Effects of resource orchestration, strategic information exchange capabilities, and digital orientation on innovation and performance of hotel supply chains

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Highlights

- How strategic information exchange and resource orchestration capabilities foster supply chain innovations, ultimately enhancing the performance of hotel supply chains.

- This paper explains the joint mechanism by incorporating mediation and moderation effects, broadening the extant tourism supply chain management literature into the digital context.

- This study uncovers the potential of the information sharing theory as a complementary theoretical framework to the resource orchestration theory that can be used to explain how a hotel can foster supply chain innovation.

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Abstract

Supply chain (SC) innovation has become a competitive source for hotels to enhance performance in the turbulent business environment. Drawing on the resource orchestration (RO) and information sharing (IS) theories, we propose an integrated theoretical framework delineating how strategic information exchange (SIE) and RO capabilities and digital orientation of a hotel foster innovation and enhance the performance of its SC. Based on PLS-SEM analysis of data collected from 281 hotels in the United Arab Emirates, our findings indicate that RO and SIE capabilities of hotels influence the performance of SCs, whereas SC innovation mediates the said relationships. However, contrary to the expectations, digital orientation did not moderate the relationships between RO and SIE capabilities and SC innovation of hotels.

Keywords: *Resource orchestration capability, Digital orientation, Strategic information exchange capability, Supply chain innovation*

1. Introduction

Supply chain (SC) innovation has emerged as one of the most extensively discussed notions in the service management literature (Gloet & Samson, 2022; Wong & Ngai, 2022). However, as a service SC, tourism SCs face intense challenges in synchronizing their operations and sustaining performance in the contemporary business environment characterized by increasing uncertainty, volatility, and dynamism (Gamage & Tajeddini, 2022; González-Torres et al., 2021; Gruchmann et al., 2022). Consequently, a novel research stream on tourism SC management emerged in 1975 when the World Tourism Organization presented its first report about tourism product distribution (Neuhofer et al., 2015). While extensive, the vast majority of mainstream studies have focused on the benefits a tourism entity (i.e., hotels, restaurants, tour operators) reaps from effective SC management or the positive effect of SC management on firm performance (Cheunkamon et al., 2022; Thahir et al., 2022; Zhao & Hou, 2022). For instance, being one of the most important entities in the tourism industry, prior studies on hotel SCs have mainly concentrated on evaluating green practices and performances in hotel SCs (Chen et al., 2021; Mandal & Saravanan, 2019) and possible mechanisms through which a hotel and online travel agents can collaborate (Arifin et al., 2019; González-Torres et al., 2021). However, a significant gap exists in the tourism SC management literature concerning the strategies and practices that foster SC innovation that may ultimately enhance the performance of SCs in general and in hotels in particular (Espino-Rodríguez & Taha, 2022).

When pondering the hotels where SC innovation is considered the primary source of competitive advantages, it is evident that SC innovation has not occurred due to a single resource these hotels own. Instead, it has resulted from combining both tangible and intangible resources (i.e., finance, routines, skills, knowledge, information, systems, and technologies) and capabilities these hotels own. However, theoretical and empirical research on how a blend of firm resources and capabilities enables SC innovation of hotels is scarce (Espino-Rodríguez & Taha, 2022; Jain et al., 2022). Consequently, in this empirical study, we aim to address this void by comprehending how different combinations of resources and capabilities enable hotels to achieve SC innovation, ultimately enhancing the performance of hotel SCs. We primarily develop our argument based on the RO theory (cf. Sirmon et al., 2007, 2011), which argues that managers must orchestrate different combinations of firm resources instead of relying on a single resource to obtain a competitive advantage.

Considering profoundly different possible combinations of resources and capabilities, contemporary tourism literature highlights that the applications of progressive information and communication technologies (ICTs) (i.e., web-enabled smart devices, blockchain, and big data analytics) have drastically altered how tourism entities manage their SC activities in recent times (Jalilvand et al., 2019; Kerdpitak, 2022; Mandal & Saravanan, 2019). Effective deployment of digital technologies in SC activities improves the information exchange capabilities of tourism entities by facilitating obtaining and disseminating of timely and accurate information (Hadjielias et al., 2022). Consequently, in the realm of Industry 4.0, the SIE capabilities of tourism entities can be recognized as a critical driver in facilitating SC innovation (Dalkiran, 2022). Today most tourism entities seldom employ a single digital resource or a capability in their SC management activities but depend on a combination of different digital technologies and capabilities (Dalkiran, 2022; Kerdpitak, 2022). However, despite this trend, empirical and theoretical literature concerning how RO and SIE capabilities influence the performance of hotel SCs is still conflicted (Jalilvand et al., 2019), indicating the need for more research into the mechanisms by which RO and digital technology deployment lead to the performance of hotel SCs.

In this context, the IS theory provides a complementary view to the RO theory and attempts to address the void in contemporary tourism literature. The core of the IS theory (cf. Constant et al., 1994) provides insight into the triggers that promote and obstruct information exchange among individuals within a business firm. While digital technology deployment has been demonstrated to increase the availability and accessibility of timely and accurate information (Iranmanesh et al., 2022; Kumar et al., 2022), we argue that RO capabilities coupled with SIE capabilities will better direct and motivate hotels to foster SC innovations.

On the other hand, although hotels have been rapidly deploying emerging digital technologies to improve business performance recently (Iranmanesh et al., 2022; Manigandan & Raghuram, 2022), there is still a controversy about how SIE capabilities fostered by digital technology deployment enable hotels to improve SC performance (Jalilvand et al., 2019; Alkier et al., 2022). In this realm, the hospitality literature underlines the requirement for a hotel's active orientation to digital technology to fully realize the benefits of SIE capabilities in increasing SC performance (Hussain & Malik, 2022). Given the above, rooted in the RO and IS theories, the primary objective of this study is to determine how the digital orientation, SIE, and RO capabilities of a hotel contribute to SC innovation and performance by addressing the following research questions:

1. Does SC innovation mediate the influence of RO capabilities and SIE capabilities on the performance of hotel SCs?
2. Does the digital orientation of a hotel moderate the linkages between RO capabilities, SIE capabilities, and SC innovation?

By addressing these research questions, we aim to advance prior theoretical and practical knowledge of tourism SC management in three aspects. First, drawing on the RO and IS theories, our integrated theoretical model incorporating mediation and moderation effects widens the extant tourism SC management literature into the SC innovations in the digital context. More specifically, the proposed integrated model offers a thorough explanation of how SIE and RO capabilities and the digital orientation of a hotel could be constructed as a joint mechanism to foster SC innovations, ultimately enhancing the performance of hotel SCs. Second, most prior studies (e.g., Breiling, 2020; Hossain et al., 2021; Hussain & Malik, 2022) have used the resource-based view (RBV) or dynamic capabilities view (DCV) to understand the relationship between SC innovation and hotel performance. From this study, we offer novel insights on how digital technology deployment of a hotel facilitates SC innovation from a RO theory perspective, thus providing fresh insights into the prior tourism SC management literature. Third, we uncovered the potential of the IS theory as a complementary theoretical framework to the RO theory that can be used to explain the complementarity of the SIE and RO capabilities and digital orientation of a hotel in fostering SC innovation.

The next section of the paper discusses the related theoretical and empirical literature that provides the foundation for the suggested integrated theoretical model and hypotheses. Then, the research method adopted, data analysis, and key findings are discussed. Finally, the implication for theory and practice is provided.

2. Theoretical underpinning

2.1 Resource orchestration theory (RO theory)

RO theory is a robust theoretical foundation that combines the RBV and DCV into a single theoretical oeuvre by overcoming the constraints of each (Sirmon et al., 2007, 2011). Both these theoretical perspectives contend that possessing resources and capabilities that are valuable, rare, inimitable (difficult to duplicate), and non-substitutable allows a business firm to achieve a

competitive advantage (Manzoor et al., 2021). However, these theories were later criticized because, despite identifying the criteria that resources and capabilities must satisfy to be viewed as a sustained source of competitive advantage, none explain how business firms can strategically leverage these resources and capabilities to reap the value creation results from having them (cf. Gligor et al., 2022; Malik et al., 2021). This gap is termed in the extant literature as the *"black box"* between resources and enhanced firm performance (Gligor et al., 2022). RO theory addresses this void by explaining how business firms can enhance their performance by combining resources, capabilities, and managerial acumen (Gligor et al., 2022).

