, Composite Reliability (CR) was employed which represents the extent to which variables are free from random error and as a result produced consistent outcomes (Hair et al., 2005). As Table 1 presents, the composite reliability values for all eight constructs in our measurement model ranged from 0.811 to 0.943 exceeded 0.7.

Table 1

The average variance extracted value (AVE) offers a rigorous test of convergent validity and internal stability for the measures. As shown in Table 2, the AVE values for all scales ranged from .571 to .713 exceeded the benchmark of .5, representing reasonable convergent validity for all measures. Table 2 presents that all variance extracted estimates were greater than the squared correlation between the pairs of factors confirming the discriminant validity among the constructs. The measurement items and the results of validity analyses are reported in the appendix A. Next, all pairs of constructs in the two-factor CFA models were assessed. Each model was performed twice: once to restrain the correlation between the constructs to one and the second time to free the parameter. A chi-square check on the nested models was scrutinized whether the set of chi-squares were considerably lower for the unconstrained models. Results indicated that all pairs had a greater critical value ($\Delta\chi^2_{(1)}=2.91$ at the 5 per cent significance level), confirming satisfactory discriminant validity for each measurement.

Table 2

Common method variance (CMV)

CMV is observed as a potential problem associated with studies involving self-reports from the same sources such as survey questionnaires, and interviews. These problems may create inflated estimates of hypothesized links and mislead interpretations of results (Campbell & Fiske, 1959). To diminish and control any possible CMV occurrence, we carried out various procedural and statistical remedies. In the beginning, the items were cautiously assessed to avoid double-barreled questions. The items were observed to make certain that the scale items were as simple, explicit, and short as possible. Also, we mixed the order of the items (*ex ante*) (Spector, 2006). Moreover, in the cover letter, the informants were guaranteed that all information would be kept unidentified to reduce evaluation apprehension (Tsai & Yang, 2014). To supply a supplementary check for CMV, the scales were purified and unrotated factors for all variables

were performed. Factor analysis produced eight factors with eigenvalues greater than 1.0, which accounted for 64.74% of the total variance, well above the prescribed specification of 50%. The findings show that a single factor did not emerge and also factor 1 accounted for 30.13% of the variance and did not explain the majority part of the variance, therefore, CMV is not a concern in this study. CMV was also examined through the Marker-Variable Technique employing a special marker-variable which is theoretically unrelated to the research constructs and intentionally included into our survey questionnaire in conjunction with the research variables of importance (Yee et al., 2008). As a proxy of marker-variable, a six-item socialization scale adopted from Strahan and Gerbasi (1972). It had no theoretical connection to any of the constructs employed in the research. The items for the scale of socially desirable responding using seven-point scales include: (1) There have been occasions when I took advantage of someone; (2) I sometimes try to get even rather than forgive and forget; (3) At times I have really insisted on having things my own way; (4) I like to gossip at times; (5) I have never deliberately said something that hurt someone's feelings; and (6) I'm always willing to admit when I make a mistake. The scale of socially desirable responding resulted in satisfactory reliability (Cronbach's alpha = .79). Then, the second lowest positive correlation ($r_m = .03$) between socially desirable responding and the other constructs were chosen due to avoid capitalizing on chance (cf. Lindell & Whitney, 2001). In order to test the adjusted correlations and their statistical significance, the equations proposed by Grayson (2007) were used:

$$r_{ijm} = (r_{ij} - r_m) / (1 - r_m)$$

$$t_{\alpha/2, N-3} = r_{ijm} / ([1 - r_{ijm}^2] / [N-3])^{1/2},$$

where:

r_{ij} = the original (i.e., the pre-adjustment) correlation between constructs i and j;

r_m = the marker-variable adjustment (i.e., the second lowest positive correlation between the marker-variable and one of the other variables);

r_{jm} = the adjusted correlation; and

$t_{\alpha/2, N-3}$ = the t-value of the adjusted correlation.

Table 2 presents the correlations among the pre-adjustment (the original) and the post-adjustment (after the Marker-Variable adjustment) of the variables and the results indicate that the Marker-Variable adjustment does not alter the sign and significance level of any correlation coefficient. This suggests that the intercorrelations presented in the framework are not likely to be inflated as a result of CMV. Moreover, socially desirable responding is also incorporated as a control variable in the investigation to reduce any CMV concerns.

Relationship model results and discussion

Prior research (e.g., Ottenbacher & Harrington, 2010; Salunke et al., 2013) supply theoretical base and empirical validation to produce a summated index of the constructs of this study. It is evident that some control variables were correlated and the other variables showed modest levels of correlation. For example, the correlation between size and people management ($r = -.119$, $p < .05$) suggests that in larger organizations, it is more likely that employees are prone to maintain existing practices and routines in tourism firms. The correlation between experience and people management ($r = .129$, $p < .05$) stresses that when more experienced members are in the organization, there is a tendency to establish trust with employees to explore novel ideas and creative practices. Finally, the correlation between leadership and firm age ($r = -.160$, $p < .01$) indicates younger organizations enjoy more commitment of leadership to the managerial development and employee motivation. To examine the likelihood effect of multicollinearity, condition indices were performed using the square roots of the ratios of the largest eigenvalue to each suggestive eigenvalue. The maximum condition indices extracted indicating that all were less than 11.681. Since the maximum condition number was below both lax (30.0) and stringent (15.0) cut-off values (see Belsley, 1991; Cohen et al., 2003), multicollinearity seems not to pose a significant threat to valid statistical inference. Residuals were observed for magnitude, normality, linearity, and homoscedasticity after each step of analysis (Tabachnick & Fidell, 1989) and no violations were identified of these assumptions.

