Managing Open Innovation in Small and Medium-Sized Enterprises (SMEs)

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1 Introduction

Over the past years, open innovation has been adopted by firms from different sectors and countries and receives increasing attention in the scholarly discussion. The research field is mushrooming and has started to expand to new levels and areas (Chesbrough & Brunswicker, 2014). One of those areas is the SME sector (Brunswicker & van de Vrande, 2014). The expansion of research on open innovation in the SME sector is a logical step as open innovation assumes that innovation has become a more level playing field, in which large firms have moved away from keeping full control over all innovation activities (Chesbrough, 2006). In addition, prior work on SMEs and innovation has already pointed out the importance of organizational boundary spanning activities for innovation in SMEs in order to overcome their liability, smallness, and scarce resources (Baum, Calabrese, & Silverman, 2000; Edwards, Delbridge, & Munday, 2005; Lee, Park, Yoon, & Park, 2010). Very recent empirical studies clearly suggest that SMEs purposively open up to external sources of knowledge, and engage in different kinds of open innovation practices ranging from external knowledge sourcing among customers, suppliers or universities to technology licensing (Brunswicker & Vanhaverbeke, 2015; Parida, Westerberg, & Frishammar, 2012; van de Vrande, de Jong, Vanhaverbeke, & de Rochemont, 2009; Wynarchyzk, Piperopoulos, & Mcadam, 2013). They also suggest that open innovation in SMEs is quite particular for reasons such as limited access to complementary resources in order to commercialize ideas and also less developed managerial capabilities for innovation (Lee

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et al., 2010; Parida et al., 2012; Robertson, Casali, & Jacobson, 2012). Thus, findings on how to manage open innovation in large firms cannot be directly transferred to the context of SMEs, and further research is needed to advance our understanding on managing open innovation in SMEs, in particular in the services sector.

There is evidence that open innovation equips SMEs with the ability to improve their financial innovation performance (Brunswicker & Vanhaverbeke, 2015; Laursen & Salter, 2006; Parida et al., 2012). In light of this potential performance effect and the economic relevance of SMEs, there is also a practical motivation to better understand how to implement and manage open innovation in SMEs. In Europe, for example, more than 60 % of private sector jobs are in the SME sector and more than 90 % of all businesses are SMEs (Acs & Audretsch, 1987; European Commission, 2003; OECD, 2009). The tourism sector, one of the world's largest sectors, supporting 266 million jobs and generating 9.5 % of global GDP, is dominated by SMEs. Ninety-nine percent of the businesses in the tourism sector in Europe and US are Classified as SMEs (OECD, 2014; WTTC, 2014). SMEs in the tourism and hospitality industry do not necessarily engage in R&D intensive technology development but innovate their service processes or realize a new business model (Nieves & Segarra-Ciprés, 2014). While innovation in services share similarities with their counterparts in manufacturing, internal managerial capabilities for innovation and transformation are of high importance in services and occur in more incremental innovations (Nijssen, Hillebrand, Vermeulen, & Kemp, 2006; Thomas & Wood, 2014; Vanhaverbeke, 2012). In light of performance potential of open innovation in SMEs and the particular nature of innovation in tourism firms, this chapter aims to explicate the concept of open innovation in SMEs with a particular focus on services and tourism SMEs and to answer the following research question: How can we conceptualize open innovation in tourism SMEs and what are organizational capabilities for managing open innovation within them? To answer this question this paper takes an organizational boundary spanning perspective and makes the assumption that open innovation is a distributed innovation process in which SMEs *purposively* manage inflows and outflows of knowledge across their organizational boundaries in order to create and capture value (Brunswicker & van de Vrande, 2014; Chesbrough & Bogers, 2014).

2 The Particular Nature of Open Innovation in SMEs in Tourism

As the term suggests, small and medium-sized enterprises (SMEs) are characterized by their "smallness", which is usually measured with an upper ceiling for number of full-time employees, yearly turnover, and/or annual balance sheet total.[1] It is widely