The RO theory considers a business firm as a bundle of resources and capabilities. As Sirmon et al. (2011) emphasized, achieving a sustainable competitive advantage for a business firm depends on strategically allocating these resources and capabilities by creating synergistic effects. The potential complementarity of these resources and the efficiency of a business firm in orchestrating them both inside and outside of firm boundaries determine its capability to create the said synergistic effect (Malik et al., 2021). As emphasized, RO can be done in three ways: structuring, bundling, and leveraging. Structuring refers to acquiring, accumulating, and disinvesting resources, whereas bundling involves stabilizing and augmenting existing capabilities and developing new capabilities (Sirmon et al., 2011). Leveraging consists of a series of actions, such as mobilizing capabilities to shape required resource configurations, coordinating the creation of integrated resource configurations, and deploying these configurations in line with the business strategy (Sirmon et al., 2007, 2011).

Although the RO theory was initially developed focusing on the firm level, some scholars (e.g., Burin et al., 2020; Malik et al., 2021) recently stressed the need to transcend its scope beyond a firm's boundary as resources are not always readily available within business firms. For instance, Gligor et al. (2022) noted that firms facing resource constraints could gain a competitive advantage by networking with their SC partners. Consequently, the RO theory emerged as a robust theoretical framework in SC management literature lately. The RO theory perspective is used in investigating SC flexibility (Benzidia & Makaoui, 2020; Burin et al., 2020), SC analytical capability (Kristoffersen et al., 2021), and SC traceability (Gligor et al., 2022; Malik et al., 2021), among others, mainly in manufacturing industry contexts. However, it remains inadequately researched in the context of hotel SCs. Consequently, this paper addresses this void by linking a hotel's digital orientation, resource orchestration, and SIE capabilities by applying the RO theory perspective.

We further intend to strengthen the explanatory power of the RO theory by merging it with the information-sharing theory to study the innovativeness of hotel SCs in the digital context.

2.1 Information sharing theory (IS theory)

The IS theory, drawn from the social exchange theory, was first put forth by Constant et al. (1994) to study the influences on individuals' intentions to share information. The theory goes beyond information exchanges that typically occur among friends and personal contacts, including *"organizationally remote strangers they will never meet in person"* (Constant et al., 1994, p. 401). It states that those individuals' intentions to share and exchange information within a business firm are asserted by individual factors (i.e., power, reciprocity, rational self-interest) and social and organizational factors. This is extremely important in the context of SC, where social and organizational factors regulate the information exchange between a business firm and its SC partners by considering the concerns they have for maintaining future relationships, the balance of power, image, and so forth (Espino-Rodríguez & Taha, 2022). Thus, IS in the SC context can be conceptualized as seizing and disseminating timely and pertinent information for decision-making to control SC operations (Wang & Zhuo, 2020).

Information is considered critical in enhancing the performance of hotel SCs as tourists frequently long for information about their travel destinations and the experiences they will receive (Gamage et al., 2022; Jalilvand et al., 2019). Since now most hotels look for SC collaboration beyond the hotel's boundary to foster SC innovation and enhance performance (Espino-Rodríguez & Taha, 2022; Kerdpitak, 2022), the starting point of collaboration is some form of information sharing. Although evaluating the value of information sharing in SCs has recently attracted considerable attention from scholars and industry practitioners, prior literature has not properly examined the value of information sharing in enhancing SC performance using an appropriate theoretical framework.

However, using an appropriate theoretical framework is needed in this context as the collaboration of hotel SCs is complex and highly diverse and may consist of collaborations between highly heterogeneous tourism entities such as travel agents, tour operators, souvenir shops, and restaurants that supply various forms of goods and services for tourists (Dalkiran, 2022; Espino-Rodríguez & Taha, 2022). Consequently, in this paper, the combined strengths of the RO

and IS theories are employed as the theoretical underpinning to examine how a hotel's digital orientation, SIE, and RO capabilities contribute to SC innovation and performance.

3. Hypotheses development

As discussed, inspired by the RO and IS theories, we develop the following integrated conceptual framework shown in Figure 1. For brevity, we used the following abbreviations for the following terms: RO for resource orchestration, SIE for strategic information exchange, and SC for the SC.

Figure 1

The RO theory, which addresses the criticisms and limitations of the RBV and DCV, has been commonly used in extant SC management literature to explore the effects of resource and capabilities reconfiguration of SCs to enhance business performance (Gligor et al., 2022; Kristoffersen et al., 2021; Malik et al., 2021). Many scholars (e.g., Benzidia & Makaoui, 2020; Burin et al., 2020) echoed that business firms with higher RO capabilities pursue SC innovation opportunities that other firms consider to be what they cannot pursue due to resource constraints by merging with SC partners. Consequently, prior SC management literature uncovers that RO capabilities exert a strong positive effect on business performance (Kristoffersen et al., 2021; Malik et al., 2021).

However, if it is brought to the context of this paper, surprisingly, although hotel SCs are complex and resource-intensive due to simultaneous interactions between heterogeneous SC partners to be competitive, the link between RO capabilities and business performance has received scant scholarly attention in the tourism SC management literature (Espino-Rodríguez & Taha, 2022; Gruchmann et al., 2022). Nevertheless, when confronted with the challenging conditions hotels operate in today, collaborating with SC partners by orchestrating available resources and capabilities is considered a critical determinant of SC innovation and enhancing performance (Aigbedo, 2021; Jain et al., 2022). Consequently, drawing from the preceding discussion, we hypothesize:

H_1. *RO capabilities positively affect the performance of the hotels*

In the contemporary business world, the competitiveness of business firms is primarily determined by their abilities to manage relationships with internal and external SC partners (Al-Ayed et al., 2023; Wong & Ngai, 2022). This calls for creating and maintaining effective

communication channels and proper information flow mechanisms to ensure a high level of integration and dynamic interactions with every entity involved in the SC (Malacina & Teplov, 2022). Consequently, information exchange among SC partners is consistently mentioned in the prior literature as a critical determinant in managing SC relationships and driving the achievement of SC innovations and performance (Bahrami et al., 2023; Gligor et al., 2022).

Information shared on an SC can be grouped into two categories: operational or strategic (Ha & Tang, 2017). Operational information typically includes routine sales and logistics activities, including order status and inventory levels (Ramayah & Omar, 2010). It is mainly performed to shorten cycle times, manage inventory levels and enhance customer service. On the other hand, strategic information enfolds information related to a firm's business strategies, including marketing and logistics (Ha & Tang, 2017). Strategic information is mainly practiced to strengthen the collaboration among SC partners and formulate strategies to face forthcoming strategic changes. As the literature indicates, SIE capabilities lessen total logistics costs and enrich customer value creation, thus enhancing business performance and competitiveness (Azadegan et al., 2019; Kummer et al., 2020).

Although SIE capability is considered critical in enhancing the performance of hotel SCs primarily due to the information-intensive nature of hotel products and the complex and highly diverse nature of hotel SCs (Dalkiran, 2022; Gruchmann et al., 2022), so far, it has been overlooked to investigate how SIE capabilities influence the performance of hotels (Espino-Rodríguez & Taha, 2022; Jain et al., 2022). However, based on the prior literature support and IS theory, we hypothesize as follows:

***H_2**. SIE capabilities positively affect the performance of the hotels.*

2.1 SC innovation, SIE and RO capabilities, and hotel performance

SC innovation can be broadly conceived as a radical or gradual transformation in the SC processes, networks, or technologies that might be applied to provide novel value-creation opportunities for all the entities involved in an SC (Belhadi et al., 2021). Most notably, in the modern markets, SC innovation depends heavily on advanced technological progressions that maximize the efficiency and effectiveness of SCs, enhancing the value delivered to the end customer (Azadegan et al., 2021; Burin et al., 2020). Consequently, extant SC management

literature widely acknowledged SC innovation as a critical driver of business performance (Bahrami et al., 2022).