Structural equations modeling (SEM) by means of AMOS was performed to test all hypotheses. A two stage relationship has been observed between human-related factors (innovation stimulus factors), service innovation and performance. The results of SEM, depicted (in Figure 2) explain a mediating model to evaluate the study proposition. The results of hypotheses are depicted in Figure 2 with the broken line representing a non-significant relationship while the straight lines represent significant relationships. More specifically, whether human-related factors determine service business performance only through interactive and supportive service innovation (i.e. fully mediated) or whether they proceed through other factors (i.e. partially mediated by service innovation). The service innovation stimulus resources, composed of various human-related variables are evaluated by leadership, people creativity, and management as well as knowledge management. These two exogenous latent variables- i.e. human-related (stimulus) factors and service innovation dimensions- lead to one endogenous

construct of service business performance which was evaluated by two subsets of service innovation, namely interactive and supportive. In turn, performance has been influenced by service innovation. Bagozzi's (1980) recommendation was followed to construct the latent and observed variables in the structural equation modeling. The results of psychometric properties indicate that the values of CFI= .95, Delta2= .95, with the exception of TLI =.92, exceed slightly the cut-off value of .90, and the value of RMSEA=.06, is below the cut-off values .08 (cf. Hu & Bentler, 1999), and the value Normed Fit Index (NFI)=.89, Relative Fit Index (RFI)= .84, Chi-square $\chi^2(40) = 119.78$, Degree of Freedom (df)=69; Chi-square/Degree of Freedom=1.74, P=.00, ECVI= 1.17, $\chi^2/df=1.74$ show a fairly satisfactory fit indicated by the goodness of fit indices. All factor loadings were statistically significant ($p < .001$).

Figure2

With regard to H₁ and H₂, we predicted significant interactive and supportive service innovation and tourism firms' performance measured by financial and marketing performance. According to the results of structural relationships, while the impact of interactive and supportive service innovation on financial performance is insignificant, the effect of interactive (path coefficient=.42, t value = 3.52, P < .001) and supportive service innovation (path coefficient=.50, t value = 3.78, P < .001) on marketing performance is positive and significant. Thus, H₁ and H₂ were partially supported. In support of H₃, human-related (stimulus) factors is statistically significant and positively related to both interactive service innovation (path coefficient=.67, t-value=6.67, P < .001) and supportive service innovation (path coefficient=.66, t-value= 6.31, P < .001), hence support H₃. Concerning H₄, while human-related (stimulus) factors are statistically significant and positively related to financial performance (path coefficient=.43, t-value=2.50, P < .01), the impact of human-related (stimulus) factors on marketing performance is insignificant.

In line with H₅ and H₆, we included the interaction terms. Residuals were observed for magnitude, normality, linearity and homoscedasticity after each step of analysis (Tabachnick & Fidell, 1989) and no violations were identified of these assumptions. The suggested framework comprises of interaction terms of innovation management and employee commitment, a moderated regression analyses serve to examine the proposed assumptions. A stepwise regression was performed to observe and evaluate the explanatory power of each group of

variables. We established two separate series of seven subsequent regression models which assessed the alteration in the amount of variance explained (ΔR^2) to examine the interaction impacts, and performed overall and incremental F value analysis of statistical significance. Model 1 entails the control variables whilst model 2 incorporates the direct impact of stimulus factors of innovation management and employee commitment. Models 3 and 7 entail the one interaction effect. Models 7 and 8 comprise of the interaction term simultaneously along with the marker variable. Tables 1 and 5 also presents the control variables accounting for 2.7% and 5.1% of the total variance in interactive service innovation ($F= 1.603$, ns) and supportive service innovation ($F= 3.106$, $p<0.001$) respectively. Adding the main predictors and the moderator variables increased the R^2 value for interactive and supportive service innovation and are described by a considerable enhancement in fit statistics compared to Model 1 and Model 8 respectively. As shown in Model 3 of Table 3, results offer support for Hypothesis 5 (β of the interaction between stimulus factors of innovation management and employee commitment (i.e. $STIN \times EC$) ($\beta = 0.067$; $p < .001$)). It implies that the relationship between stimulus factors of innovation management and interactive service innovation is stronger with high employee commitment than with weak levels of employee commitment. However, the results failed to support H6, the moderation of employee commitment on the link between relationship stimulus factors of service innovation and supportive service innovation ($\beta = -.106$, $p > .05$). To explain the nature of these interaction terms, we plot the relationship between stimulus factors of service innovation and employee commitment and interactive service innovation at high and low levels of an employee commitment (Figure 3, Panel A), coupled with a simple slope examination for each (Aiken & West, 1991). Figure 3, Panel A illustrates that the positive relationship between stimulus factors of service innovation and interactive (front of house) service innovation become significant at high levels (simple slope =+.56, t-value = 4.33, $p<.005$) versus low (simple slope =+.40, t-value = 5.82, $p<.005$) levels of an employee commitment.