[1] Referring to the official definition of SMEs laid down in the European Commission Recommendations 2003/361/EC, they employ less than 250 employees. In addition to the headcount ceiling,

recognized that SMEs make a significant contribution to our economies and that SMEs, compared to large firms, also have the capacity for innovation (Acs & Audretsch, 1988). However, prior studies suggest that innovation processes and models in SMEs are quite different compared to large firms (Edwards et al., 2005): They are usually flexible, fast decision makers and quicker in reacting to changing market demands (Vossen, 1998). At the same time, they face limitations in terms of material, human, and resource factors (Acs & Audretsch, 1987). Moreover, they generally have less formalized R&D and innovation procedures. Due to the liability of smallness, SMEs cannot cover all innovation activities required to successfully realize an innovation. Thus, innovation in SMEs regularly has an external and boundary-spanning component. Indeed, there has been a long tradition of research on the role of external relationships and networks in SMEs (Birley, 1985; Edwards et al., 2005; Macpherson & Holt, 2007). Innovation research in the hospitality and tourism sector also points out that interorganizational networks are essential for the competitiveness of SMEs in this sector (Hjalager, 2010; Thomas & Wood, 2014; Valentina & Passiante, 2009).

One major finding of prior work is that strategic alliances and partnerships with large firms enable SMEs to innovate, in particular if they are young. Dyadic partnerships and multi-actor alliances help them to get access to critical resources, to extend their competencies, and also to build legitimacy and reputation. SMEs that are involved in multiple ties that relate to different external larger partners are also more innovative than those that use only one type of tie (Baum et al., 2000). With the increased trend towards 'customer-oriented' and integrated service offerings in the tourism sector, business partners are essential to better align multiple offerings (Aldebert, Dang, & Longhi, 2011). Further, existing literature on SMEs anchored in the theoretical lens of social capital and social network ties emphasizes the preference of entrepreneurs for informal and social contacts that may provide opportunities and at the same time shape the development of a firm (Macpherson & Holt, 2007). In fact, SMEs that belong to formal *and* informal networks are more innovative than others. One factor driving this positive association is the presence of a large variety and diversity of personal relationships with members of the business networks in which the SME is embedded in; personal networks support the diffusion of innovation within networks of SMEs (Ceci & Iubatti, 2012). Despite these benefits, social and personal relationships are often strongly embedded in the economic actions of SMEs and are therefore not purposively "utilized" for open innovation. For example, SMEs regularly lack the capability to *proactively* articulate their needs for external knowledge (Bessant, 1999). Even though they could build upon strong external relationships and interpersonal networks to engage in open innovation, SMEs often don't have the internal capabilities required to do so (Bougrain & Haudeville, 2002). Further, organisational and social relationships

an enterprise "officially" qualifies as SME if it meets either the turnover ceiling of less than 50 million euros or the annual balance sheet ceiling 43 million euros but not necessarily both (European Commission, 2003).

can act as a barrier to innovation as such ties may close opportunities (Macpherson & Holt, 2007). SMEs even run the risk of becoming too dependent upon their relationships.

Overall, literature indicates that inter-organizational linkages and networks are important drivers of innovation in SMEs. However, existing studies reveal a paradox: Even though SMEs regularly have strong inter-organizational ties, they struggle with making the best use of these ties. Studying open innovation in SMEs should provide insights into how SMEs can use network relationships and social capital by *purposively managing* inflows and outflows of knowledge. If SMEs become proficient in applying and managing open innovation, they can use their relationships in a positive manner rather than becoming dependent upon them. As the locus of innovation regularly resides at the network level, open innovation in SMEs naturally is quite specific and different from large firms; it postulates researchers to explore the unique challenges in leveraging and managing open innovation in SMEs.

Besides network dependency, the *type* of innovation is also shaping the particular nature of open innovation in tourism SMEs. In general, the term SME is regularly associated with high-tech start-ups, new small firms, and entrepreneurial firms. However, SMEs subsume more than just young technology entrepreneurs and science-based ventures from high-tech sectors (de Jong & Marsili, 2006; Gans & Stern, 2002). It also includes established SMEs that are at a later organisational lifecycle stage, as well SMEs that innovate in low-tech sectors or services (Koberg, Uhlenbruck, & Sarason, 1996; Santamaría, Nieto, & Barge-Gil, 2009). Small service firms, such as those in the tourism sector, are exposed to the distinct nature and very particular challenges of services innovation (Aldebert et al., 2011; Mina, Bascavusoglu-Moreau, & Hughes, 2014; Thomas & Wood, 2014). In tourism services the customer takes a central role in the value creation process. Value is not transferred in a transactional manner but co-created in a service exchange process between the firm and the customer. The inseparability of production and consumption makes services distinct from manufactured products, and puts the customer in a central role in the service production process. The *interaction* between the organization and the customers shapes the perceived service quality, experience, and efficiency of resource allocation (Schneider, Ehrhart, Mayer, Saltz, & Niles-Jolly, 2005), and the customer holds an active role in the service production process and the way value is created and perceived. This has significant implications on services innovation in tourism, which imply new roles of the customer in the service co-creation process or completely novel service systems in which multiple actors co-create service value in a very interactive manner (Sampson, 2010; Vargo & Akaka, 2009). In service sectors like tourism, innovations may not just emerge from novel interactions with the customer but from novel alignments and exchange relationships of a variety of actors that co-create value both for and with customers (Aldebert et al., 2011). The highly interactive and intangible nature of services value creation suggests that the open innovation concept is particularly important for them. Indeed, existing studies highlight that tourism firms are naturally more dependent upon external knowledge sources for