Applying the RO theory perspective in the SC management literature postulates that a business firm's ability to structure, bundle, and leverage resources across an SC determines its capacity to foster SC innovation (Bahrami et al., 2022). Conversely, SIE capabilities of business firms are prone to accelerate SC innovations by solving SC conflicts, gathering and sharing market intelligence across SC partners to satisfy customer needs, and, eventually, establishing new strategies to cope with uncertainty (Malacina & Teplov, 2022; Gligor et al., 2022). This is particularly relevant to hotel SCs, as they are complex and resource intensive; they need close collaboration with SC partners to foster SC innovations and create value for their customers (Gruchmann et al., 2022; Jain et al., 2022). Based on the preceding arguments, we propose SC innovation as a mediating variable between the RO and SIE capabilities of hotels and their performances in this paper. Thus, the following hypotheses emerged:

H_{3a}. *SC innovation mediates the effect of RO capabilities and hotel's performance*
H_{3b}. *SC innovation mediates the effect of SIE capabilities and hotel's performance*

2.2 Digital orientation, SIE and RO capabilities, and SC innovation

Prior literature proposes digital orientation as one of the key strategic orientations that focus on the alterations created within a business firm as a result of deploying digital technologies (i.e., Web and mobile applications, social media networks, internet of things) in executing main business processes (Kindermann et al., 2021; Rupeika-Apoga et al., 2022). Besides the technological aspects, the digital orientation of a business firm is inextricably tied to strategic changes to the business model brought about by implementing digital technologies, which in turn, enhance the competitiveness of business firms (Kindermann et al., 2021). This view is in line with prior literature on strategic orientations, such as the perspectives of RO capabilities and innovation orientation (Chen & Tian, 2022; Mubarak & Petraite, 2020; Tajeddini et al., 2023a,b).

With the extensive application of the RO theory in the SC literature in recent times, ICT resources and capabilities emerged as essential elements for fostering SC innovation and performance (Ageron et al., 2020). Prior literature discusses how bundling and configuring ICT resources and capabilities into SC operations creates operational and strategic advantages for

business organizations. For instance, Burin et al. (2020) emphasized that ICT capabilities and resources enable business firms to derive and disseminate market intelligence across SC partners, thus improving business firm's ability to respond to sudden market changes. Moreover, Malik et al. (2021) discussed that a business firm's digital orientation improves its RO capabilities by giving managers quicker access to crucial market data, which enables them to make prompt and informed decisions. Following the same line of thinking, referring to the tourism industry, Gruchmann et al. (2022) recently noted that ICT resources and capabilities of business firms amplify SC innovation by facilitating RO and improving strategic coordination among SC partners. With the above rationale and literature support, we posit that the digital orientation of a hotel would further strengthen the relationships between RO and SIE capabilities and SC innovation. We thus formulated the following hypotheses:

H_{4a}. Digital orientation moderates the effect of RO capabilities on SC innovation
H_{4b}. Digital orientation moderates the effect of SIE capabilities on SC innovation

4. Methodology

We selected the United Arab Emirates (UAE) as the study's target country for several reasons. First, it has been widely recognized as a top tourist destination in the world where the tourism sector contributed approximately 11.8% of the total GDP (180 billion AED) before COVID-19, which has drastically dropped its contribution to 5.4% during the pandemic (https://www.moec.gov.ae). However, showing a solid comeback, the UAE tourism sector remarkably surpassed a 20% growth rate, generating 11 billion AED in revenue during the first quarter of 2022 compared to 2019 (https://www.moec.gov.ae). Second, prior literature indicates that innovation in SCs was the key strategic decision that smoothed the revitalization of the tourism sector in the UAE in the post-pandemic (Aigbedo, 2021; Hussain & Malik, 2022). For instance, hotels such as New Orleans, Roosevelt, Hilton, and Wyndham have swiftly espoused innovations across their SCs during the pandemic to recuperate their market positions (Aigbedo, 2021).

We select the Orbis (https://orbis.bvdinfo.com) and UAE Travel and Tourism (The Official Portal of the UAE Government) portals to recognize our population. Approximately 1356 hotels satisfy our criteria of SC innovation, digital orientation, strategic capabilities, hotel category, and size. We randomly approached 780 hotels, and the management of 430 hotels agreed to participate,

and one manager was selected from each hotel. We received 312 responses, out of which 32 were disregarded due to the high density of missing values and illogical responses, yielding 281 valid responses with an effective response rate of 65 %, considered an acceptable response rate (Hair et al., 2006).

An a-priori sample size calculator for structural equation modeling (SEM) was adopted to calculate the minimum sample size (Soper, 2022). The calculator returns a recommended minimum sample size of 150, using a medium anticipated effect value and a statistical power level of 0.80 (Cohen, 1988). Thus, the total sample of 281 can be deemed sufficient and practically acceptable for testing the proposed conceptual model.

4.1 Measurement instrument and endogeneity

All variables were adapted from previously published validated instruments and measured on a 5-point Likert scale ranging from totally disagree to totally agree. Analytically, RO capabilities indicators were adapted from Kristoffersen et al. (2021) as a second-order formative construct consisting of three first-order formative constructs: bundling, leveraging, and structuring. SIE capabilities, SC innovation, and digital orientation were measured as first-order reflective constructs using five, six, and four items, respectively (Khin & Ho, 2019; Moberg et al., 2002). Finally, hotel performance was measured as a second-order formative construct using a subjective (i.e., competitiveness) and an objective (i.e., financial) first-order formative construct (Khan et al., 2020; Kristoffersen et al., 2021). For consistency reasons, managers were assessed for their knowledge of current ICT assets and resources (Kristoffersen et al., 2021). The description of the indicators and constructs is provided in Table S1 in the supplementary materials.

Endogeneity is a common and largely overlooked problem in management studies (Antonakis et al., 2014; Qalati et al., 2023), which *"occurs when predictor variables are correlated with other causes of the dependent variable, which are effectively collapsed into the residual term"* (Aguinis & Edwards, 2014, p. 154). Although there are various roots behind the endogeneity problem, omitted variables have been identified as a primary source of that problem (Busenbark et al., 2022). The inclusion of control variables has been suggested as a remedy for the problem of endogeneity as long as their use is substantiated by the theory (Bernerth & Aguinis, 2016). Thus, four control variables were incorporated in the model as single-item constructs, as previous studies have suggested: hotel chain (Pawlicz & Napierala, 2017; Yang et al., 2016); hotel category

(Papastathopoulos et al., 2021); hotel size (Papastathopoulos et al., 2021; Soler et al., 2019) and managers' experience (Karim & Williams, 2012). The latter was represented by two dummy variables (Dummy 1=two to five years; Dummy 2 = more than five years of managerial experience), with the first category used as the reference (less than two years of managerial experience).

4.2 Analysis method

Researchers must consider two different methods when applying SEM. The first, covariance-based SEM (CB-SEM), relies on the concept of covariance between the indicators (Joreskog, 1973), while the second, composite-based partial least squares SEM (PLS-SEM), create linear combinations of the observed indicators (Hair et al., 2021; Henseler, 2021). The practical distinction between those two methods is that the CB-SEM's objective is to *"minimize the differences between the estimated and sample covariance matrices"* (Usakli and Kucukergin, 2018, p. 3464), making CB-SEM ideal for confirmation and theory testing (Hair et al., 2011), whereas PLS-SEM's objective is to maximize the variance explained by the endogenous variables, making PLS-SEM more suitable for prediction-oriented studies (Chin et al., 2020; Hair, 2021). Moreover, PLS-SEM is preferred when the path model is complex, including many relationships, observed variables, and formatively measured constructs (Hair et al., 2019; Sarstedt et al., 2021), when the data distribution is a concern (e.g., violation of univariate and/or multivariate normality) (Hair et al., 2019) and when testing mediating effects (Nitzl et al., 2016).