Figure3

Using an alternate model with human-related (stimulus) factors, two dimensions of service innovation (interactive and supportive) and performance measured by financial and marketing indicators, a mediating role of service innovation between human-related (stimulus) factors and performance was investigated. The status of service innovation as a mediating variable is confirmed by using the Baron and Kenny (1986) procedure. The findings highlight

that the connection between human-related factors and business performance is fully mediated by service innovation.

To substantiate this effect, a competing model was employed where the direct path between service innovation stimulus and service business performance was removed. While the overall competing model fit was satisfactory ($\chi^2=101.75$, $df=41$, $\chi^2/df=2.48$, $p=.00$, $CFI=.93$, $\Delta_2=IFI=.93$, $RMSEA=.07$, $TLI=.86$, $ECVI=1.06$), the results revealed that the difference between two chi-square values (101.41 and 101.75) was not statistically significant between the two competing models (Figure 4). This implies that eliminating the path between service innovation stimulus and business performance does not cause the model to weaken, and thus corroborates the full mediation of service innovation. Figure 3 depicts the total (standardized) impacts of the two drivers of firm performance and shows that direct impact of service innovation stimuli on firm's performance is insignificant; advocating that human-related factors must be mediated by service innovation in order to have an impact on tourism service firms' innovative performance. Having committed employees is not enough the firm must also be focused on innovation. The results correspond to the outcomes of O'Cass & Ngo, 2010 and hence validate Salunke et al. (2013) conceptual argument that interactive (i.e., the front-end) and supportive (i.e., back-end) service innovation can have positive economic value for firms. Strengthening the argument that new service development enables firms to outperform their competitors (cf., Tajeddini, 2011).

Figure4

CONCLUSIONS AND IMPLICATIONS

Despite an increasing number of empirical investigations into service innovation management, and a plethora of studies demonstrating the positive impact of service innovation on performance, little or no consensus exists on what its antecedents are. Through the extant literature review, this research paper attempts to add to the body of knowledge and understanding of service innovation, answering Tseng et al., (2020) and Divisekera & Nguyen, (2018) calls for empirical work that deals with the enablers of service innovation. Although prior research has been fragmented our findings provide empirical evidence that interactive and supportive innovation in the service industry have a positive economic value, hence strengthening the debate on the value of service innovation in services. The study highlights the

importance of 4 key contributing factors; leadership, employee commitment and trust, a culture emphasizing creativity and finally knowledge management.

The findings of this research support prior studies (e.g., Schilling & Phelps, 2007) suggesting that effective service innovation requires coordinated management and leadership. Our results highlight that interactive and supportive innovation in tourism firms is highly dependent on the leadership commitment and support toward innovation. Successful service innovation requires leadership to create a culture and incentive structure that is consistent with the organization's aspirations. Effective leaders are able to inspire their followers to adopt the vision of the organization as though it were their own and to focus their energy toward the accomplishment of innovation goals.

Employees positively influence service innovation. Indeed this work substantiates earlier suggestions (See for example, Godbout; 2000; Sadikoglu & Zehir, 2010) to enhance service innovation organizations needs to focus on effective management of human resources. People management being significantly correlated with innovation performance is a key finding of this work. The integration of HRM systems with effective people management can enable a more effective continuous service innovation. Our results suggest managers should establish trust with employees in order to motivate and enthuse staff for successful service innovation. In contrast with profit-oriented organizations operating in a competitive industry which may need to push people to their limits in order to sustain business, our research notes people management plays a very important role in service innovation. The main rationale being people management attempts to create a work environment that encourages compassion and care which enhances the employees value proposition and increases employee commitment, and subsequent innovative and creative behaviours.

Our research has portrays creativity management as a complementary to effective HRM strategy that induces employees to act with greater initiative. Our results indicate that creativity management promote both interactive and supportive innovation. Indeed, creativity needs to be promoted, not simply with new service and product development but also operational and business model innovations and the impact of high commitment work systems and cross-functional teams should not be overlooked. Creating an environment of supportive human resource systems can enhance service innovation and organizations can benefit from this approach. These systems can include, for example, team building, team working, team rewards,

staff participation, internal promotion, extrinsic motivation, extensive training and benefits, job security, coupled with encouraging creativity among lower and mid-level managers (Berman & Kim, 2010; Xiao & Tsui, 2007).

Similar to creativity management, knowledge management in organizations seeks to acquire and utilize information from employees to address and resolve new challenges. The research further strengthens the importance of knowledge management and provides evidence of a significant relationship between knowledge management strategy and new service development. Tacit knowledge is important when it comes to both interactive and supportive innovation; the findings highlight knowledge management components of business activities are embedded in service innovation practice at the customer facing, front-end and process and systems innovations, back-end of the tourism business. By leveraging, and retaining tacit knowledge, along with creating a knowledge-friendly culture and multiple channels for knowledge transfer, firms can increase direct value creation experienced by customers as well as enhance the indirect value creating alterations at the back-end that leverage the innovative value proposition, often a challenge in an industry with high levels of labor turnover.

