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# Antecedents of innovation activities in tourism: An empirical investigation of the Alpine hospitality industry

## Abstract

*Innovative hotels are more successful in outperforming their non-innovative competitors due to their ability to develop new products and services. The aim of this study is to shed light on which determinants foster innovation and, therefore, account for innovation management strategies. Quantitative data was collected through application of self-completion questionnaires in 244 hotels located within the Alpine region focusing on the federal state of Tyrol, Austria and South Tyrol, Italy. The results of the study revealed five firm-internal dimensions influencing innovation behavior: Employee engagement, customer engagement, information technologies, innovation management, and innovation networks.*

*Key words: innovation management; hotels; new service development; Alpine tourism*

## Introduction

Today, services are among the most important economic drivers worldwide but still approaches to service innovation are in an early phase of research development. Being part of the service sector, tourism is confronted with developments in new technologies and refreshed by organizational and structural innovations (Stamboulis & Skayannis, 2003). Competitiveness of tourism firms is driven by their innovativeness and by achieving lower costs and higher quality offerings that meet the expectations of potential customers (Sundbo, Orfila-Sintes & Sorensen, 2007; Nijssen, Hillebrand, Vermeulen & Kemp, 2006). The tourism sector recognizes increasing competition worldwide, not only between destinations but also between firms within the destinations (Dwyer, Edwards, Mistilis, Roman & Scott, 2009; Tseng, Kuo & Chou, 2008). It is acknowledged that innovative hotels are more successful in outperforming their non-innovative competitors owing to their ability of providing differentiated products and services.

The tourism product incorporates various services provided by different segments of suppliers, such as accommodation, transportation, catering and entertainment (Hjalager, 2002) and can thus be considered being a bunched circuit where networking and collaboration with partners is of great importance to produce novel offerings (Bieger, 2005). Understanding the peculiarity of the tourism product is

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essential because its characteristics play a vital role when analyzing the literature and attempting to measure innovation (Pikkemaat & Peters, 2005). However, tourism firms function in different sectors, such as transportation, accommodation, leisure, or intermediation, which implies that the innovative behavior of each sector may follow different approaches (Borooah, 1999).

Regarding innovation research in tourism, there are some studies which focus on the measurement of innovation (Peters & Pikkemaat, 2005; Volo, 2004), as well as on patterns of innovation (Hjalager, 1997; Hjalager, 2002; Weiermair, 2003; Orfila-Sintes, Crespi-Cladera & Martinez-Ros, 2005; Hölzl, Pechlaner & Laesser, 2005), or on the analysis of determinants of innovation (Jones, 1996; Walder, 2005; Ottenbacher, Shaw & Lockwood, 2005; Pikkemaat, 2008). However, there is a lack of innovation research in the hospitality sector (Hjalager, 2010). Various scholars call for further research on service innovation determinants within this field (Orfila-Sintes et al., 2005; Ottenbacher, Gnoth & Jones, 2006; Sundbo, Orfila-Sintes & Sorensen, 2006; Orfila-Sintes & Mattsson, 2009; Pikkemaat, 2008). In particular, Hjalager (2010) calls for better empirical evidence about innovation in tourism. In her recent review of innovation research in tourism, she advocates studies that investigate various innovation activities of tourism firms as well as the extent to which these firms introduce new products to the market. Our paper follows this call for more research.

The major objective of this study is to propose a comprehensive framework of antecedents of innovations for several innovation areas in the hospitality industry. This study accounts for inter-sector heterogeneity of services and focuses solely on the hospitality sector, in particular on Alpine hotels. For this purpose we first briefly discuss various approaches of innovation in services. Next, we provide an extensive literature review which is the basis of the hypotheses of this study. We test the hypotheses in a quantitative study in Alpine hotels. The results reveal important information for entrepreneurs in the tourism sector.

## Theoretical background and hypotheses

### Innovation theory

Innovation is referred to as the formation of a new product, service or process (De Brentani, 2001). The term innovation is used in several contexts such as management, marketing, engineering, medicine, and even tourism. Innovation theory has its roots in the past when manufacturing industries were the major economic activities. Thus, the vast majority of innovation studies were carried out in a manufacturing context.

The advent of innovation theory is frequently linked to growth theory (Freeman, 1990). Neoclassical growth theory uses an explicit or implicit commitment to the assumptions of faultless maximization and equilibrium. Schumpeter (1934) was one of the first who developed an innovation theory and today his ideas are widely acknowledged. Following his logic, innovation depends on the characteristics of entrepreneurs who face a dynamic environment. He discussed five areas where entrepreneurs have the chance to innovate: Creating new products or services, new production processes, new markets, new suppliers, and changing organization or management systems (Schumpeter, 1934).