The latter is a significant contributing factor towards using composite-based SEM because many studies have, surprisingly, overlooked notable limitations when using non-latent mediation analyses, such as PROCESS macro, regression-based mediation analysis, and SEM (Hayes, 2022; Hayes et al., 2017). The criticisms concern two important limitations of PROCESS-based analysis in handling models with latent variables. As Sarstedt et al. (2020, p. 4) state, PROCESS analysis *"is confined to estimating singular model structures in isolation, and ignores the diluting effect of measurement error."* On the contrary, composite-based SEM methods, such as PLS-SEM, estimate the entire model structure in a single analysis and correct for measurement error without the need for researchers to use the PROCESS approach when they are testing mediation and moderated mediation effects (Becker et al., 2018; Sarstedt et al., 2020).

The above points justify our decision to employ composite-based SEM to examine the proposed integrated theoretical model. As suggested by Hair et al. (2021) and Benitez et al. (2020), we first assessed the overall exact model fit, then the results of the reflective and formative measurement models, and, lastly, we evaluated the structural model, following the updated guidelines for performing and reporting PLS path modeling (Benitez et al., 2020; Hair et al., 2019; Hair et al., 2021; Sarstedt et al., 2021; Shmueli et al., 2019). Finally, 10,000 bootstrap samples were used to estimate the level of significance of path coefficients, loadings, and weights with *"Bias-corrected and accelerated (BCa) bootstrap 95% confidence interval"* (Streukens & Leroi-Werelds, 2016, p. 625), while Model B and PLSc were used to estimate composite and reflective measurement models, respectively (Benitez et al., 2020). The two-stage approach for the endogenous construct hotel performance (HP) was employed to overcome the variance issue when *"the higher-order construct also serves as a dependent construct in a path model"* (Sarstedt et al., 2019, p. 199).

5. Findings

Out of 281 valid questionnaires, 176 were from four-star rated hotels and 106 from five-star rated hotels from three different Emirates (Dubai, Abu Dhabi, and Sharjah), which are listed in the top 100 city destinations index developed by Euromonitor International (Yasmeen et al., 2021). Regarding the years of experience of the managers, 85 had two years of experience, 108 were between two to five years, and 88 had over five years of experience. Slightly under half of the hotels were associated with a chain (137 or 48.8%), of which 40.1% were five-star hotels and 59.9% were four-star hotels. Concerning the managerial level represented by the respondents, the majority were working as middle-level managers (n=121 or 43.1%), followed by primary-level (n=88 or 31.3%) and high-level managers (n=72 or 25.6%). Finally, to ensure that our sample represents the objective reality, managers from different departments were invited to participate in the survey. More specifically, 79 managers came from the operations department, 76 from the strategic department, 48 from the information technology department, and 42 and 36 came from purchasing and finance departments, respectively.

As presented in Table 1, the univariate normality assumption showed that five and thirteen items were above the threshold of ±1 for skewness and kurtosis, respectively (Hair et al., 2021). Likewise, all the multivariate normality tests rejected the null hypothesis, indicating a substantially

non-normal distribution, too (Doornik & Hansen, 2008). Thus, performing PLS-SEM is judicious as it does not make univariate or multivariate distributional assumptions (Hair et al., 2019).

Table 1

5.1 Model fit and measurement model assessment

We used cSEM Package in R to measure the overall model fit for the first- and second-order models (Henseler, 2021; Schuberth, 2022). More specifically, we evaluated whether the discrepancy between the empirical and estimated variance-covariance matrix *"is so large that it cannot be attributed to sampling error anymore"* (Henseler, 2021, p. 120). Previous studies have recommended using three discrepancy measures, the unweighted least squares discrepancy (d_{ULS}), the standardized root means square residual (SRMR), and geodesic discrepancy (d_G) (Henseler, 2021). As shown in Table 2, the three discrepancy measures are below the bootstrap-based 95% percentile (i.e., HI95), indicating no significant misfit of the composite measurement structure of our constructs (Benitez et al., 2018; Schuberth et al., 2020).

Table 2

5.2 Formative measurement model evaluation

Following the confirmatory composite analysis (CCA) guidelines recommended by Hair et al. (2020), we first examine the convergent validity for the lower and higher-order formative constructs by adopting a globally measured single item. This analysis is called redundancy analysis (Hair et al., 2021b). As presented in Table 3, panels A and B, convergent validity was established for the lower- and higher-order formative constructs as the path coefficients are well above the minimum value of 0.708 (Hair et al., 2021). Second, we assessed indicator collinearity with the standard metric variance inflation factor (VIF). High correlations can distort the sign or the size of the beta coefficients, thereby sparking off type II errors (Hair et al., 2020). The VIF values range from 1.019 to 1.336 for the first-order constructs and from 1.129 to 1.503 for the second-order constructs, connoting that multicollinearity is not a problematic issue as it is well below the conservative level of 3 (Diamantopoulos & Siguaw, 2006).

The last phase is to evaluate the statistical significance of formatively measured constructs. Practically, the relevance or contribution of each *"indicator is interpreted based on the size of the outer model weights, with larger weights indicating a higher contribution"* (Hair et al., 2020, p.

106). As shown in Table 3, the weights and loadings for all manifest variables are statistically significant [i.e., t-values are greater than 1.960 (α=0.05)], signifying acceptable properties for the first- and second-order formative constructs (Hair et al., 2021, 2021b).

Table 3

5.3 Reflective measurement model evaluation

The reflective latent variables were tested for reliability (i.e., indicator and composite) and validity (convergent and discriminant), as recommended in the literature (Benitez et al., 2020; Hair et al., 2021). As presented in Table 4, Cronbach's alpha (α) and Dijkstra and Henseler's reliability coefficient rhoA (ρA) scores are above 0.70 (Dijkstra & Henseler, 2015b; Nunnally & Bernstein, 1994), evidencing the reliability of digital orientation, SC innovation, and SIE capabilities constructs. The standardized loadings for all indicators were statistically significant, with a t-statistic above ±1.96 and loading above 0.708 (Hair et al., 2021). Although the loadings for three items, SIEc2 and SCI2, were below 0.708, we decided to keep them because they were very close to 0.708 (Wang et al., 2015), and their removal did not affect the AVE and CR of the SIEc and SC innovation constructs. In contrast, we decided to drop the SCI3 item as it had a deteriorating effect on the construct's convergent validity (Joseph F. Hair et al., 2021b) and was explaining a small amount of variance (i.e., the square of SCI3 loading: 0.5222 = 0.272) (Avkiran & Ringle, 2018). Moreover, the average variance extracted (AVE) values for each of the three reflective constructs are above the minimum value of 0.5, providing empirical evidence of the convergent validity of the three reflective constructs (Fornell & Larcker, 1981).

Table 4

Finally, the Fornell-Larcker criterion and the heterotrait-monotrait ratio of correlations (HTMT) were used to assess the discriminant validity (Fornell & Larcker, 1981). As shown in Table 5, the square root of AVE (bolded values on the diagonal) for the three reflective constructs are larger than all the correlation coefficients (Farrell, 2010), and HTMT values are well below the cut-off value of 0.85, indicating no discriminant validity issues (Henseler et al., 2015). All in all, the above metrics confirm the established measures for the formative and reflective constructs as they demonstrated acceptable psychometric properties.

Table 5

5.4 Common method bias

Given that our study is based on self-reported data, the possible presence of Common Method Variance (CMV) could not be overlooked (Malhotra et al., 2006). To alleviate the risk, two a priori and three post-hoc procedural remedies were used to control CMV (Podsakoff et al., 2003). First, we preserved the confidentiality and anonymity of the respondents by avoiding collecting their personal details. Moreover, we carried out a pre-test using a convenience sample of 31 tourism and hospitality experts to measure the clarity and validity of the content (Perneger et al., 2015). Minor changes, mainly in wording, were suggested, and then we re-launched the updated version of the survey.