Successful innovations are never a one-off event (cf. Hana, 2013), but a result of a long-term investment in which human-related factors are present (e.g., leadership, people management, knowledge management, and creativity management). Our results substantiate that the wider human factor is important to the success of innovative activities within the service industries. Firms should focus on the importance of occupational training, intrinsic motivation, investment in learning, and creativity and the findings indicate that although an innovation strategy drives technology, a tourism firm should not overlook its talent. Empowering and supporting human resources as a genuine source of growth is key in the model of service innovation and while recruiting the right people with the right attitude is important training and developing staff shows results (Nieves & Quintana, 2018). Arguably, service innovation requires better synergy with leadership, people management, creativity management, and knowledge management.

This study also confirms that service innovation enables Tourism firms to attain enhance performance and enjoy financial rewards, consistent with previous studies in other sectors (e.g., Ottenbacher & Harrington, 2010). The ability to create, develop and launch new effective services in the marketplace can boost performance (e.g., Ordanini & Maglio, 2009) and can

be considered as one of the core competencies that firms need to compete, specifically in a dynamic and challenging business environment.

In conclusion, our results demonstrate the importance of service innovation on business performance in tourism service organizations. The evidence identified here implies that the inter-relationships of human related factors serve to supply a sustained advantage to tourism firms and are thereby important to understand. The study further strengthens the notion that creativity and empowered human resources are prerequisites for interactive and supportive service innovation. Whilst this is fundamentally consistent with earlier studies (e.g., Prajogo & Ahmed, 2006) in so far as revealing that human-related stimuli significantly promote innovation, this study contributes to our understanding by revealing that four human-related factors are key; leadership, employee commitment and trust, knowledge management, and creativity management as critical parts of service innovation. Indeed, if service innovation is important for tourism firms performance, the task of the management is to formulate a strategy that embodies people management (ongoing support and direction for the employees), creativity management (the ability to transcend traditional ideas to meaning and useful novel methods), knowledge management (capture, leverage and dissemination the organization's intellectual assets) and leadership (influencing and inspiring employees to accomplish their tasks). Stronger relationship with committed employees has a real impact on service innovation and business performance. Consequently, managers are required not only to recruit committed employees to their organizations, they should also offer existing employees the opportunity to grow in the organization.

A number of constraints are evident within this study opening up avenues for future research. First, the sample is composed of tourism service managers in Japan; however, future research can examine the drivers of interactive and supportive innovation in different service sectors and industries such as entertainment, sport, healthcare, wellness, retail which are just as involved with both interactive and supportive service innovation. Secondly, due to the small number of Japanese tourism firms surveyed (201), we cannot be absolutely certain that our sample is representative of all similar tourism firms. To determine external reliability, this initial research should be followed by a large-scale survey in different countries. The special focus on tourism firms in the Japanese-specific cultural and value working situation, thus, it would be interesting to examine a comparable method in other cultures, with dissimilar working values,

norms and experiences, especially in developing countries, so that reliable comparisons can be made. This research was focused on the strategic side of the organizations. However, user involvement may offer unique competencies to the service design process and allow firms to design a new paradigm for new service development (Magnusson et al., 2003).

Appendix A here

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Figure 1. Integrated model of service innovation management