Today, services account for a great share of wealth and employment in developed economies. More recent theories thus take more service-oriented approaches. Sundbo's (2002) strategic innovation theory postulates that market orientation, that is, market saturation, customer orientation, networks, and firm-internal resources, determine firm innovativeness, but only through the management's interpretation of them (Sundbo, 2002, p. 64). The importance of customers has also been recognized in recent innovation literature (e.g., von Hippel, 2001; Füller & Matzler, 2007; Franke, Schreier & Kaiser, 2010). Service-dominant logic (Vargo & Lusch, 2004, 2008) re-examines the role of innovation in service delivery (Chen, Hung & Huang, 2009). Heart of the theory is the customer as co-creator of value and the process of value co-creation that drives innovation and evolution within the market (Vargo, Maglio & Akaka, 2008). Other theories focus on the role of institutions and networks within the innovation process (e.g., Lin, Cook & Burt, 1992; Coriat & Weinstein, 2002). In tourism research, a first empirical step into this direction was a study by Sundbo, Orfila-Sintes and Sorensen (2007) who investigated the innovative behavior of tourism firms on the firm level, the network level, and the system level.

The discussion whether the same approaches can be used to study innovation in manufacturing and in services is still ongoing. Existing research in this field revealed both similarities and differences (Droege, Hildebrand & Forcada, 2009). Coombs and Miles (2000) distinguish three approaches for studying innovation in services: First, the assimilation approach, which treats services as similar to manufacturing; Second, a demarcation approach, which treats innovation in services as distinctively different from that in manufacturing; Third, a synthesis approach, which suggests to investigate how the peculiarities of service activities reformulate innovation approaches in manufacturing. Innovation studies have been carried out applying all three approaches. The assimilation approach has been applied in the studies of Preissl (2000), Hughes and Wood (2000), Johannessen, Olsen and Lumpkin (2001), Chan, Go and Pine (1998) or Hollenstein (2001). The demarcation approach which focuses on distinctive features of service innovation rather than comparing innovation in services with innovation in manufacturing has been applied in particular by the works of Gallouj and Sundbo (Gallouj, 1998; Sundbo, 1998; Sundbo & Gallouj, 2000) while the synthesis approach has been applied by Gallouj and Weinstein (1997) and Drejer (2004).

## Development of hypotheses

Besides the conceptualization of innovation, there is also a lively discussion about what effectively drives innovation. The service literature evokes a large number of antecedents (Edgett, 1994; Martin & Horne, 1995; Atuahene-Gima, 1996; Storey & Easingwood, 1998; De Brentani, 2001; Avermaete, Viane, Morgan & Crawford, 2003; De Jong, Bruins, Dolfsm & Meijaard, 2003; Handermann & Gleich, 2007; Pires, Sarkar & Carvalho, 2008). Basically, antecedents of innovation in services are divided into those that are manageable by service firms themselves, and those that stem from external conditions (De Jong et al., 2003). A study by Atuahene-Gima (1996) identifies factors affecting innovation performance in service firms where management support and teamwork were of great relevance. This is also supported by Martin and Horne (1995) who state that managerial input significantly affects innovation. Furthermore, the authors suggest that increasing direct customer participation in the innovation process and the use of information about the customer will increase the potential for success. A study by Edgett (1994) identifies a highly motivated, qualified team as successful trait of new service development. De Brentani (2001) stresses the importance of distinguishing between

new and incremental innovations when identifying keys to achieving success. Avermaete et al. (2003) focus on determinants of innovation in small food firms, where company-age and company-size were important. Further, elaborating on the management of service innovation, Handermann and Gleich (2007) highlight the importance innovation management systems and an innovation-oriented corporate culture. This goes hand in hand with the study of Storey and Easingwood (1998) emphasizing the determinants of effective communication and investment in employee training programs. A literature review conducted by De Jong et al. (2003) reveals 17 success factors that intervene with innovation activities, which are categorized into people, structure, resources and networking.

Considering more recent studies, Pires et al. (2008) compare product and process innovation in manufacturing and services. They highlight knowledge sources, technology adoption, human capital, firm-size, and firm-age as important drivers of innovation. In addition, Arvanitis (2008) empirically analyzes the innovative behavior in the Swiss service sector, where financial conditions, competition, demand prospects and market structure are discussed as determinants of service innovation. A literature review by Van der Panne, Van Beers and Kleinknecht (2003) examines 43 recent papers about antecedents behind success and failure of product and service innovation. They propose firm-related, project-related, product-related and market-related factors as possible categorization for determinants of innovation.

Returning to determinants of innovation in the tourism industry, we elaborate on these studies and propose the following dimensions as potential drivers of innovation in the hospitality industry: *Employee engagement, customer participation, innovation management, innovation networks, and information technology*.

## Employee engagement

Service employees have been recognized as a fundamental source of innovation activities, not only because they directly impact customer satisfaction, but also because they are primary creators of positive word-of-mouth (De Brentani, 2001). Numerous studies show that successful new services can be ascribed to great levels of commitment and enthusiasm of employees. This finding holds both for employees being involved in the innovation process and employees working at the front-office (Edgett, 1994; Ottenbacher & Gnoth, 2005; Ottenbacher, 2007). Employee training is an aspect that has been found to foster innovative efforts within a firm (Storey & Easingwood, 1998; De Brentani, 2001; Orfila-Sintes & Mattsson, 2009). De Brentani (2001) argues that having highly trained employees, who possess a great understanding of the product and the customer, plays an important role when aiming for successful new services. Avermaete et al. (2004) find that innovative firms have a higher proportion of qualified technical staff. Ottenbacher and colleagues (Ottenbacher & Gnoth, 2005; Ottenbacher et al., 2005; 2006; Ottenbacher, 2007) reveal employee empowerment as important antecedent of service innovation. Empowerment refers to the act by which managers provide employees with the autonomy and control over job-related decisions (Ottenbacher et al., 2005) and to work independently (De Jong et al., 2003). This can be accomplished by integrating employees in the innovation process, focusing on human resource management and strategy (Atuahene-Gima, 1996), and nourishing enthusiasm through reward systems (Amabile, 1998; De Jong et al., 2003; McGourthy & Tarshis, 1996; Weinert, 1998). As the tourism industry can be considered being labor intensive, special interest has to be put

on employee engagement in the innovation process. It can thus be proposed that employee engagement actively fosters innovation activities in a hotel.