We also applied three statistical techniques to control for the common method biases (Podsakoff et al., 2003). First, a post-hoc marker variable was obtained from the smallest correlation between the observed variables, as Lindell and Whitney (2001) recommended. As indicated in Table S2 in the supplementary materials, the estimated coefficients before and after correcting for method biases remain fundamentally unchanged, indicating that CMV does not have a severe impact on the inferences (Hussain & Papastathopoulos, 2022; Malhotra et al., 2006). Moreover, a full collinearity test (Kock, 2015) and a full collinearity test with a random variable (Kock & Lynn, 2012) were employed to control for CMV. As shown in Table S3 in the supplementary materials, all estimated variance inflation factors are below 3.3, corroborating that CMV is not present in the data (Hair et al., 2021b; Kock, 2015; Kock & Lynn, 2012).

5.5 Structural model assessment

Hair et al. (2020) recommended that the first step in evaluating the structural model is to scrutinize the significance and size of standardized values of the hypothesized relationships. RO and SIE capabilities were found to have a significant positive direct effect on hotel performance (βROc = 0.168, p=0.003 and βSIEc = 0.365, p<0.001). Likewise, the bootstrapped indirect (ROc → SCI → HP and SIEc → SCI → HP) and direct effects from ROc to SCI (βROc to SCI = 0.165, p=0.014), SIEc to SCI (βSIEc to SCI = 0.273, p<0.001) and SCI to HP SCI (βSCI to HP = 0.365, p<0.001) were found positive and statistically significant, confirming the complementary mediating role of SC Innovation between ROc and HP and SIEc and HP (Nitzl et al., 2016). Interestingly, the two interaction terms (ROc * DO and SIEc * DO) were insignificant, igniting new rounds of scientific debate about the 'complementarity' of corporate resources and new

technologies (Khin & Ho, 2019). Lastly, all the control variables were found to have a non-significant influence on hotel performance ($\beta_{\text{Hotel Size}} = 0.004$; $\beta_{\text{Hotel Category}} = 0.074$; $\beta_{\text{Hotel Type}} = 0.031$; β_{ManExp} Dummy 1 = -0.049 and β_{ManExp} Dummy 2 = -0.049, $p > 0.05$).

The in-sample prediction (variance explained) of the dependent constructs was measured with the coefficient of determination R^2 and f^2 effect sizes. As seen in Table 6, SCI and HP explain 44.1% and 53.4% of the variance, respectively, which can be considered great values due to the originality of the exogenous variables. The effect size f^2 measures the predictive ability of the independent constructs in the structural model (Hair et al., 2020). In our model, the values from SIEc to HP (0.216), SIEc to SCI (0.112), and SCI to HP (0.179) indicated a medium effect size, while the values from Roc to HP (0.043) and SCI (0.027) indicated a small effect size (Cohen, 1988).

Given that the above metrics only assess the model's explanatory power (i.e., in-sample predictive power) and do not provide any evidence about the out-of-sample predictive power, Q^2 and PLSpredict were employed to measure the predictive relevance of the proposed model (Hair, 2021; Hair et al., 2021a). The blindfolding procedure was used to obtain the Q^2 values for the two endogenous constructs (Chin et al., 2020; Stone, 1974). As shown in Table 6, the Q^2 values for HP and SCI are 0.417 and 0.415, respectively. Values above zero can be considered evidence of the model's predictive capability, while values larger than 0.25 specify a medium predictive power (Hair et al., 2020; Shmueli et al., 2019). However, as Shmueli et al. (2016) stated, the Q^2 metric suffers many limitations as it does not draw on holdout-based sample predictions. Moreover, the Q^2 procedure combines out-of-sample and in-sample predictions, which obfuscates the model's explanatory fit and predictive relevance (Shmueli et al., 2019). In contrast, PLSpredict evaluates the predictive power of the model using holdout sample-based predictions, and thus provides a better picture of the predictive validity of the model (Shmueli et al., 2019).

Table 6

As such, we implemented PLSpredict with 10-fold cross-validation using root-mean-square error (RMSE) as the prediction statistic, following the recommendations of Shmueli et al. (2016) and Hair et al. (2021b). As shown in Table 6, none of the SCI and HP indicators have higher RMSE values than the naïve linear regression model benchmark, verifying the high prediction power of our model (cf. Hair et al., 2020).

6. Discussion and implications

Drawing on the RO and IS theories, this paper theorizes and empirically tests how the joint deployment of SIE and RO capabilities and the digital orientation of a hotel foster SC innovations, ultimately enhancing the performance of hotel SCs. First, the results revealed that RO capabilities positively affect the performance of the hotels. Our findings align with prior SC management literature, highlighting that RO capabilities are positively associated with hotel business performance (Burin et al., 2020; Malik et al., 2021). Second, we uncovered that SIE capabilities positively affect the performance of the hotels. However, related research that examines the effect of SIE capabilities on the performance of hotel SCs is still rare (Alkier et al., 2022). Hence the findings of this paper contribute to the tourism SC management literature by providing empirical evidence proving that SIE positively enhances the performance of hotels.

In this paper, we further advance the tourism SC management literature by identifying the specific circumstances in which the positive effects of RO and SIE capabilities on the performance of the hotels can be maximized. Accordingly, we identified that SC innovation mediates the positive effects of RO and SIE capabilities on the performance of hotels. Although SC innovation became a buzzword and much-studied research area in tourism literature during the last year due to the surge of literature focusing on tourism firms' resilience in the post-pandemic era, these studies have hardly investigated the mediating role of SC innovation in enhancing the performance of hotels (Azadegan et al., 2019).

However, contrary to the expectations, the digital orientation of a hotel did not moderate the relationships between RO and SIE capabilities and the SC innovation of hotels. This is also a unique contribution to the body of knowledge since it challenges the conventional understanding that digital technologies are the remedies for all business problems, including Coronavirus disease 2019 (Liu & Yang, 2021). Digital orientation facilitates effective resource utilization and augments the productivity and efficiency of the organizations (Mishra et al., 2022), and we argue that large-scale organizations, like 4- and 5-star hotels, have the needed slack resources. Moreover, structuring, bundling, leveraging, and SIE capabilities align the resources essential for innovation, and thus strategic move toward digital orientation may not play an influential role. Literature also argues about ceteris paribus, where specific impacts of strategic capabilities become negative when interactions are deemed (Ardito et al., 2021).

6.1 Implications for theory

The findings of this paper offer a vital threefold contribution to tourism SC management literature. First, drawing on the RO and IS theories, this paper is one of the first attempts to thoroughly study how a hotel's SIE and RO capabilities could be constructed as a joint mechanism to foster SC innovations, ultimately enhancing the performance of hotel SCs. We uncovered the potential of the IS theory as a complementary theoretical framework to the RO theory that can be used to explain how a hotel can foster its performance. By doing so, we thus respond to Burin et al. (2020) and Gligor et al. (2022) calling for future research that investigates the potentiality of merging the RO theory to enhance its robustness. The prior research (e.g., Breiling, 2020; Hossain et al., 2021; Hussain & Malik, 2022) has mainly relied on the RBV or DCV as theoretical frameworks to understand the relationship between SC innovation and hotel performance, and we shed light on the tourism SC management literature by emphasizing the potentiality of the RO theory as a robust theoretical framework. Our findings reveal that RO and SIE capabilities positively impact SC innovation which supports the previous literature.

Secondly, our conceptualization that SC innovation is a crucial intervening stage between SIE and RO capabilities and hotel performance is a unique contribution to the literature. The full specialized mediation of SC innovation proposed and tested for the relationship between RO capabilities and hotel's performance and SIE capabilities and hotel's performance is distinctive in the extant literature. Our findings support that SC innovation significantly and positively mediates the relationship between RO capabilities and hotel performance, and this finding is aligned with the literature that resources are gained and exploited to strengthen capabilities, ultimately leading to innovation and better performance (Ahuja, & Chan, 2017). We also found that SC innovation positively and strongly mediates between SIE capabilities and hotel performance. The unprecedented innovation of technology urges organizations and supply chains to adapt sophisticated channels of information exchange to enhance their competitiveness and performance (Saleem et al., 2021).

