Digital Guest Folder for Hotels' Open Innovation: Practices, Opportunities, and Challenges

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Abstract

Digital applications facilitate open innovation (OI); however, understanding practices in the tourism sector needs further research. The study investigates how a hotel uses the digital guest folder (DGF) in OI. The qualitative study uses interview and secondary data to investigate a unique case in a single-case design. The findings reveal the engagement of the hotel as a lead user in the co-creation process with the IT firm; however, the hotel's customers are only participating as consumers of improved processes using the DGF. Potential for OI with various touristic stakeholders is manifold yet, limited by legal, organizational, and resource requirements. The limited nature of the case study provides future research potential for comparative cases.

1. Introduction

Given the positive effects of Open Innovation (OI) on small and medium-sized companies (SMEs) (Usman et al., 2018), opening innovation processes is a "logical step for many SMEs to take" (Vanhaverbeke et al., 2011, p. 9). In tourism, SMEs prevail (Zenker & Kock, 2020), connected in a tourism service network (Beritelli et al., 2016), providing their services as a bundle to the customer (Zhang et al., 2009). Information technology supports OI processes (Marx et al., 2022; Scuotto et al., 2017). Research on specific hotel applications used in innovation processes is encouraged (Sarmah et al., 2017). We investigate how DGFs, as an exemplary digital service, are used for OI in a hotel.

2. Background

2.1. Open Innovation in Hotels

Innovation in tourism differs from other branches (Beritelli & Bieger, 2015; Hjalager, 2010). The networked nature of the tourism product is a characteristic (Beritelli et al., 2016; Zhang et al., 2009), suggesting innovation approaches to be open in this industry (Marx, 2022). Open innovation is defined "as a distributed innovation process based on purposively managed knowledge flows across organizational boundaries, using pecuniary and non-pecuniary mechanisms in line with the organization's business model" (Chesbrough & Bogers, 2014, p. 17). The knowledge flow's direction can be outside-in, inside-out, and coupled (Gausemeier et al., 2019). OI is associated with potential in hotels (Artič, 2013) as an essential part of the touristic value chain. Research on OI in the hotel industry has shown that OI performance positively affects company performance (Azhar Mohd Harif et al., 2022; Hameed et al., 2021). Hotels' OI helps to build a competitive advantage (Musiello-Neto et al., 2021). Research in Malaysian hotels suggests that OI helps to improve internal service innovation and increase customer attractiveness (Azhar Mohd Harif et al., 2022). The latest technology facilitates collaboration

between the hotel's management and stakeholders (Azhar Mohd Harif et al., 2022). Information technology (IT) is an enabler and facilitator in service innovation processes (Lusch & Nambisan, 2015), with a positive impact on innovation performance in SMEs (Scuotto et al., 2017) and a perceived value for individual participants in OI activities (Marx et al., 2022).) An example is the co-creation of hotels using general tourism smartphone apps (Sarmah et al., 2017) or social networking apps (Sarmah et al., 2021). Future research shall address innovation processes in hotels combining external and internal knowledge sources (Nieves & Diaz-Meneses, 2018), particularly using hotel-specific digital service applications (Sarmah et al., 2017).

2.2. Digital Services in the Hotels

Driven by guests' demands, digital services applying various technologies are entering the hotel industry (Infante-Moro et al., 2021). In particular, digital keys (Torres, 2018) or voice-based artificial intelligence (Buhalis & Moldavska, 2021) are used in applications for hotel guests. There are versatile application scenarios with service robots and virtual reality (Zhu et al., 2021). Digital services can improve the guest experience with the possibilities to date being "far from exhausted" (Reichstein & Härting, 2018, p. 1490). According to Bayer Gersmann et al. (2019), hotels' degrees of digitalization can be classified into three levels: SMART, SMART plus, and all SMART. Digital tools linked to the three levels facilitate communication with guests and tourism service providers in the local network (Bayer Gersmann et al., 2019). The level "SMART" includes, e.g., a hotel website, using online travel agencies, or social media. On the next level, "SMART plus", the hotel website is integrated with the hotel's IT systems, e.g., for bookings. Other applications include hotel apps, DGFs, and digital networking activities. The highest level "all SMART" is achieved, e.g., by exploiting the cross-selling potential of digital networking with regional players (Bayer Gersmann et al., 2019). Digital networking of actors across organizational boundaries is a success factor for digital transformation in tourism (Borkmann et al., 2022). The DGF is a service that potentially supports interaction with guests and network partners in an OI approach. This would help the hotel move from the "SMART plus" to the "all SMART" level. Various service providers offer customizable DGFs as specific hotel applications for in-room tablets (CITYKEY, 2023). In addition to general information about the hotel, house rules, special offers, or attractions (Betterspace GmbH, n.d.), the DGF offers direct feedback options and the potential for real-time communication with the guest (Gastfreund GmbH, n.d.). They facilitate communication with guests, staff, and service providers (CITYKEY, 2023), such as booking internal and external services or smart room control.