innovation than manufacturing firms (Leiponen, 2005; Love, Roper, & Hewitt-Dundas, 2010; Nieves & Segarra-Ciprés, 2014). However, little is known about how these services SMEs may *purposively* manage external and internal knowledge flows that span their organizational boundaries, which modes of open innovation are best suited for them, and what internal organizational capacities are need to benefit from openness. The following chapter will briefly map out relevant open innovation modes in tourism SMEs by drawing upon recent theoretical contributions on open innovation and empirical studies on openness in SMEs.

3 Modes of Open Innovation in SMES

There are multiple ways in which SMEs may engage in open innovation, ranging from traditional modes like consortia to emerging and often digitally enabled practices like innovation crowdsourcing, in which SMEs engage with a large number of external strangers to solve innovation problems (Afuah & Tucci, 2012; Sigala & Christou, 2014). Open innovation is often broadly categorized in two different modes, namely *inbound* and *outbound* open innovation. In inbound open innovation, external knowledge flows inside the organization, whereas in outbound open innovation, internal knowledge travels across the firm's organizational boundaries to find new paths to market and commercialization channels (Dahlander & Gann, 2010).

3.1 Inbound Modes of Open Innovation

Inbound open innovation can be further subdivided into two modes of open innovation, namely *sourcing* and *acquiring*. Sourcing refers to how firms make use of external sources of knowledge without an immediate compensation to the sources for the knowledge that flows over the organization's boundaries. Acquiring implies an immediate financial compensation. Existing literature on open innovation clearly suggest that inbound open innovation is more widely adopted in the SME sector than outbound open innovation. Sourcing is the preferred mode of inbound open innovation because it requires fewer or less financial resources than transaction-oriented modes like acquisitions or external licensing (van de Vrande et al., 2009). This preference for free inflows of knowledge is in line with the general trend of open innovation adoption. In one recent study on large firms, results show that open innovators are "net takers" and focus on free inflows of knowledge rather than free outflows (Chesbrough & Brunswicker, 2014). Due to the liability of smallness and lack of resources, sourcing is a particularly important mode of inbound open innovation in SMEs. A broad *sourcing* strategy offers SMEs significant innovation performance benefits. In their influential study, Laursen and Salter (2006) found that greater search breadth, measured as the number of sources

that firms use to access external innovation-related knowledge, has a positive effect on innovation performance. When exploring sourcing strategies in more detail, we learned that SMEs differ in how they combine different types of sources of external knowledge (Brunswicker & Vanhaverbeke, 2015). Some open up only along the value chain while others heavily draw upon universities and research organizations to access precompetitive and technological know-how. In addition, others make heavy use of network partnerships, which are characterized by mutual trust and access to complementary resources.

A recent empirical typology of external sourcing strategies in SMEs based on a firm-level dataset of more than 1,400 SMEs in Europe clearly suggests that it matters how SMEs combine different sources of knowledge (Brunswicker & Vanhaverbeke, 2015). It identified five different sourcing types: (1) *Minimal searchers*, (2) *supply-chain searchers*, (3) *technology-oriented searchers*, (4) *application-oriented searchers*, and (5) *full-scope searchers*. *Minimal searchers* do not actively interact with external sources to combine internal and external innovation potentials. They are not willing to open up their innovation-related processes and activities. *Supply-chain searchers* rely on traditional supply-chain linkages. Interactions do not relate to universities and research organizations, and thus, they do not purposively manage inflows of technological knowledge of high novelty. *Technology-oriented searchers* actively interact with universities, research organizations, and intellectual property rights (IPR) experts. They also take the challenge to manage inflows of knowledge of high technological and market risk. Trusted relationships rather than market-based interactions, characterize the sourcing strategies of technology-oriented searchers. *Application-oriented searchers* regularly interact with value chain actors (such as customers and suppliers), and rank particularly high on ties with indirect customers. They consider customers as value generators rather then value receivers, and purposively manage downstream knowledge flows. *Full-scope searchers* open up broadly and engage with a diverse set of sources. They show a very strong focus on managing inflows of pre-commercial knowledge and insights of new inventions while at the same time actively learning about novel business opportunities from direct and indirect customers. Trusted and complementary partnerships also play a very important role for them.