*Hypothesis 1: Employee engagement positively influences the innovation behavior of hotels.*

## Customer participation

Research on customer participation in the innovation process is a research priority in current innovation and marketing research (Verhoef, Reinartz & Krafft, 2010; Ostrom, Bitner, Brown, Burkhard, Goul, Smith-Daniels & Demirkan, 2010). It is well substantiated that businesses need to respond to the specialized and long-term needs of customers (Nasution & Mavondo, 2008). From the perspective of new service innovation, several authors also support the notion that customers play a vital role in new service development (De Jong et al., 2003; Martin & Horne, 1995; Vargo, Maglio & Akaka, 2008). Orfila-Sintes and Mattson (2009) emphasize that the participation of customers within the conceptualization of innovation is a critical factor of success. Encouragement of customer participation in the NSD process and implementation of knowledge about the customer at certain stages increases the potential for successful innovative results (Martin & Horne, 1995; Füller & Matzler, 2007; Tseng et al., 2008; Hu, Horng & Sun, 2009; Füller, Faullant & Matzler, 2010). More recent studies by Tseng et al. (2008) and Hu, Horng and Sun (2009) describe the concept of knowledge sharing in hospitality teams, which occurs in several ways but mainly entails the transfer of information between the employee and the customer and, consequently, is applied to the innovation process. Bearing in mind our aim of revealing antecedents of innovation in tourism, we propose the following hypothesis:

*Hypothesis 2: Customer participation positively influences the innovation behavior of hotels.*

## Innovation management

Several studies emphasize the role of management support within innovation processes (Atuahene-Gima, 1996; Van derPanne et al., 2003; De Jong, 2003). Moreover, management style (Cozijnsen, Vrakking & Van Ijzerloo, 2000; Martin & Horne, 1995; De Brentani, 2001; Tseng et al., 2008) and communication of rules and procedures (Amabile, 1998; Froehle, Roth, Chase & Voss, 2000) affects innovation and project viability. There is also an ongoing discussion about entrepreneurship and its effect on innovation. As such, entrepreneurship in tourism has been a topic of great interest (Morrison & Kokkranikal, 2002) and is widely acknowledged as a primary source of the development of innovation. Orfila-Sintes and Mattson (2009) highlight the importance of the hotel director's management skills and the openness towards change for the development of all types of innovation. Considering the tourism industry, we propose the following hypothesis:

*Hypothesis 3: Innovation management positively influences the innovation behavior of hotels.*

## Innovation networks

Particularly in services, innovation can be easily imitated and copied. This results in firms keeping their knowledge secret and being less willing to participate in networks (Callon, Laredo, Rabeharisoa, Gonard & Leray, 1992). Nevertheless, the formation of networks increases because many firms need external actors and knowledge exchange to encourage the innovation process (Pikkemaat, 2008; Rogers, 2004).

Other authors also emphasize appropriate resource allocation (Edgett, 1994; De Jong et al., 2003) as well as co-operation with externals. Particularly in the tourism sector, competitors and collaborators have been identified as a vital source of information for innovative activities (Chen, Tsou & Huang, 2009); (Pikkemaat, 2008; Sundbo et al., 2007). Even the largest innovation-active organization cannot rely exclusively on its internal resources but knowledge coming from beyond the firm's boundaries is needed to foster innovation processes (Rigby & Zook, 2002). We propose the following hypothesis for the tourism industry:

*Hypothesis 4: The formation of innovation networks positively influences the innovation behavior of hotels.*

## Information technology

IT supports a company in many ways and also increases opportunities for growth and innovation (Sundbo et al., 2006; Arvanitis, 2008). Froehle et al. (2000) explore the influence on innovativeness and the execution speed of new service ideas through IT choices. The findings of their study support the general assumption that technology facilitates innovation and development processes, especially when fostering user-friendly and synergetic systems. Chen, Tsou and Huang (2009, p. 41) argue that IT influences a firm's ability to create value and alters the way customers interact with a service offering. In their study of innovation orientation in financial service firms, they find that IT capabilities of a firm have positive effects on service delivery innovation. Other researchers also support the idea that technological progress has a positive impact on innovation in services. (Pires et al., 2008; Tseng et al., 2008). When analyzing the use of IT in tourism it becomes obvious that mobile solutions and the web have changed the whole industry within the last decade, e.g., online booking possibilities are today standard of the industry. The use of information technology is thus proposed to significantly influence the innovation behavior of hotels:

*Hypothesis 5: A positive attitude towards information technologies positively influences the innovation behavior of hotels.*