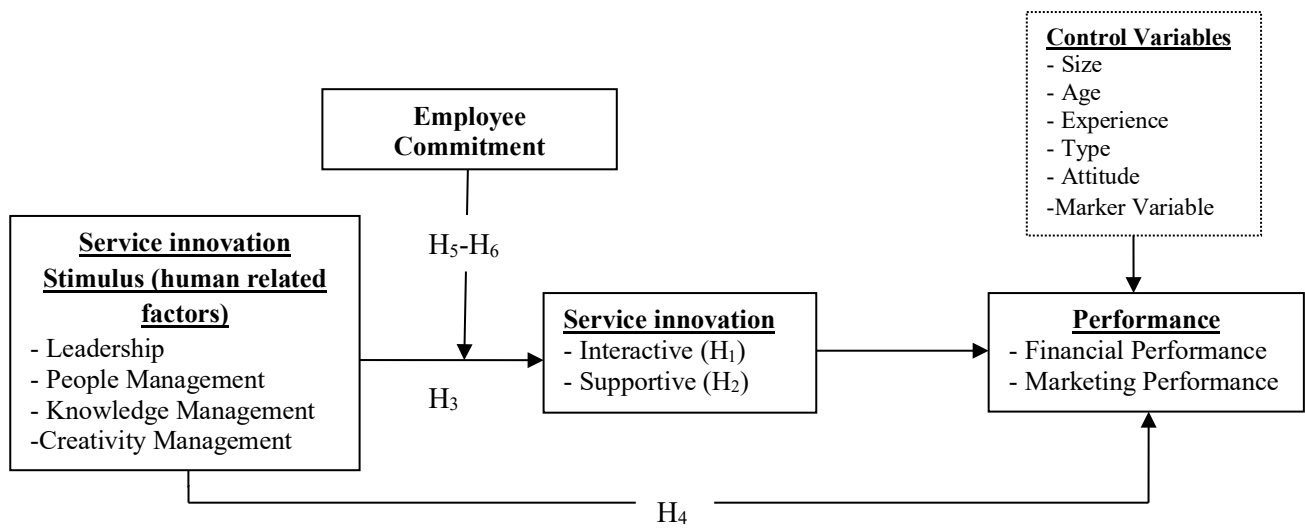
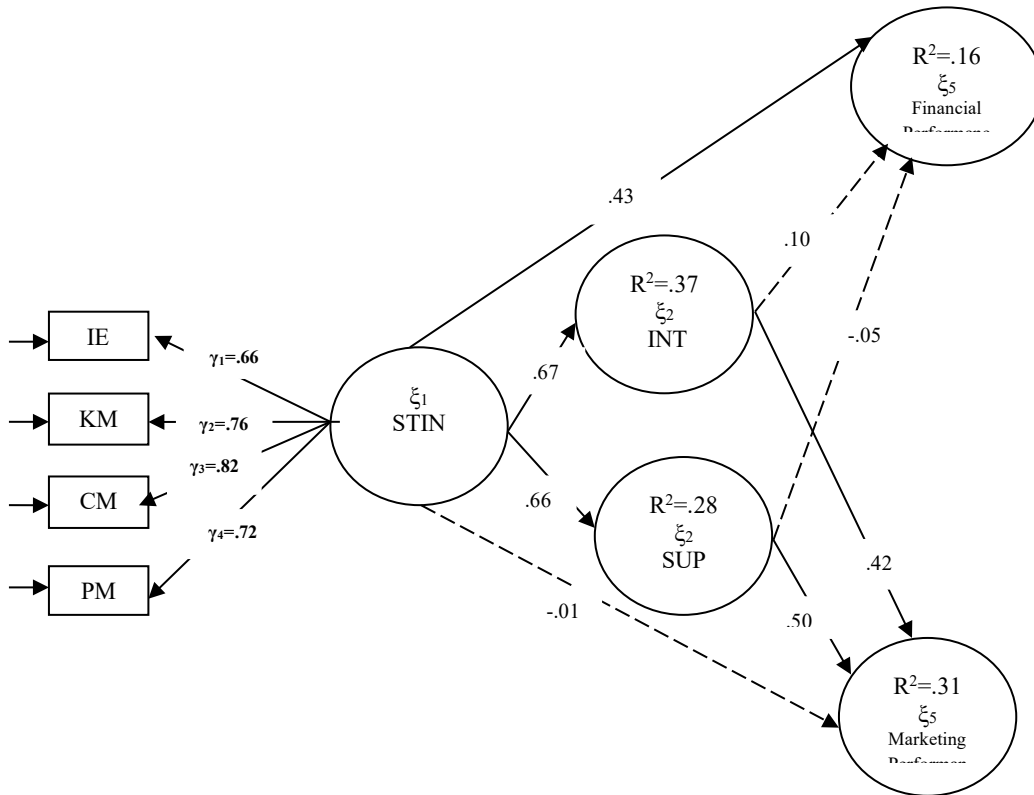


Figure 2: The results of SEM



Note: All paths are significant at $p = 0.00$, $\chi^2 = 119.78$, $df = 69$, $\chi^2/df = 1.74$, $p = 0.00$, $CFI = .95$, $\Delta 2 = IFI = .95$, $RMSEA = .06$, $TLI = .92$, $ECVI = 1.17$, $NFI = .89$, $RFI = .84$, $LE = Leadership$. $KM = Knowledge Management$, $CM = Creativity Management$, $PM = People Management$, $STIN = Service innovation stimulus$, $SI = Service Innovation$, $SU = Supportive Service innovation$, $IN = Interactive Service Innovation$, $PEF = Performance$, including financial and marketing indicators.

Figure 3, Panel A. The moderating role of employee commitment (EC) on the STIN–Integrative service innovation relationship