2.3. Research Question

While studies in hotels confirm the importance of digital transformation (Bayer Gersmann et al., 2019; Infante-Moro et al., 2021; Zhu et al., 2021) and a positive effect of OI (Hameed et al., 2021), we see a research gap in understanding practices of how hotel businesses involve stakeholders in OI facilitated by a digital application, the DGF. Given the potential of OI approaches in hotels (Artič, 2013; Hameed et al., 2021) and DGFs for collaboration with guests and external tourism service providers (Bayer Gersmann et al., 2019), insights are needed to understand the practices of hotels for exploiting this

potential. Our research question is: How does a hotel use DGFs for OI approaches: involved actors, the kind of innovation, and the stages of the innovation process.

3. Research Methodology

Researching a single case in-depth is a typical research design (Johannesson & Perjons, 2014; Mayring, 2007; Yin, 1994), even regarded as a classic case study (Ridder, 2017; Yin, 2013). We focus on the hotel as a single instance in a holistic case design (Johannesson & Perjons, 2014; Yin, 1994). One rationale for justifying single cases is their difference from others, as they are extreme or unique (Elsahn et al., 2020; Flyvbjerg, 2006; Johannesson & Perjons, 2014; Yin, 1994). Small touristic enterprises, especially in rural areas, have a low digitalization degree and the lowest innovation activities compared to other industries (Büchel & Engels, 2022). To investigate our research question, we, therefore, focus on a unique case of a hotel that, contrary to the industry, has a high degree of digitalization and innovation activities, rewarded with an innovation prize of the tourism industry for its digitalization activities (Tourismusverband Mecklenburg-Vorpommern e.V., 2023). Studying single cases follows a relatively open, descriptive methodology (Mayring, 2022). Based on a unique case, a moderate form of generalizing from a descriptive approach arguing for differences or similarities can be taken (Mayring, 2007). We investigate the case with a semi-structured interview enriched by a check of the IT system for triangulation to improve generalization (Goffin et al., 2019; Mayring, 2007; Yin, 1994). The interview was recorded and transcribed, and the system check was documented. For analyzing the data, we follow the thematic analysis process of Mayring (2022), combining deductive and inductive elements. The initial deductive code system addresses actors, stages, and types of innovation. For the actors, the initial coding is SME Owners, Employees, Customers, Suppliers, Competitors, and Friends/family (Marx & Klotz, 2021). The stages of involvement are based on the concept of the innovation value chain (Hansen & Birkinshaw, 2007) and innovation process models (Gausemeier et al., 2019), from which we derive a four-stage coding: idea generation, idea selection, solution development, implementation/diffusion. For the type of innovations, we follow the Oslo Manual (OECD/Eurostat, 2018, p. 68), defining a "business innovation is a new or improved product or business process (or combination thereof) that differs significantly from the firm's previous products or business processes and that has been introduced on the market or brought into use by the firm." Further topics are identified inductively. Initially, four researchers coded the data independently and discussed the results at a coding conference (Mayring, 2022) to develop a joint final coding. After that, the summarizing technique was applied (Mayring, 2022), results presented and discussed in chapter 4.

4. Results & Discussion

4.1 Use cases of the digital guest folder

The hotel uses in-room tablets as DGFs for various use cases: offering information (e.g., Wi-Fi code, restaurant, virtual tour), booking (massage, bowling), room management (e. g., to cancel the room service), or reservation (sauna) options, as well as communication (chat with the reception, feedback form). External services (e.g., boat tours, museums, or medical services) are available with links yet not bookable. The system check shows an emphasis of the tablet on energy management (e.g., changing room temperature) as part of the room service; in fact, the reason for the interviewee to introduce the

DGF in the first place. Around 35% of the guests use the tablet, especially leisure guests, during more extended summer stays, as the interviewee stated.

4.2 Actors in Open Innovation Activities

The case study shows that all actors identified deductively are involved in the innovation activities of the hotel except for friends/family: SME Owners, Employees, Customers, Suppliers, and Competitors. Three categories have been added: Other Touristic Service Providers, Destination Management Organizations as "*sparring partner*s," and Public Authorities, thus actors identified in previous research (Marx & Arens, 2023). The participation in the innovation activities related to the DGF differs in intensity and character, with the main interactions on the hotel/guest and the hotel/IT firm level.