## Research methodology

### Innovation in Alpine tourism

In the European Alpine region, many tourist destinations are increasingly confronted with high competition and maturing markets (Pikkemaat & Peters, 2005), which results in overall declining demand leading to market exits, and, at the same time, representing new challenges for tourism policy (Pechlaner & Sauerwein, 2002). Regarding the demand side, many tourism organizations appear to be overwhelmed by current changes and trends (Pikkemaat, 2008). The primary movement of 'mass tourism' has been replaced by the 'individual mass' where consumers are more sophisticated and expectations are set higher (Poon, 1994; Opaschowski, 2000). The new, "hybrid customer", wants the full tourism package including tension and relaxation combined, seeks maximum experiences in minimum time and sets high expectations due to previous travel experience (Reiter, 2004). This development forces tourism managers and entrepreneurs to pursue clearly defined and articulated differentiation strategies (Pikkemaat, 2008). Furthermore, customers face environmental awareness and search for novel products

and destinations (Poon, 1994). Thus, the pressure on the tourism and hospitality industry to develop new, innovative services is of particular importance (Williams, 1996; Pikkemaat & Peters, 2005).

## Data collection and measurement

In order to test our hypotheses empirically, a quantitative survey was carried out in the Alpine hospitality industry. The Alpine tourism market is an interesting research object because its hotels often face low economies of scale and scope, lack co-operation and networking, and suffer high labor costs (Pikkemaat, 2008). The empirical analysis followed a cross sectional survey design. Data was collected through the application of self-completion questionnaires in hotels located within the Alpine region. In particular, we focused on the federal state of Tyrol, Austria and South Tyrol, Italy. We gathered email addresses from an online booking website offering hotel deals in the Alps. 2070 hotel managers were randomly contacted through email in order to offer participation in the survey. The response rate was 11.8 %, which provided a final sample size of 244 hotel managers.

Three major sections sought information in the following topics of interest: (1) The innovation behavior of the hotel within several hotel areas, (2) determinants of innovation, (3) background information of the hotel. A pretest of 10 tourism experts, who owned or worked in a hotel, was used to remove ambiguities and communication mistakes. The questionnaire was prepared in German and consisted of mainly closed-ended questions. Innovation behavior was measured following the theoretical notion of “newness” introduced by Johannessen, Olsen and Lumpkin (2001). In this sense, twelve areas of innovation activities were drawn from previous studies of Storey and Easingwood (1998), De Brentani (2001), Walder (2005), Sundbo, Orfila-Sintes and Sorensen (2007), Orfila-Sintes, Crespi-Cladera, and Martinez-Ros (2005), Pikkemaat (2008), and Tanner (2008) (see Table 2). Managers or owners of the hotels had to rate their innovation behavior in each area on a five-point Likert-scale (one being not innovative at all, five being absolutely innovative). The second section obtained the antecedents of these innovative activities. The items for this section were derived from the literature review presented above (see Appendix A) and were modified to fit within the tourism context. One statement was provided for every item and was also measured on a five-point Likert-scale (one being absolutely not agree, five being totally agree).

Finally, respondents were asked to indicate the number of beds and the number of employees as indicators of hotel size.

## Sample

Concerning the star-categorization, more than half of the respondents fell into the category of a three-star hospitality institution (56.5%), followed by four-star accommodations (21%) and three-star superior hotels (15%). On average, the hotels in our study had 60 beds and 14 employees. This data makes clear that our sample was representative for the Alpine hospitality industry where more than 95% of all hospitality firms are small-sized enterprises which have less than 50 employees (Statistik Austria, 2011). Table 1 shows an overview of the characteristics of the participating hotels. 84.3% were traditional Alpine hotels. The small remaining part consisted of apartments/suite-hotels (8.3%), bed-and-breakfast (6%) and hotel chains (1.4%).

Table 1  
**Characteristics of respondents**

Demographic	%
<b>Accommodation type</b>	
Hotel	84.3
Apartment/Suite-hotel	8.3
Pension	6.0
Hotel chain	1.4
<b>Total</b>	<b>100.0</b>
<b>Star-categorization</b>	
5 Star	1.0
4 Star superior	6.0
4 Star	21.0
3 Star superior	15.0
3 Star	56.5
2 Star	0.5
<b>Total</b>	<b>100.0</b>
<b>Accommodation theme</b>	
Ski	55.7
Wellness	25.9
Castle	7.0
Golf	5.1
Luxury	4.4
Resort & Club	1.9
<b>Total</b>	<b>100.0</b>
<b>Position of respondent</b>	
Owner & Manager	38.7
Owner	37.8
Manager	13.4
Other position	10.1
<b>Total</b>	<b>100.0</b>

## Results

### Descriptive data

To analyze the innovation behavior of the hotels, we aggregated the twelve innovation areas into three main innovation areas: The service area (SA), management area (MA) and information- technology area (ITA). The analysis of mean-values of SA, MA and ITA shows that the respondents considered themselves being reasonably innovative in all areas, whereas the management area ( $M=3.30$ ) was found to be the most innovative, followed by ITA ( $M = 2.7$ ), and SA ( $M = 2.52$ ) (see Table 2).