Thirdly, we proposed an integrated theoretical model to explain the mechanism by incorporating moderation effects, broadening the extant tourism SC management literature into the digital context. During the pandemic, hotels rapidly embraced technologies to sustain their performance (Manigandan & Raghuram, 2022). However, the integrated impact of SIE capabilities

espoused by technology adoption on the performance of the supply chains remains controversial (Alkier et al., 2022), and we attempt to fulfill this research gap. Interestingly, our results show that the interaction between digital adoption and RO and SIE capabilities is insignificant. This is an interesting contribution to the literature because it counters the arguments that adopting digital technologies are prerequisite for augmenting capabilities and innovation. Digital orientation is the careful strategic placement of firms to take advantage of opportunities. Consequently, the synchronized emphasis on RO and SIE capabilities can offset the effect on innovation. Likewise, Hussain and Malik (2022) also found the weakening effect of DO on the agility and resilience of hotel supply chains.

6.2 Implications for practice

This paper offers several vital managerial implications for hoteliers and SC practitioners. First, because today hotels operate in resource scare environments where customers continuously demand innovative products and services (Dalkiran, 2022; Espino-Rodríguez & Taha, 2022), understanding how to foster SC innovation by reconfiguring existing resources and capabilities is crucial for hoteliers and SC practitioners. The findings of this paper demonstrate that the hotel is only one node in the hotel's SC, and hoteliers can enhance the competitiveness of a hotel by utilizing its resources and capabilities as well as, if required, by collaborating and sharing the resources and capabilities of the other SC partners in the network. Hoteliers must thus be concerned about effectively orchestrating their resources and capabilities and the resources and capabilities of the other SC partners to which they belong.

Although hotels in recent years have made significant investments in ICT systems to obtain greater profit, most hotels could not reap the true potential of such investments (Hadjielias et al., 2022; Kumar et al., 2022). This is because most hotels have failed to realize that ICT systems alone cannot enhance business performance. Instead, as our findings indicate, they can enhance business performance by blending ICT systems with other firm resources and capabilities. Regarding this, our paper offers valuable insights to hoteliers explaining how SIE capabilities fostered by ICT systems, along with a hotel's digital orientation, contribute to SC innovation, enhancing hotel performance.

7. Conclusion

SC innovation is the key to a hotel's competitiveness to enhance its performance in modern markets. SC innovation does not occur due to a single resource a hotel owns. Instead, it results from combining both tangible and intangible resources and capabilities a hotel owns. However, theoretical and empirical research on how a blend of firm resources and capabilities enables SC innovation of hotels is scant. Drawing on the RO and IS theories, this paper addresses this void by proposing and empirically testing an integrated theoretical framework delineating how SIE and RO capabilities and the digital orientation of a hotel foster innovation and enhance the performance of its SC. Based on PLS-SEM analysis of data collected from 281 hotels in the UAE, findings indicate that RO and SIE capabilities of hotels influence the performance of SCs, whereas SC innovation mediates the said relationships. However, as expected, digital orientation did not moderate the relationships between RO and SIE capabilities and SC innovation of hotels.

7.1 Limitations and future research directions

Like all research, the findings of this research are limited in some ways. First, it focuses on hotels in the UAE, which can limit the generalization of the findings in other contexts. Second, although a sequence of statistical measures was taken to prevent the common method bias, using a single respondent to obtain data may limit the validity of our findings to various entities involved in hotel SCs. Therefore, in order to enhance the validity of the proposed integrated theoretical model, further research may include the views of other entities engaged in hotel SCs. Third, since we conducted a cross-sectional research design, this paper limits the validity of the findings to a specific time. Future empirical research can consider using longitudinal research design to comprehend how disruptive digital technologies' advancement requires different RO approaches to foster SC innovation and performance.

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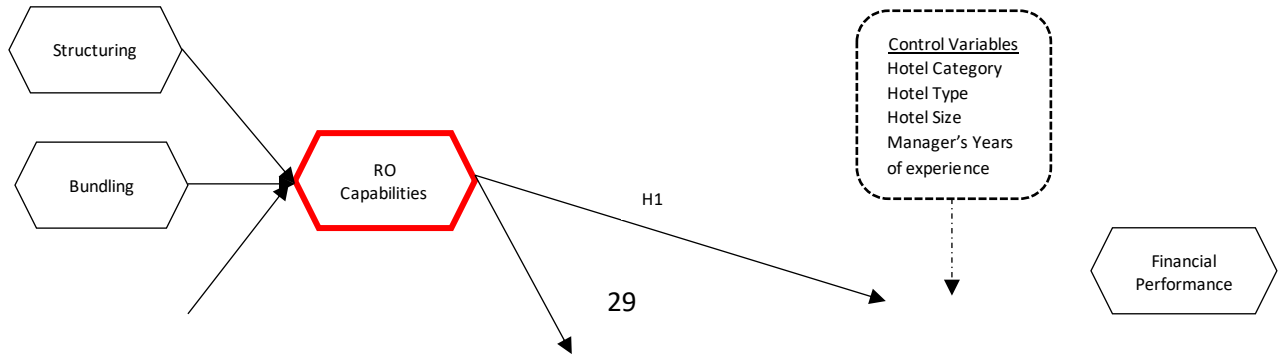
Figure 1: Integrated Conceptual Framework



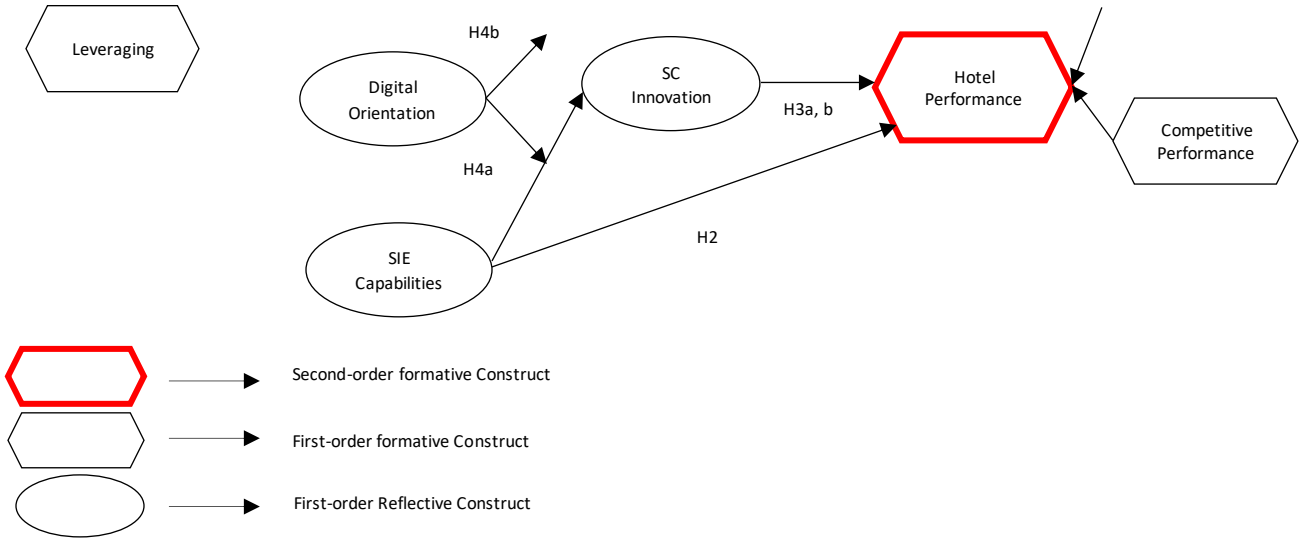


Table 1: Descriptive Analysis and Normality Tests

Second-order constructs	**First-order constructs**	**Items**	M	SD	SK	KU
	Structuring [Formative]	RoS1	3.829	1.085	-0.820	-0.011
		RoS2	4.046	0.842	-0.558	-0.172
		RoS3	4.014	0.937	-0.736	0.161
	**Global Item RoS*	*G_RoS*	4.004	0.668	-0.221	-0.080
	Bundling [Formative]	RoB1	4.100	0.831	-0.829	0.716
		RoB2	4.164	0.829	-0.882	0.739
		RoB3	4.050	0.889	-0.927	0.909
	**Global Item RoB*	*G_RoB*	4.100	0.685	-0.734	1.691
	Leveraging [Formative]	RoL1	4.114	0.867	-1.117	1.711