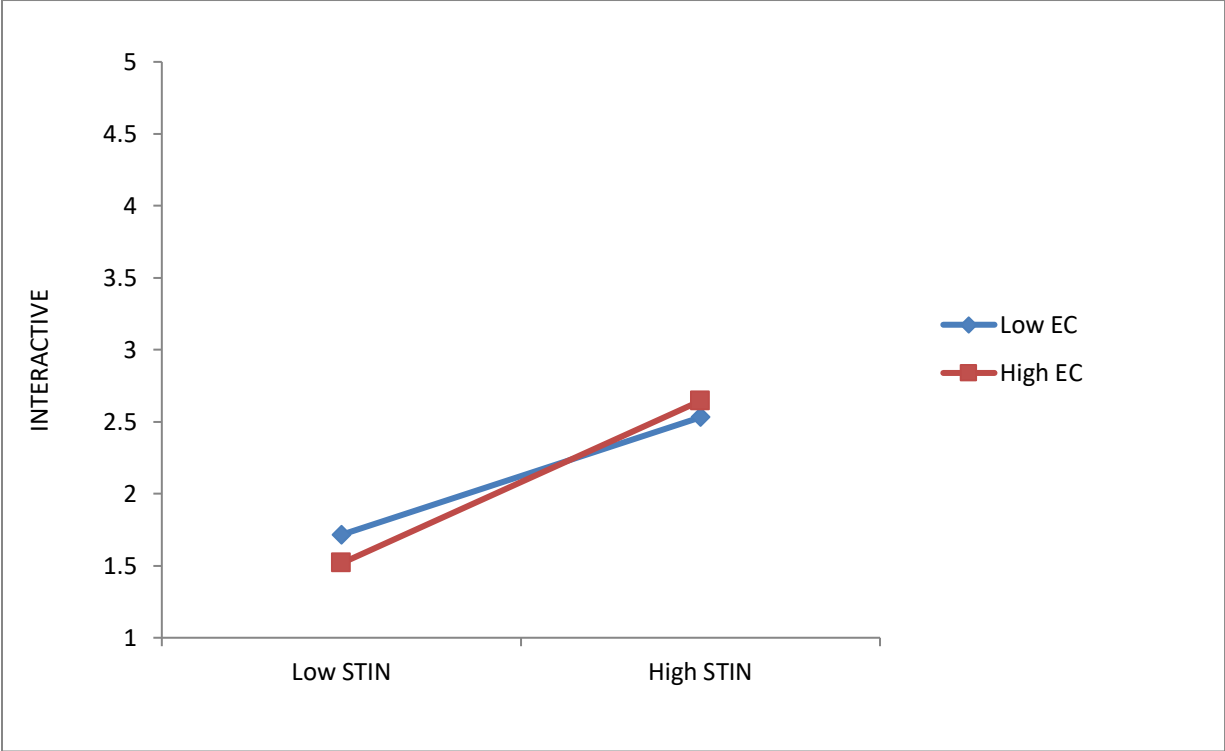
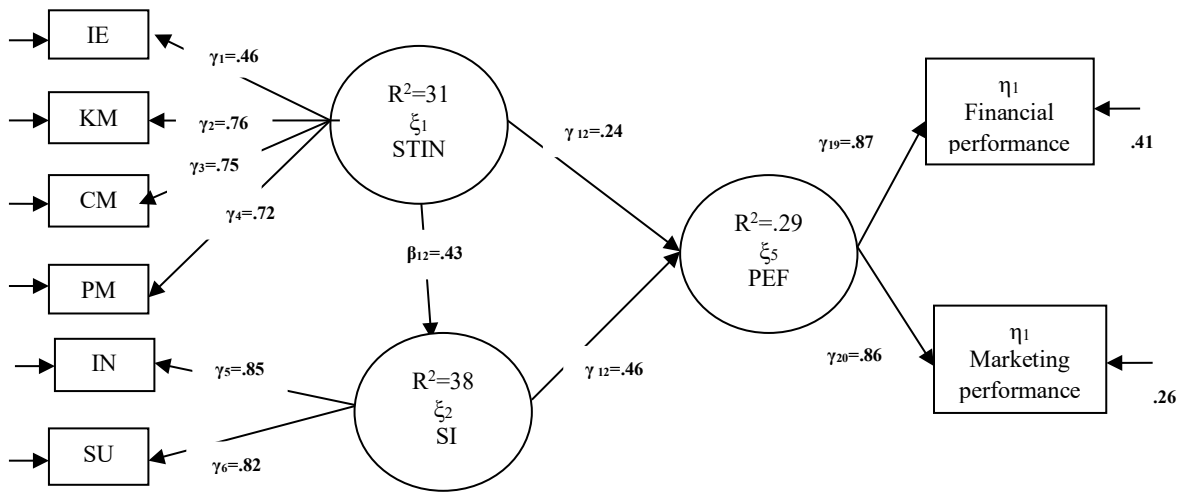


Figure 4. Full Structural Equation Modeling (SEM)



Note: All paths are significant at $p = 0.01$, $\chi^2=101.41$, $df=40$, $\chi^2/df=2.54$, $p=.00$, $CFI=.93$, $\Delta 2=IFI=.93$, $RMSEA=.07$, $TLI=.86$, $ECVI=1.07$, $LE=Leadership$. $KM=Knowledge Management$, $CM=Creativity Management$, $PM=People Management$, $STIN=Service innovation stimulus$, $SI=Service Innovation$, $SU=Supportive Service innovation$, $IN=Interactive Service Innovation$, $PEF=Performance$, including financial and marketing indicators.