Table 2  
Areas of innovation behavior

Innovation activity	Mean	Standard deviation
<b>Management area</b>	3.30	
Environmental management	3.30	0.12
Quality management	3.31	1.00
<b>Service area</b>	2.52	
Animation	3.19	1.09
Services	3.17	1.03
Restaurant equipment	3.00	1.08
Kitchen equipment	2.68	1.00
Room installations	2.75	1.07
Cleaning	2.85	1.01
Security systems	2.79	1.14
<b>IT area</b>	2.70	
Internal IT	2.98	1.06
Computer equipment	2.62	0.96
External IT	2.52	0.99

Likert-Scale (1= not innovative at all, 5 = absolutely innovative)

## Reliability and validity

First, exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were performed to reduce the revealed items from our literature review into a smaller number of constructs (Diamantopoulos & Schlegelmilch, 2000). EFA extracted five factors: Employee engagement, customer participation, innovation management, innovation network and information technology. In total, the extracted factors explained 69% of the total variance.

Next, the adequacy of each factor was evaluated. We deleted items with Cronbach's Alpha below the 0.7 threshold in each construct. All standardized item loadings of the remaining items in the confirmatory factor analysis were significant ( $p < 0.01$ ) and thus suggested convergent validity. Next, we converted the items in each constructs into a single composite score (Hu, Horng & Sun, 2009). Construct reliability ranged from 0.79 to 0.95, suggesting internal consistency. The average variance extracted (AVE) met the critical value of 0.5 for each construct. In addition, the Fornell-Larcker Criterion of discriminant validity was met since the values of the AVE exceeded the squared multiple correlations of the latent construct (Fornell & Larcker, 1981). To sum up, the final constructs proofed reliable and valid for further analysis. Table 3 shows all constructs with their corresponding statements, descriptive statistics and factor loadings.

Table 3

**Factor analysis for antecedents of innovation**

Factor	$\alpha$	AVE	Mean	SD	FL
<b>Employee engagement</b>	0.83	0.77			
We encourage our employee's commitment to the firm.			4.26	0.79	0.77
Our employees get constantly further education.			3.6	1.10	0.77
Our employees are well educated and obtain profound knowledge of their job.			4.15	0.81	0.77
Our employees are open-minded and have a positive attitude towards new services.			3.7	1.07	0.75
We integrate our employees in the development of new service offerings.			3.81	1.10	0.75
<b>Information technology</b>	0.83	0.87			
The management has a positive attitude towards the use of IT.			4.54	0.79	0.88
IT plays an important role in the development of new services.			4.10	0.92	0.82
We always try to implement the latest IT-applications when developing new services.			3.85	1.02	0.80
<b>Innovation network</b>	0.75	0.80			
Our firm maintains a close network with collaborators and competitors.			2.53	1.42	0.83
Our firm co-operates with collaborators to create new services.			3.16	1.33	0.81
When introducing new services we appreciate a preliminary assessment of external partners.			2.67	1.26	0.74
<b>Customer engagement</b>	0.64	0.84			
Customer demands and complaints have led to the development of new services.			3.70	1.37	0.83
Our system to measure customer satisfaction has led to the development of new services.			4.02	1.14	0.77
<b>Innovation management</b>	0.84	0.85			
The management of the company promotes an innovative environment.			4.12	1.10	0.75
The management level is involved in all stages of the innovation process.			4.32	1.10	0.70
The entrepreneur is innovative, creative and willing to take risks.			3.33	1.20	0.66
The entrepreneur informs its employees about product and process innovations.			4.00	0.80	0.79
When operational changes occur, the entrepreneur offers its employees instructions and training.			3.20	1.20	0.71

Note→ Items were measured on a 5-point-Likertscale: 1 = do not agree, 5 = totally agree

$\alpha$ = Cronbach's Alpha, AVE= Average Variance Extracted, SD = Standard Deviation, FL = Factor Loading

## Hypotheses testing

Multiple regression analysis was applied to find out whether an increase (decrease) of the proposed factors leads to an increase (decrease) of SA, ITA and MA (see Table 4).

*Hypothesis 1* suggested that employee engagement positively influences the innovation behavior of hotels. The regression analysis of the factor employee engagement on IS, IM and ITA revealed a significant positive influence on SA ( $\beta = 0.18$ ,  $p < 0.01$ ) and ITA ( $\beta = 0.26$ ,  $p < 0.01$ ). In support of *hypothesis 2*, we found that customer engagement significantly influences innovation in MA ( $\beta = 0.15$ ,  $p < 0.01$ ), SA ( $\beta = 0.11$ ,  $p < 0.01$ ) and ITA ( $\beta = 0.14$ ,  $p < 0.01$ ). *Hypothesis 3* proposed a positive influence of innovation networks on the innovation behavior of a hotel. We can partially support this hypothesis as we found that innovation networks affect MA ( $\beta = 0.17$ ,  $p < 0.01$ ) but not in SA ( $\beta = 0.10$ , n.s.) and ITA ( $\beta = 0.09$ , n.s.). In support of *Hypothesis 4*, innovation management positively influences MA ( $\beta = 0.21$ ,  $p < 0.01$ ), SA ( $\beta = 0.32$ ,  $p < 0.01$ ), and ITA ( $\beta = 0.64$ ,  $p < 0.01$ ). *Hypothesis 5* proposed a positive influence of information technology on a hotel's innovation behavior. Significant results were found for ITA ( $\beta = 0.27$ ,  $p < 0.01$ ) and SA ( $\beta = 0.32$ ,  $p < 0.01$ ), supporting H5.