While SMEs may benefit from the breadth of the full-scope sourcing strategy and the purposive management of a large number of external sources, an application-oriented sourcing strategy in which they are particularly focused on downstream actors such as direct and indirect customers also offers significant innovation benefits (Brunswicker & Vanhaverbeke, 2015). Thus, application-oriented search is an alternative smart move and equips SMEs with the opportunity to propel their innovation performance without investing in interactions with all types of external sources. Application-oriented sourcing is particularly relevant for SMEs in the tourism sector. If they purposively interact with direct and indirect customers, they learn about emerging needs, opportunities for improving service satisfaction, new means to increase service experience, and gain insights about potentially greater service efficiency.

Overall, existing literature stresses the critical role of sourcing innovation-related knowledge outside of organizational boundaries. However, SMEs can also move beyond interactions with dedicated agents, that is, organizations they already know or that they purposively pick to access new knowledge (Afuah & Tucci, 2012). They may also make use of extra-organizational open innovation crowds and innovation crowdsourcing, in which they engage and interact with a large number of unknown outsiders to solve innovation problems. Today, it is mostly large open innovation giants like P&G, or fast moving consumer companies that engage with the customer and user crowd to develop novel product ideas. Evidence on the adoption of crowdsourcing in SMEs, and in particular in tourism SMEs, is rare. While literature on e-commerce and a case example on e-tourism highlights how loosely coordinated crowds of users can contribute to the evaluation and diffusion of a digital service, there is little work on how small tourism firms make use of the user crowds for developing new service products, service processes, or even business models (Sigala & Christou, 2014). A few recent case studies in other industries like the Ocean Optics case, a 25-year-old US-based photonics technology SME with about 200 employees and more than 50 million dollars in sales, provide insights that crowdsourcing may offer SMEs a novel generative mechanism for creating novel product ideas (Brunswicker & van de Vrande, 2014). The diversity of the crowd provides the potential for outlier ideas and truly novel perspectives towards the problem to be solved. In the Ocean Optics case, crowdsourcing increased their innovation capacity by at least four times within the first year, made a positive impact on the firm's brand value, and drove the firm's strategic change. However, particular design elements of the crowdsourcing were instrumental for the positive results. For example, crowdsourcing was not designed in a sense of unidirectional inflows, but was handled in an interactive way with deep engagement and collaboration within the crowd and also with the SME's internal employees. In addition, they also collaborated with some of their strategic customers to co-invest in the crowdsourcing activity. While this case highlights that crowdsourcing may also be a viable option for SMEs, there is not sufficient insight into the suitable design strategies for crowdsourcing and innovation contests to be implemented by tourism SMEs. Since SMEs they cannot build upon an established brand value, as large firms and established brands can, unique incentive mechanisms, co-branding, and the involvement of regional public agencies may positively shape the participation in crowdsourcing may positively shape the participation and utilization of crowdsourcing by tourism SMEs.

3.2 Outbound Modes of Open Innovation

Recent studies on open innovation in SMEs suggest that outbound open innovation in which internal innovation-related knowledge flows from inside across the organizational boundaries to be used by other organizations and individuals receives little attention in SMEs (van de Vrande et al., 2009). These findings are in line with the overall adoption trend of open innovation both in large and small firms: Inbound

open innovation is dominating outbound open innovation (Brunswicker & van de Vrande, 2014; Chesbrough & Brunswicker, 2014). *Outbound open innovation* subsumes two sub-modes: revealing and selling. In essence, outbound open innovation requires innovators to give up exclusivity to innovation-related knowledge. When SMEs *reveal* internal knowledge, legal-exclusion rights are either ineffective, or are purposively waived by the firm (Henkel, 2006; Henkel, Schöberl, & Alexy, 2014). Revealing also implies that SMEs freely reveal internal knowledge without an immediate compensation for their internal innovation-related knowledge (Dahlander & Gann, 2010).