Table 1: Construct validity and reliability (n = 201)^a

Model/variable	Mean	S.D.	CR	Reliability	Coefficients	χ^2	df	χ^2/df	p	CFI	RNI	Delta2	RMSEA	TLI	ECVI
Exogenous						532.69	322	1.65	.00	.95	.95	.95	.05	.93	2.67
Leadership	3.44	.53	.86	.710	.81-.85										
People Management	3.30	.64	.93	.871	.77-.82										
Knowledge Management	3.18	.56	.92	.831	.71-.79										
Creativity Management	3.10	.52	.87	.818	.79-.89										
Endogenous						93.88	53	1.77	.00	.98	.98	.98	.05	.97	1.59
Interactive Service Innovation	3.23	.48	.94	.915	.75-.86										
Supportive Service Innovation	2.67	.71	.88	.903	.80-.89										
Financial Performance	4.22	.43	.84	.854	.83-.86										
Marketing Performance	4.61	.25	.81	.733	.70-.82										
Employee Commitment	3.51	.34	.86	.893	.79-.86										

^a Exogenous (drivers)= service innovation stimulus (leadership, people management, knowledge management, creativity management), Endogenous= (service innovation = interactive service innovation, supportive service innovation), employee commitment, and (performance= financial and marketing performance), All loadings were significant at the p < 0.01 level

CR=composite reliability; χ^2 —Chi-square; df—degrees of freedom; CFI—Comparative Fit Index; IFI—Incremental Fit Index; NFI—Normed Fit Index; TLI—Tucker–Lewis index; RMSEA—Root Mean Square Error of Approximation; ECVI- Expected Cross-validation Index

Table 2: Intercorrelations, Average Variance Extracted and shared variances of measures (n = 201)^a

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Size (Log)	1	-.099	.235**	-.202**	.007	-.082	-.151*	-.083	.012	-.101	-.105	-.120	-.033	-.119
2. Age (Log)	-.068	1	-.055	.033	.008	.130**	-.049	.004	.017	.026	.068	-.139	.036	-.037
3. Experience (Log)	.265**	-.024	1	-.192**	-.042	-.072	.099*	.007	-.087	.044	-.061	-.145*	.011	-.100
4. Type	-.170**	.063	-.160**	1	.008	.055	.001	.109*	.160**	.031	.162**	-.055	.186**	.007
5. Attitude	.037	.038	-.011	.038	1	.121**	.010	.091*	.092*	.137*	.028	.013	.021	-.039
6. Leadership	-.050	-.160**	-.040	.085	.151**	1	-.103	.170**	.174**	.261**	.157**	-.072	.163**	.164**
7. People Management	-.119*	-.018	.129*	.031	.040	-.072	1	.014	-.189**	.171**	.044	.428**	.198	.213**
8. Knowledge Management	-.052	.034	.037	.139*	.121*	.200**	.044	1	.157**	.265**	.230**	.146**	.275**	.283**
9. Creativity Management	.042	.047	-.056	.190**	.122*	.204**	-.157**	.187**	1	.353**	.221**	.012	.257**	.302**
10. Employee Commitment	-.070	.056	.074	.061	.167*	.291**	.201**	.295**	.383**	1	.112*	.189**	.082*	.129**
11. Interactive Service Innovation	-.074	.098	-.030	.192**	.058	.187**	.074	.260**	.251**	.142*	1	.206**	.236**	.349**
12. Supportive Service Innovation	-.089	-.108	-.114*	-.023	.043	-.040	.458**	.176**	.042	.219**	.236**	1	.217**	.434**
13. Financial Performance	-.002	.066	.041	.216**	.051	.193**	.228**	.305**	.287**	.112*	.266**	.247**	1	.382**
14. Marketing Performance	-.088	-.006	-.069	.037	-.008	.194**	.243**	.313**	.332**	.159**	.379**	.464**	.412**	1
15. MV marker	-.081	.030	.150*	.138*	-.109*	-.157*	.034	.028	.082	.129*	.036	.136*	.120*	.142*
Average Variance Extracted	----	----	----	----	----	.61	.57	.70	.61	.78	.71	.61	.69	.58
HSV= Highest Shared Variance	----	----	----	----	----	.04	.21	.10	.11	.05	.14	.21	.17	.02

^a Note: Correlations below the diagonal are before the MV adjustment, whereas the correlations above the diagonal are after the MV adjustment (*p<.05, two-tailed test).

*p<.05

**p<.01

Table 3: Hierarchical Moderated Regression Analysis (n=201)

Predictor(Independent) variables	Criterion (Dependent) variables							
	Interactive service innovation				Supportive service innovation			
	Model 1	Model 2	Model 3	Model4	Model 5	Model 6	Model 7	Model 8
Step 1: Control variables								
Constant	3.188 (.121)	1.422 (.140)	.844 (.465)	.676 (.477)	3.082 (.222)	1.726 (.342)	1.172 (.140)	.202 (.146)
Firm size (log)	.039 (.205)	.130 (.149)	.157 (.148)	.156 (.148)	.143 (.377)	.194 (.362)	.247 (.363)	.241 (.356)
Firm age (log)	.070 (.037)	-.012 (.027)	-.004 (.028)	-.007 (.028)	.220** (.069)	.142* (.067)	.151 (.068)	.134 (.067)
Year Experience (log)	.118 (.060)	.002 (.044)	.011 (.044)	.010 (.044)	.100 (.110)	.123 (.107)	.016 (.107)	.010 (.105)
Firm type	.016 (.031)	.012 (.022)	.008 (.022)	.010 (.022)	.090 (.056)	.082 (.054)	.077 (.054)	.089 (.053)
Attitude	-.004 (.024)	.008 (.018)	.009 (.017)	.008 (.017)	-.032 (.045)	-.029 (.043)	-.028 (.043)	-.031 (.042)
Step 2: Direct effctcs								
Stimulus factors of innovation management (STIN)		.211*** (.020)	.392*(.146)	.405**(.146)		.172*** (.048)	.337 (.358)	.414 (.351)
Employee Engagement (EE)		.164 ***(.017)	.372***(.092)	.390***(.092)		.077 (.042)	.410 (.225)	.511 (.222)
Step 3: Interactions								
STIN × EE			.067*(.029)	.071*(.029)			-.106 (.071)	.016 (.262)
Marker variable				.035 (.023)				.200*** (.054)
R ²	.027	.503	.513	.517	.051	.145	.153	.192
Adjusted R ²	.010	.490	.496	.498	.034	.121	.123	.160
ΔR ²	----	.48	.006	.002	----	.087	.002	.037
F-value	1.603	36.500	30.101	27.714	3.106	6.092	5.162	6.142
ΔF	----	34.897	6.399	2.387	----	2.986	.93	.98