Table 4  
Results of the multiple regression analysis

Factor	Innovation area			Hypothesis
	Service area $\beta$	IT-area $\beta$	Management area $\beta$	
H1: Employee engagement	0.18**	0.26**	0.05	Partially supported
H2: Customer engagement	0.05**	0.11**	0.14**	Supported
H3: Innovation network	0.10	0.09	0.17**	Partially supported
H4: Innovation management	0.21**	0.32**	0.64**	Supported
H5: Information technology	0.31**	0.27**	0.10	Partially supported
R <sup>2</sup>	0.22	0.43	0.63	
$\Delta R^2$	0.21	0.41	0.54	
F	29.9	21.9	7.2	

\*\* $p < 0,01$

## Summary and discussion

The aim of our study was to investigate the innovation behavior of hospitality firms and to find out what actually drives these innovations. We accomplished this task by providing an extensive literature review of existing studies and empirically tested the items from our literature review in an Alpine tourism context. Our analysis revealed five firm-internal dimensions influencing innovation behavior: Employee engagement, customer participation, information technologies, innovation management, and

innovation networks. Results of the multiple regression analysis show that innovations in the hotels' service area and the hotels' IT-area were influenced by employee engagement, customer participation, innovation management and information technologies. Innovations in the management area, however, were influenced by customer participation, innovation networks, and innovation management. These results reveal a number of important implications for management:

First, we found that employee engagement (i.e. permanent training and empowerment of employees) fosters innovation activities. Highly skilled and open-minded employees are needed to create an innovation-friendly culture within the firm and help to transform ideas into successful innovations. In order to achieve this goal, it is necessary to create innovation-supporting structures which ideally cover all parts of the company in a comprehensive network. However, establishing such an innovative culture that involves all employees is only possible in the long run. A successful way of innovation management is only possible as a mutual symbiosis between management and employees. The entrepreneur benefits from the integration of employees into the innovation process in the sense of a learning enterprise. However, responsibility for an innovative company cannot be delegated to the employees but is one of the core tasks of the entrepreneur himself. Our findings support the studies of Ottenbacher et al. (2006) and De Jong et al. (2003) who emphasize the importance of implementing structured training programs and devoting a substantial amount of financial resources to the training of employees. Training programs widen employees' knowledge and increase overall creativity and problem-solving capacities. As the tourism sector is an exceptionally labor intensive industry, this result is of high relevance.

Second, we found that innovation behavior is influenced by innovation networks. In other words, innovation activities increase when they are implemented together with external partners and collaborators. This outcome is particularly appealing for the tourism industry, where various stakeholders are integrated in the creation of the tourism product (i.e. travel agencies, hotels, coach operators, cable car companies, etc.). Additionally, this finding is congruent with other studies revealing that co-operation with other parties, such as suppliers, customers, competitors and research institutions, can be identified as an antecedent of successful innovations (De Jong et al., 2003). Chen, Tsou and Huang (2009) also emphasize the importance of collaboration with external partners in order to accumulate knowledge and competencies and, hence, increase innovation activities. For the tourism industry, this aspect is particularly appealing as one single hotel often lacks of necessary resources and thus has to allocate them together with both collaborators and competitors. Collaboration with local authorities, DMOs and other supporting bodies is therefore a key factor in facilitating innovative services (Novelli, Schmitz & Spencer, 2006).

Third, the study shows that the use of new information technologies increases innovation activities in hotels. Especially in tourism, the use of information technologies (e.g., online booking systems, recommendation websites, mobile guides) is of utmost importance for travelers. Stamboulis and Skayannis (2003) emphasize the wide range of opportunities and challenges of IT for all members of the tourism value chain. Especially since the tourism industry is progressively more dominated by information, openness towards all kind of upcoming information technologies is indispensable for hotels to remain competitive.

# Implications

## Theoretical implications

This study elaborated on a substantial body of studies that analyzed antecedents of innovation in services. Nevertheless, there is a lack of quantitative approaches in the tourism industry (Hjalager, 2010). We aimed to close this research gap and thereby made a contribution to academic literature as we developed and empirically tested the potential drivers of innovation in hotels. However, the same determinants can be applied to compare the hospitality industry to other service. Moreover, we specified innovation behavior as we identified three areas of innovation activities within the hotel: Innovation in service offerings, innovation in management and innovation in information technologies. This gives us more insights into the innovation behavior of tourism firms than solely measuring the term “innovativeness”. For the further development of innovation research it is of utmost importance to deconstruct and break “innovativeness” down within the context of service firms. Innovation has to be subdivided into categories. Research should focus on a decomposition of the various factors that are currently bundled in the term “innovation”. Such a research approach would follow a converging approach of tourism innovation research (Hjalager, 2010).