4.3 Hotel/Guest Interaction

The interaction of the hotel with its guests, mediated by the DGF, is mainly focused on the first and fourth stages of the innovation process (Gausemeier et al., 2019; Hansen & Birkinshaw, 2007). The design of the DGF and other services of the hotel is strongly driven by the hotel's knowledge of customer expectations. This knowledge is fed by feedback via booking portals and the DGF in the case hotel. Regarding open innovation (Chesbrough & Bogers, 2014), guests are only passively involved. Analyzing the individual guest is crucial to "*be part of the guest journey*," as the interviewee stated. For example, conference guests have different demands than leisure guests regarding DGF usage. As part of the guest journey, the DGF is used as a communication tool during the guest's stay at the hotel. During this period, the analysis of guest data, the evaluation of guest feedback, but also the observation of the developments of leading online travel agencies are used as impulse generators by the hotel. We could not find confirmation in this case study for the stages of solution selection and development. The guests are then involved in the implementation and diffusion of the solution. Facilitating services such as booking and canceling hotel services, individualizing the information per room or type of guest, pushing messages for an emergency, or helping to manage the energy system, the DGF is mainly used for process innovation by the case hotel. In the area of communication and provision of information, the DGF is also to partly take over the role of the hotel employee as "*the guest host*," as the interviewee stated. The case study did not identify the exploitation of cross-selling with external network partners in the region, thus, potential to increase the hotel's digitalization level (Bayer Gersmann et al., 2019).

4.4 Hotel/IT firm Interaction

On the Hotel/IT firm level, we found interaction in all four stages of the innovation process (Gausemeier et al., 2019; Hansen & Birkinshaw, 2007). In the first stage, idea generation, initial ideas for the DGF result from the hotel employee's experience, developing a draft independently before looking for suitable IT partners. In reverse, the IT company actively gives impulses to the hotel based on their large customer base as an inspiration. In addition, considering available functionalities of the software and analyzing application usage data contribute to idea generation. Though the hotel selects the software and its functionalities in stage two, the solution development (stage three) is characterized by regular interaction. The hotel installed the DGF as one of the first clients of the IT firm or acts as a *"demo hotel"*, i.e., a reference customer, for other IT services, giving feedback and identifying improvement potential for the software. The implementation in the hotel (stage four) was successful, based on the collaboration. In one case, the IT

firm did not involve the hotel employee in the innovation process, which resulted in a product not suiting the hotel's needs. After the hotel gave feedback, the product exceeded expectations: *"...another four weeks of piecework and then, of course, in the end, even more solutions came out than we ever thought."* The interviewee regards himself as an *"innovation driver*," seeking to get involved in the IT firms' innovation process: *"I always like to buy a product maybe still with bugs, but with the possibility of development."* Due to the expressed need for digital innovation and the dissatisfaction with actual offers (Piller et al., 2017), the interviewee can be classified as a lead user, involved in interactive value creation with the IT-firm (Piller et al., 2017). The interviewee identifies transparency, honesty, openness, constructiveness, reliability, and the continuous quest for innovation as the basis of success for this interaction.

4.5 Interaction within Network

In addition to the interaction with the guests and the IT firm, other potential innovation partners emerged in the case studied, with whom cooperation had also taken place in the past. The local and statewide tourism organizations were seen as such by the interviewee. However, incompatible structures and different approaches and ways of thinking constituted a barrier here to the development of market-oriented digital solutions. Similarly, in one case, collaboration with an external IT service provider in the area of "Software as a Service" (SaaS) was terminated because the benefits of the application could no longer be demonstrated by the provider. In contrast, collaboration with other hotels was seen as promising. Here, the interviewee had a strong interest in *"somehow meeting with the best of the best; with those who have a desire to drive innovation."* Thus, in sum, various forms of OI emerge (West, 2016). The inbound mode is most evident in the inflow of knowledge associated with external IT solutions obtained by license. Here, the innovation was acquired by means of a contractual agreement (Laursen et al., 2010). Furthermore, guest feedback is attributable to inbound OI as part of continuous improvement. However, in the close collaboration with the IT company that developed the DGF, the outbound form is clearly evident. Here, the hotel, through the employee, acts as the IT firm's idea provider. For the hotel, this person also represents the essential innovation promoter. The close cooperation is particularly evident in the development phase of the IT firm when the interviewee was also spatially involved and *"sat around in the attic at the IT firm and then somehow spent nights spinning around and doing something"*. His influence on a development that missed the mark has already been discussed above. In this sense, the collaboration between hotel and IT firm can be described as an alliance in which hotel and external partner combine their knowledge and expertise to generate product innovations (Piller & West, 2014).

5. Conclusions, Limitations, and Future Research

The research revealed an imbalance in the OI practices facilitated by the DGF along the value chain. The hotel is a lead user towards the IT firm with a broad direct engagement in innovation activities. However, despite a fundamental customer focus guiding the hotel's innovation approach, the hotel guests are not directly involved in innovation activities via the DGF in contrast to the potential of OI approaches for hotels (Artič, 2013; Hameed et al., 2021). The qualitative nature of the single-case approach limits generalization; however, a system check was used for triangulation and intercoder agreement

achieved by a coding conference to increase objectivity and reliability. The findings from the unique case shall be verified in a multiple case study to extend the generalizability.

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