Gruber und Henkel (2006) showed that free revealing might enable SMEs to overcome their disadvantages in innovation, namely their liability of newness, liability of smallness, and market entry barriers. Their study on open source software (OSS) SMEs, who participate in and freely reveal knowledge in development communities, suggests that free revealing enables them to overcome the *liability of newness*. Through active participation in the OSS community, they quickly build visibility and reputation. In addition, they can address their *liability of smallness* and lack of resources as the OSS community provides access to voluntary contributions and 'free' development resources, which they would usually build inside the organization. In addition, OSS may also *reduce the market entry barriers* that large incumbent firms have erected through intensive R&D investments. We argue that free revealing is not just restricted to OSS as the principles of OSS can be found in other sectors such as e-commerce, healthcare, and e-science (Levine & Prietula, 2014). Free revealing may offer very specific benefits to SMEs, as it may reduce entry barriers and sunk costs (Brunswicker & van de Vrande, 2014). Unfortunately, the existing literature on open innovation in SMEs remains relatively silent about the role of free revealing in SMEs. In addition, it does not explore whether and how SMEs selectively reveal knowledge when interacting with external partners while keeping some of their innovation-related knowledge secret in order to secure economic benefits from their innovation efforts (Henkel, 2006; Henkel et al., 2014).

In contrast, SMEs may also maintain some legal exclusivity over innovation-related knowledge and *sell* this knowledge on the market. Indeed, many technology-driven and venture-capital backed entrepreneurial firms successfully out-license know-how and technologies as an alternative to developing a product and selling it on the market (Gans & Stern, 2002). Out-licensing or other pecuniary outbound modes like patent selling can provide SMEs with the opportunity to exploit a proprietary technology outside the core business without having to invest in vertical integration and building (or acquiring) complementary assets (Bianchi, Campodall'Orto, Frattini, & Vercesi, 2010; Teece, 1986). While such a strategy has been identified as a common outbound open innovation strategy in large firms, it is also a viable option for SMEs, particularly for those that engage in technological innovations and operate in environments with strong intellectual property rights regimes (Alexy, Criscuolo, & Salter, 2009; Alexy, Henkel, & Wallin, 2013). Formal intellectual property rights (IPRs), such as patents and trademarks, play a critical role for successfully entering the market for ideas (Arora, Fosuri, &

Gambardella, 2001; Arora & Gambardella, 2010). For example, if knowledge is protected by means of a patent, the transfer of the underlying knowledge becomes much easier as patents help to define the intellectual property rights explicitly (Alexy et al., 2009; Leiponen & Byma, 2009). In addition, IPRs may also serve as a signalling device, demonstrating technological capability. Particularly for small, start-up firms, having a patent is almost a prerequisite to receive any kind of VC funding or for larger firms to be willing to cooperate (Gans & Stern, 2003). However, using formal IPRs is not a viable option for all types of SMEs. Prior studies on SMEs suggest that a large proportion of SMEs finds patents less efficient than informal mechanism for protecting know-how and establishing some form of exclusivity. Examples of such mechanisms are speed and secrecy (Kitching & Blackburn, 1998). Obtaining a patent and maintaining it is usually a complex and costly process, which makes patents less attractive to SMEs (Penin, 2005). In services, formal IP protection is even more difficult, if not impossible. Even though services product innovation may be tangible and thus, can potentially be protected via patents, critical innovation-related knowledge of the service process may not be patentable. As the copyright system for protecting intangible assets is much weaker than the patent system, services SMEs face difficulties in engaging in the market for ideas in which they could trade ideas in a transactional manner (Miles, Andersen, Boden, & Howells, 2000). At the same time, digital technologies are becoming increasingly important in the tourism services as well. This trend may increase the opportunity for tourism SMEs to establish formal IP protection through patents or copyrights.

To conclude, both free (and selective) revealing and selling are relevant outbound modes of open innovation in SMEs in the services sector. However, there is no one-size-fits all for engaging in outbound open innovation in SMEs. A range of external as well as internal contingency factors may affect the adoption and the effect of different outbound strategies. For example, the technological environment and the speed therein, or the strength of the appropriability scheme of the sector shape the adoption and the effect of a particular strategy. Future research on outbound modes of open innovation in SMEs will hopefully provide further insights to increase our understanding of open innovation in tourism SMEs.