However, more research is needed on the measurement of the customer’s impact on innovation activities. It is understood that customers are seeking to exert influence in every part of the development process (Prahalad & Ramaswamy, 2004) and, thus take the role as co-creators of value (Füller et al., 2010). Systems to measure the level of customer satisfaction with the help of questionnaires are widely accepted and established in many service industries, e.g., in the airline or hotel industry. Systems to gain customers ideas and involvement for the further development of services and new innovative products are seldom in tourism studies and do not reflect the standard of the industry. In particular, employees of the hospitality industry are in closer contact to customers than in other industries and the use of these co-creators of innovation should be discussed both on a theoretical and managerial level. Thus, more theoretical research is still needed to analyze and establish sufficient management tools and measures for this important dimension.

Additionally, innovation research in tourism has to be put into theoretical frameworks (Hjalager, 2010) both for the small and medium sized single tourism enterprise as well as for the destinations comprising a mix of various single tourism enterprises. The need to point out the specifics of tourism may be displaced by the need to compare innovation research in tourism with innovation research in other industries. As a consequence, a grounded innovation theory for tourism may be adapted these industries.

## Managerial implications

Four points have to be discussed to gain inputs for the management of innovation in tourism enterprises and destinations.

First, innovation is a management activity that cannot be delegated. It is the management’s task to emphasize and convey the importance of innovation to the employees. In order to complement this task, it is necessary to create an innovation-supporting culture that covers all parts of the enterprise in a comprehensive network. To establish and live such an innovative culture means to incorporate

employees' ideas and depends highly on the managements' attitude towards innovation. Employees have to be educated, trained and get used to their role of being part of the innovation process.

Second, a successful way of stimulating and managing innovation is only possible by a mutual symbiosis between entrepreneur or management and employees. Especially for SMEs in tourism, which usually have no large R&D or innovation departments, the knowledge of employees is an easy and cheap way to gain market knowledge and to develop new products and services. Due to the fact that service employees are in closer contact to guests than entrepreneurs, their knowledge about guests' needs and wants should be involved in entrepreneurial decisions. The entrepreneur benefits from the integration of employees into the innovation process in the sense of a learning enterprise.

Third, the integration of customers in the innovation process becomes more and more important, particularly for industries with highly individualistic service encounters. Recent studies in other industries, for example, focus on the use of virtual worlds for real-world innovation (Kohler, Matzler & Füller, 2009). Given the fact that information technologies have significantly changed the tourism industry, online recommendation systems deliver new insights into customers' opinions. Consequently, these new technologies are a potential source of innovative product offerings. This research stream has been neglected so far by tourism research. The customer's opinion should be respected within the innovation management process, either by classical market research tools or by developing a new tool to gain customer's ideas as a basis of innovation in diverse service and tourism areas.

Fourth, networking and cooperation is a great advantage in developing new products and foster innovation (Novelli et al., 2006; Nordin, 2003). Enterprises that engage in cooperation tend to have a significantly higher degree of innovation than those not engaged in cooperation. In the case of tourism, the entrepreneur is bound up in an economic network. It is a big challenge and responsibility, especially for SMEs, to professionally network in a sustainable way in order to guarantee high quality products and services and to remain competitive. To achieve long-term competitiveness, various forms of synergistic cooperation are essential among the traditionally fragmented tourism providers. Cooperation not only helps to improve existing services but also benefits the creation of completely new synergistic innovative service experiences. Based on the results of this study, entrepreneurs have to recognize that the creation of new services and innovation is easier in cooperation or in a network with partners. The formation and the maintenance of networks in tourism destinations is a challenge but is highly recommended to achieve a competitive advantage in mature markets.

To conclude, an innovative tourism enterprise has to consider at least five factors: It integrates employees and customers into the innovation process; it cares for partners to cooperate in networks; it has a proactive innovation management; and it is open minded towards new information technologies.

## Limitations and further research

First, it has to be stated that our study was conducted in the Alpine region where the majority of hospitality firms is characterized by high labor costs, low professionalism (Pechlaner et al., 2004; Pikkemaat, 2008) and predominantly small and medium-sized tourism firms which have low economies of scale and scope and, thus, are unable to raise profit margins to invest in research and development

(Weiermair & Peters, 2002; Pikkemaat, 2008). This makes it unfeasible to generalize our findings to other regions or destination areas. Thus, it would be interesting to apply our model in other tourism destinations with a different structure of the hotel industry.

Second, our approach was narrowed down on internal factors that can directly be affected by hotel managers. Therefore, our study aims to help managers to focus on specific determinants when enhancing their innovative activities. Nevertheless, common-method-bias could not totally be avoided because we solely asked managers about their subjective interpretation of each statement provided. Future studies should avoid using single sources by integrating external data from collaborators or governance.

Third, customer engagement is a major issue in academic and managerial research. Thus, we consider it imperative to deeper investigate this issue by revealing more items measuring customer engagement particularly in the services and tourism industry. Also the degree of customer innovativeness, i.e. the tendency to buy new products more often than other people (Roehrich, 2004, p. 671) should not be underestimated. Future studies could further investigate the influence of customer innovativeness on hospitality firms' innovativeness. Nevertheless the authors hope that this article is another brick to further advance innovation research in tourism.