*p < .05, **p < .01, ***p < .001,

ΔR² means the increase in R² from the model to the previous model.

^aNone of the F statistics was significant when compared to the F critical (3,404) value of 8.53 at α = .05.

Note: Unstandardized regression coefficients are reported and ('t' values are given in parenthesis)

Appendix A. Measurement Items and Validity Assessment		SFL
Leadership	CR = .86, AVE = .61, HSV = .04	
1. Senior executives share similar beliefs about the future direction of this organization		.691
2. Senior managers actively encourage change and implement a culture of improvement, learning, and innovation towards 'excellence'.		.786
3. Employees have the opportunity to share in and are encouraged to help the organization implement changes.		.833
4. There is a high degree of unity of purpose in our company, and we have eliminated barriers between individuals and/or departments.		.840
People Management	CR = .93, AVE = .57, HSV = .21	
1. We have an organization-wide training and development process, including career path planning, for all our employees.		.780
2. Our company has maintained both 'top-down' and 'bottom-up' communication processes		.755
3. Employee satisfaction is formally and regularly measured.		.852
4. Employee flexibility, multi-skilling and training are actively used to support performance improvement.		.845
5. We always maintain a work environment that contributes to the health, safety and well-being of all employees.		.811
Knowledge Management	CR = .92, AVE = .70, HSV = .10	
1. The build-up of intellectual capital is of strategic importance to management to gain competitive advantage.		.842
2. We always upgrade employees' knowledge and skills profiles.		.837
3. Our company builds and maintains virtual and physical channels for sharing and disseminating information.		.786
4. Our company manages its own special techniques.		.766
Creativity Management	CR = .87, AVE = .61, HSV = .11	
1. We provide time and resources for employees to generate, share/exchange and experiment innovative ideas/solutions.		.771
2. Employees are working in diversely skilled work groups where there is free and open communication among the group members.		.752
3. In our company, employees frequently encounter non-routine and challenging work that stimulates creativity.		.771
4. Employees are recognized and rewarded for their creativity and innovative ideas.		.748
Interactive Service Innovation	CR = .94, AVE = .71, HSV = .14	
1. The mode by which our firm interacts with our clients advantage.		.764
2. The areas of expertise that our firm offers		.798
3. The ways in which the services we provide are delivered information.		.847
4. The speed in which our firm delivers services (e.g. accelerated delivery)		.834
5. The image of our firm (e.g. the portrayal of your brand/ reputation)		.826
6. The flexibility of our products or services (e.g. customization)		.764
Supportive Service Innovation	CR = .88, AVE = .61, HSV = .21	
1. The ways in which the services we provide are produced		.802
2. The ways by which our firm evaluates the quality of the service offered		.749
3. The nature of technology that is used to produce services		.817
4. The processes by which our firm procures resources to offer services		.846
5. The collaborative arrangements our firm has with other businesses		.778
6. The procedures followed by our firm in training staff		.723
Financial Performance Over the past 3 years,	CR = .84, AVE = .69, HSV = .17	
1. Profit goals have been achieved.		.804
2. Sales goals have been achieved.		.767
3. Return –on-investment goals have been achieved.		.769
4. Return –on- sale goals have been achieved.		.752
5. Return –on- asset goals have been achieved.		.704
6. Market share goals have been achieved.		.789
Marketing Performance Over the past 3 years,	CR = .81, AVE = .58, HSV = .02	
1. We have a higher customer retention rate that our competitors.		.768
2. We have a better reputation among major customer segments than our competitors.		.712
3. Our customer satisfaction level is higher than that of our competitors.		.787
4. Our customer loyalty level is higher than that of our competitors.		.734
Employee Commitment	CR = .85, AVE = .60, HSV = .38	
1. Our staff feel as though their future is intimately linked to that of the company.		.731
2. Our staff would be happy to make personal sacrifices if it were important for the company's well-being.		.789
3. The bonds between the company and our staff are strong.		.743
4. In general, our staff feel proud to work for the company.		.801
5. Our staff often go above and beyond the call of duty to ensure the company's well-being.		.769
6. Our staff have strong commitment to the company.		.807
7. It is clear that our staff are fond of the company.		.767

Notes. SFL = standardized factor loading; CR = composite reliability; AVE = average variance extracted; HSV = highest shared variance with other constructs.