Resource Orchestration Capabilities (ROC) [Formative]		RoL2	4.053	0.891	-0.838	0.527
		RoL3	4.071	0.907	-1.181	1.782
	*Global Item RoL	*G_RoL*	4.093	0.706	-0.868	2.227
	*Global Item ROC	*G_ROC*	4.085	0.548	-0.212	1.417
	Digital Orientation [Reflective]	DO1	4.174	0.628	-0.323	0.206
		DO2	4.053	0.655	-0.745	2.658
		DO3	4.100	0.749	-0.729	1.188
		DO4	4.117	0.647	-0.275	-0.009
	Supply Chain Innovation [Reflective]	SCI1	4.089	0.734	-0.577	0.597
		SCI2	4.014	0.727	-0.584	1.142
		SCI3	3.943	0.908	-0.607	-0.104
		SCI4	4.149	0.765	-0.695	0.762
		SCI5	4.128	0.740	-0.741	1.267
		SCI6	4.128	0.745	-0.734	1.183
Hotel Performance [Formative]	Financial Performance [Formative]	FP1	4.089	0.876	-0.977	0.960
		FP2	4.007	0.828	-0.622	0.342
		FP3	4.043	0.831	-0.644	0.127
	*Global Item FP	*G_FP*	4.068	0.670	-0.222	-0.271
	Competitiveness Performance [Formative]	CP1	4.100	0.831	-1.017	1.451
		CP2	4.028	0.918	-1.034	1.085
		CP3	4.032	0.942	-1.121	1.319
		CP4	4.185	0.829	-0.850	0.197
	*Global Item CP	*G_CP*	4.190	0.830	-0.855	0.194
	*Global Item HP	*G_HP*	4.388	0.623	-0.593	-0.118
	Strategic Information Exchange Capabilities [Reflective]	SIEc1	3.954	0.771	-0.627	0.626
		SIEc2	3.843	0.809	-0.482	0.333
		SIEc3	3.886	0.850	-0.483	-0.122
		SIEc4	3.979	0.832	-0.559	0.026
		SIEC5	4.014	0.882	-0.751	0.279
Tests for multivariate normality						
Mardia mSkewness = 171.674		chi2(5456) = 8131.290			Prob>chi2 = 0.000	
Mardia mKurtosis = 1106.378		chi2(1) = 238.695			Prob>chi2 = 0.000	
Henze-Zirkler = 1.046		chi2(1) = 5.53e+06			Prob>chi2 = 0.000	
Doornik-Hansen		chi2(62) = 661.181			Prob>chi2 = 0.000	

Table 2: Overall Model Fit

	First-order construct		Second-order construct	
	Value	HI95	Value	HI95
SRMR	0.047	0.050	0.037	0.042
d_{ULS}	1.312	1.485	0.385	0.485
d_G	0.456	0.489	0.151	0.177

Table 3: Evaluation of the formative measurement model

Panel A: First-order formative measurement model assessment[a]									
Items	**Convergent Validity**	**VIF**	**Outer weights**	***t*-Value**	**95% BCa CI[b]**	**Outer Loadings**	***t*-Value**	**95% BCa CI[b]**	**Item Decision**
RoS1	β among RoS_F and RoS_G = 0.918	1.053	0.397	2.250	[0.038; 0.736]	0.573	3.445	[0.204;0.853]	Retained
RoS2		1.019	0.333	2.060	[-0.011; 0.607]	0.447	2.701	[0.087;0.709]	Retained
RoS3		1.071	0.726	5.186	[0.416; 0.948]	0.859	9.242	[0.652;0.984]	Retained
RoB1	β among RoB_F and RoB_G = 0.924	1.126	0.448	4.743	[0.253; 0.619]	0.687	8.122	[0.484;0.822]	Retained
RoB2		1.272	0.623	6.347	[0.429; 0.813]	0.813	12.599	[0.681;0.923]	Retained
RoB3		1.141	0.308	2.678	[0.091; 0.542]	0.602	5.790	[0.377;0.772]	Retained
RoL1	β among RoL_F and RoL_G = 0.934	1.336	0.506	5.270	[0.293; 0.666]	0.793	10.957	[0.635;0.905]	Retained
RoL2		1.299	0.421	3.951	[0.218; 0.638]	0.735	9.844	[0.583;0.875]	Retained
RoL3		1.192	0.406	3.772	[0.182; 0.609]	0.713	8.505	[0.529;0.855]	Retained
FP1	β among FP_F and FP_G = 0.916	1.228	0.467	4.906	[0.277; 0.653]	0.666	7.998	[0.483;0.808]	Retained
FP2		1.258	0.523	5.563	[0.338; 0.707]	0.722	9.347	[0.555;0.850]	Retained
FP3		1.175	0.431	4.189	[0.225; 0.634]	0.721	9.005	[0.549;0.858]	Retained
CP1	β among CP_F and CP_G = 0.987	1.209	0.392	3.931	[0.190; 0.579]	0.707	9.243	[0.544;0.834]	Retained
CP2		1.281	0.285	2.545	[0.058; 0.496]	0.644	7.888	[0.472;0.788]	Retained
CP3		1.302	0.354	3.109	[0.119; 0.564]	0.674	8.381	[0.504;0.809]	Retained
CP4		1.209	0.414	3.563	[0.194; 0.655]	0.727	8.990	[0.559;0.871]	Retained

Panel B: Second-order formative measurement model assessment[a]							
		Convergent Validity	**VIF**	**Outer weights**	***t*-Value**	**95% BCa CI[b]**	**LOC Decision**
ROC	RoS	β among ROC_F and ROC_G = 0.835	1.129	0.218	1.978	[0.007; 0.445]	Retained
	RoB		1.325	0.529	5.263	[0.322; 0.714]	Retained
	RoL		1.257	0.540	4.961	[0.300; 0.738]	Retained
HP	FP	β among HP_F and HP_G = 0.842	1.503	0.521	7.607	[0.377; 0.645]	Retained
	CP		1.503	0.604	9.374	[0.480; 0.733]	Retained

Notes: β = Path coefficient; F = Formative; G = Global; VIF = variance inflation factor; BCa CI = Bias Corrected and Accelerated Bootstrap; CI = Confidence Interval;

[a] Estimation: Mode B (Benitez et al., 2020; Sarstedt et al., 2019)

[b]BCa bootstrapping procedure used to test the significance of skewed items weights with 10,000 resamples (Streukens & Leroi-Werelds, 2016).

Table 4: Evaluation of the Reflective Measurement Model

Items	Composite reliability			Convergent validity				Decision
	α	ρ_A	AVE	λ	Item reliability	t-value	95% BCa CI	
DO1	0.746	0.747	0.568	0.726	0.527	17.843	[0.623; 0.788]	Retained
DO2				0.745	0.555	15.543	[0.629; 0.817]	Retained
DO3				0.769	0.591	17.846	[0.665; 0.833]	Retained
DO4				0.773	0.598	25.391	[0.697; 0.821]	Retained
SIEc1	0.767	0.772	0.518	0.740	0.548	18.184	[0.646; 0.805]	Retained
SIEc2				0.660	0.436	11.687	[0.528; 0.748]	Retained
SIEc3				0.708	0.501	15.888	[0.604; 0.781]	Retained
SIEc4				0.764	0.584	25.564	[0.693; 0.813]	Retained
SIEc5				0.721	0.520	18.032	[0.624; 0.785]	Retained
SCI1	0.804	0.811	0.562	0.682	0.465	14.318	[0.572; 0.760]	Retained
SCI2				0.723	0.523	15.814	[0.620; 0.797]	Retained
SCI4				0.772	0.596	26.531	[0.707; 0.822]	Retained
SCI5				0.811	0.658	29.849	[0.749; 0.856]	Retained
SCI6				0.755	0.570	19.881	[0.666; 0.816]	Retained
SCI3				*0.522*	*0.272*	8.505	[0.387; 0.630]	Deleted

Notes: AVE = Average variance extracted; λ = loadings

Table 5: Discriminant Validity: HTMT and Fornell-Larcker Criterion

	Digital Orientation	IE Capabilities	SC Innovation
Digital Orientation	**0.753**	0.421	0.707
IE Capabilities	0.317	**0.719**	0.593
SC Innovation	0.551	0.471	**0.750**

Notes: Bolded values indicate the square root of AVE, while the values under and above the diagonal represent HTMT and correlations among the constructs, respectively.