## Appendix A

### Antecedents of innovation - Literature review

Items	Literature source
<b>Employee commitment</b>	Edgett (1994) Ottenbacher and Gnoth (2005) Ottenbacher, Shaw and Lockwood (2005) Ottenbacher, Gnoth and Jones (2006) Ottenbacher (2007)
<b>Employee training</b>	Storey and Easingwood (1998) De Brentani (2001) Ottenbacher and Gnoth (2005) Ottenbacher, Shaw and Lockwood (2005) Ottenbacher, Gnoth and Jones (2006) Ottenbacher (2007) Tseng, Kuo and Chou (2008) Orfila-Sintes and Mattsson (2009)
<b>Employee expertise</b>	De Brentani (2001) Avermaete et al. (2003) De Jong et al. (2003) Van der Panne, Van Beers and Kleinknecht (2003) Sundbo, Orfila-Sintes and Sorensen (2007) Pires, Sarkar and Carvalho (2008)
<b>Employee empowerment</b>	De Jong et al. (2003) Ottenbacher and Gnoth (2005) Ottenbacher, Shaw and Lockwood (2005) Ottenbacher, Gnoth and Jones (2006) Ottenbacher (2007)

Items	Literature source
<b>Employee involvement in the innovation process</b>	Ottenbacher (2007) Tseng, Kuo and Chou (2009)
<b>Human resource strategy</b>	Atuahene-Gima (1996) Ottenbacher and Gnoth (2005) Ottenbacher, Gnoth and Jones (2006) Ottenbacher (2007)
<b>Employee reward system</b>	De Jong et al. (2003)
<b>System to measure employee behavior</b>	Ottenbacher and Gnoth (2005) Ottenbacher, Shaw and Lockwood (2005) Ottenbacher (2007)
<b>Direct customer participation</b>	Martin and Horne (1995) De Jong et al. (2003)
<b>System to measure customer satisfaction</b>	De Brentani (2001) De Jong et al. (2003) Sundbo, Orfila-Sintes and Sorensen (2007) Handermann and Gleich (2007)
<b>Usage of customer information</b>	Martin and Horne (1995) Tseng, Kuo and Chou (2008) Hu, Horng and Sun (2009)
<b>Innovation teams</b>	Edgett (1994) Atuahene-Gima (1996) De Jong et al. (2003) Van der Panne, Van Beers and Kleinknecht (2003) Sundbo, Orfila-Sintes and Sorensen (2007) Hu, Horng and Sun (2009)
<b>Innovation strategy</b>	Edgett (1994) Atuahene-Gima (1996) Storey and Easingwood (1998) De Brentani (2001) De Jong et al. (2003) Van der Panne, Van Beers and Kleinknecht (2003) Ottenbacher, Shaw and Lockwood (2005) Handermann and Gleich (2007) Ottenbacher (2007)
<b>Innovative networks</b>	De Jong et al. (2003) Sundbo, Orfila-Sintes and Sorensen (2007) Pikkemaat (2008)
<b>Preliminary assessment and testing</b>	Edgett (1994)



Items	Literature source
<b>Innovation culture</b>	De Brentani (2001) De Jong et al. (2003) Van der Panne, Van Beers and Kleinknecht (2003) Handermann and Gleich (2007) Hu, Horng and Sun (2009)
<b>Proper resource allocation</b>	Edgett (1994) De Jong et al. (2003)
<b>Co-operation with externals</b>	De Jong et al. (2003) Sundbo, Orfila-Sintes and Sorensen (2007) Pikkemaat (2008)
<b>Internal information sources</b>	Sundbo, Orfila-Sintes and Sorensen (2007) Pires, Sarkar and Carvalho (2008)
<b>External information sources</b>	Sundbo, Orfila-Sintes and Sorensen (2007) Pires, Sarkar and Carvalho (2008)
<b>Positive attitude towards IT</b>	De Jong et al. (2003) Sundbo, Orfila-Sintes and Sorensen (2007) Tseng, Kuo and Chou (2008)
<b>Technological synergy</b>	Atuahene-Gima (1996) De Jong et al. (2003) Arvanitis (2008) Tseng, Kuo and Chou (2008)
<b>Technologically advanced</b>	Van der Panne, Van Beers and Kleinknecht (2003) Pires, Sarkar and Carvalho (2008) Tseng, Kuo and Chou (2008)
<b>URL</b>	Sundbo, Orfila-Sintes and Sorensen (2007)
<b>E-mail</b>	Sundbo, Orfila-Sintes and Sorensen (2007)
<b>Booking by internet</b>	Sundbo, Orfila-Sintes and Sorensen (2007)
<b>Top management support</b>	Atuahene-Gima (1996) De Jong et al. (2003) Van der Panne, Van Beers and Kleinknecht (2003)
<b>Direct management participation</b>	Martin and Horne (1995) De Brentani (2001) Van der Panne, Van Beers and Kleinknecht (2003) Tseng, Kuo and Chou (2008)
<b>Hotel run by owner</b>	Orfila-Sintes and Mattsson (2009)
<b>Entrepreneurship</b>	Sundbo, Orfila-Sintes and Sorensen (2007)
<b>Communication of rules and procedures</b>	De Jong et al. (2003)
<b>Communication of task descriptions</b>	De Jong et al. (2003)

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