Table 6: Evaluation of the Structural Model

Hypotheses and Paths	*B*	*t*-Value	95% BCa CI	Status
H1: ROc → HP	0.168	2.946	[0.034; 0.264]	Supported
H2: SIEc → HP	0.365	5.597	[0.221; 0.477]	Supported
H3a: ROc → SCI → HP	0.060	2.465	[0.012; 0.105]	Supported
H3b: : SIEc → SCI → HP	0.100	3.554	[0.055; 0.170]	Supported
H4a: DO*ROc → SCI	-0.095	1.783	[-0.209; 0.001]	Not Supported
H4b: DO*SIEc → SCI	0.031	0.597	[-0.078; 0.131]	Not Supported
ROc → SCI	0.165	2.464	[0.015; 0.273]	Supported
SIEc → SCI	0.273	4.654	[0.160; 0.389]	Supported
SCI → HP	0.365	6.127	[0.259; 0.494]	Supported
CV_Hotel Size →HP	0.004	0.092	[-0.088; 0.092]	Not supported
CV_Hotel Category → HP	0.074	0.863	[-0.095; 0.242]	Not supported
CV_Hotel Type → HP	0.031	0.362	[-0.140; 0.192]	Not supported
CV_ManExp_Dummy 1 → HP	-0.049	0.470	[-0.256; 0.158]	Not supported
CV_ManExp_Dummy 2 → HP	0.060	0.506	[-0.161; 0.299]	Not supported

Coefficient of Determination

$R^2_{SCI} = 0.441$; $R^2_{HP} = 0.534$

Effect Sizes

$f^2_{SIEc\ on\ HP} = 0.216$; $f^2_{SIEc\ on\ SCI} = 0.112$; $f^2_{SCI\ on\ HP} = 0.179$; $f^2_{Roc\ on\ HP} = 0.043$; $f^2_{Roc\ on\ SCI} = 0.027$

Predictive Relevance

$Q^2_{HP} = 0.417$; $Q^2_{SCI} = 0.415$

PLSpredict Results

	RMSE		Difference	*Predictive power*
Indicators	**PLS-SEM**	**LM**		
LVS_CP	0.816	0.827	-0.011	
LVS_FP	0.829	0.853	-0.024	
SCI1	0.665	0.682	-0.017	
SCI2	0.653	0.681	-0.028	High
SCI4	0.658	0.671	-0.013	
SCI5	0.635	0.660	-0.025	
SCI6	0.655	0.667	-0.012	

Notes: LVS=Latent variable scores; MAE=Mean absolute error; RMSE=Root mean squared error; LM=Linear model.

*p < 0.05; **p < 0.01; ***p < 0.001

Supplementary Materials

Table S1: Description and operationalization of the variables

Second-order constructs	First-order constructs	Items	Description
Resource Orchestration Capabilities (ROC) [Formative]	Structuring [Formative]	RoS1	We are effective at purchasing valuable IT resources/assets from suppliers
		RoS2	We are effective at developing valuable IT resources/assets internally
		RoS3	We are effective at decommission less-valuable IT resources/assets
	**Global Item RoS*	*G_RoS*	*Overall, my hotel is effective in structuring valuable IT resources/assets from suppliers*
	Bundling [Formative]	RoB1	We are effective at integrating IT resources/ assets to build IT capabilities
		RoB2	We are effective at enriching, or extending, existing IT capabilities with new IT resources/assets
		RoB3	We are effective at pioneering, or creating, new IT capabilities
	**Global Item RoB*	*G_RoB*	*Overall, my hotel is effective in bundling IT resources/assets*
	Leveraging [Formative]	RoL1	We are effective at mobilizing our IT capabilities towards a common vision
		RoL2	We are effective at coordinating, or integrating, our IT capabilities
		RoL3	We are effective at deploying our joint IT capabilities to take advantage of specific market opportunities
	**Global Item RoL*	*G_RoL*	*Overall, my hotel is effective in gaining leverage of our IT capabilities.*
**Global Item ROC*		*G_ROC*	*Overall, my hotel has built the processes in transforming IT resources into capabilities*
	Digital Orientation [Reflective]	DO1	We are effective at mobilizing our IT capabilities towards a common vision
		DO2	Our solutions have superior digital technology
		DO3	New digital technology is readily accepted in our organization
		DO4	We always lookout for opportunities to use digital technology in our innovation
	Supply Chain Innovation [Reflective]	SCI1	We pursue a cutting-edge system that can integrate information
		SCI2	We pursue technology for the real-time tracking

		SCI3	We pursue innovative vehicles, packages or other physical assets
		SCI4	We pursue continuous innovation in core global supply chain processes
		SCI5	We pursue agile and responsive processes against changes
		SCI6	We pursue creative methods and/or service
	Financial Performance [Formative]	FP1	We decreased operational costs
		FP2	We increased annual turnover
		FP3	We increased market share
	**Global Item FP*	*G_FP*	*Overall, my hotel improved its financial performance*
Hotel Performance [Formative]	Competitiveness Performance [Formative]	CP1	We increased capability to introduce innovative services
		CP2	We improved quality of services
		CP3	We improved brand value of services
		CP4	We increased accessibility to new markets/customer groups
	**Global Item CP*	*G_CP*	*Overall, my hotel improved its competitiveness*
**Global Item HP*		*G_HP*	*Overall, my hotel has improved its performance*
	Strategic Information Exchange [Reflective]	SIE1	We share information about our pricing strategy with our supply chain partners
		SIE2	We share information about our new target market strategy with our supply chain partners
		SIE3	We share information about new services development with our supply chain partners
		SIE4	We share information about our distribution strategy with our supply chain partners
		SIE5	We share information about our promotion strategy with our supply chain partners.

Note: **Global items* used only in assessing fist- and second-order formative measurement constructs.

Table S2: Coefficient values acquired before and after Common Method Variance correction

Paths	Estimates before correcting for CMB	Estimates after correcting for CMB (r_{mv} = 0.007)
H1: ROc → HP	0.168**	0.146**
H2: SIEc → HP	0.365***	0.362***
H3a: ROc → SCI → HP	0.060*	0.052*
H3b: : SIEc → SCI → HP	0.100***	0.094**
H4a: DO*ROc → SCI	-0.095	-0.081
H4b: DO*SIEc → SCI	0.031	0.018
ROc → SCI	0.165*	0.154*
SIEc → SCI	0.273***	0.274***
SCI → HP	0.365***	0.341***
CV_Hotel Size →HP	0.004	-0.001
CV_Hotel Category → HP	0.074	0.087
CV_Hotel Type → HP	0.031	0.047
CV_ManExp → HP	0.029	0.027

Notes: r_{mv} = CMV shared correlation using post hoc market variable correlation between ROS1 and DO4.
***p < 0.001; **p < 0.01; *p < 0.05

Table S3: Collinearity statistics (variance inflation factors)

	Full collinearity test			Full collinearity test with random variable	
	HP	**ROC**	**SCI**	**Random**	**ROC**
Bundling		1.324			1.161
Structuring		1.129			1.046
Leveraging		1.257			1.184
DO			1.876	1.296	
SIEC	1.598		1.192	1.283	
ROC	1.442		1.801	1.039	
SCI	1.847			1.315	
CP	1.913			1.033	
FP	1.819			1.261	

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		CP4	We increased accessibility to new markets/customer groups
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	**Global Item HP*	*G_HP*	*Overall, my hotel has improved its performance*
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SIEC	1.598		1.192	1.283	
ROC	1.442		1.801	1.039	
SCI	1.847			1.315	
CP	1.913			1.033	
FP	1.819			1.261	