3.3 Interactive and Networked Modes of Open Innovation

Interactive and networked modes of open innovation are a particular characteristic of open innovation in SMEs. This mode conceptualizes open innovation as an interactive rather than a linear and unidirectional process of knowledge flows across organizational boundaries (West & Bogers, 2014). It is a hybrid innovation process containing multiple feedback loops across multiple boundaries at different stages of the innovation process, and in multiple directions. Case studies on open innovation in SMEs illustrate the nature of this mode. For example, CAS, an SME market-leader in the field of customer relationship management (CRM) software for

SMEs in Germany, has adopted a very interactive mode of open innovation. In a regular exchange with strategic business partners and customers through joint innovation road mapping, they identify market needs and strategic business areas in an interactive manner. Information systems and collaboration technologies support this process. Equipped with a deeper understanding of the market needs, they interact with research partners and universities to identify potential technological solutions. Business partners and customers are not excluded from the identification of such technological solutions; they also participate in the prioritization of these technological solutions. The open innovation model at CAS is characterized by multiple feedback loops and interactions with both downstream and upstream partners. Such interactions take place at various phases of the innovation process and span different knowledge domains. CAS facilitates the interaction of customers, business partners that develop 'vertical' solutions for the cloud-based CMR solution, as well as upstream suppliers and research partners. Thus, it considers itself as a "platform player", around which an innovation network forms (Brunswicker, 2013). When they jointly explore novel value propositions with their partners, they may also need to adapt their own business model to capture some value from it. Thus, open innovation is strategic in nature, and implies that SMEs do not just organize the 'creative crowd' in the front-end of open innovation, but also focus on the early consideration and interaction with downstream partners and other actors that hold critical complementary resources and assets in order to realize and implement the novel value proposition.

The strategic role of business networks in SMEs implies that open innovation in SMEs is directly linked to the business strategy and the firm's overall strategic objectives. While large firms can implement open innovation without changing their business strategy, the shift towards open innovation in SMEs regularly goes hand in hand with a strategic change and the adaption of the SME's business model (Vanhaverbeke, 2012). Value creation and interactive mechanisms are very critical when services firms engage in open innovation. As highlighted above, services value is co-created rather than transferred and thus the identification and development of novel services requires intensive interactions with co-creation partners and customers in order to explore novel services ideas and implement them. Thus, for SMEs in the tourism sector it is particularly critical to deeply engage in co-creation relationships with downstream partners and realize novel customer exchange mechanisms which increase service quality, service experience or service efficiency (Vargo & Lusch, 2007). Customer and user communities not only act as a source of novel ideas but they also hold a critical role in creating and diffusing the novel services through 'social influence' and community-driven diffusion mechanisms. User communities can enable SMEs to build their brand, and also diffuse this brand (Füller, Schroll, & Hippel, 2013).

Overall, interactive mechanisms and extra-organizational value network relationships with individual actors or even extra-organizational communities are a critical mode of open innovation in SMEs, and require deeper consideration in future research in the tourism sector.

4 The Internal Antecedents of Open Innovation in SMEs in Tourism

Open innovation poses new managerial challenges. Both scholars and practitioners agree that open innovation requires internal capabilities and has an internal component (Laursen & Salter, 2006; Spithoven, Clarysse, & Knockaert, 2010; West & Bogers, 2014). On the one hand, there are internal organizational practices, systems and routines for managing open innovation and related knowledge flows in SMEs. On the other hand, the transition from closed towards open innovation implies some kind of organizational change, which usually spans different phases (Chiaroni, Chiesa, & Frattini, 2011; Teece, 2007). It is also important to understand how SMEs can manage the transition from closed towards open innovation, which is quite different from the transition observed in large firms. As discussed previously open innovation in SMEs is regularly linked directly to the business model, and thus implies a strategy change and the adaption of the SME's business model (Vanhaverbeke, 2012). This is particularly true for SMEs in the tourism sector. Thus, the change process in the SME regularly relates to a change in the business model.

4.1 Internal Organizational Practices for Open Innovation

The first perspective links back to the seminal work of Cohen und Levinthal (1990) on absorptive capacity. Firms require the ability to absorb external knowledge in order to benefit from it (Cohen & Levinthal, 1990). Absorptive capacity is a pre-requisite for inbound open innovation and is built through formal R&D. In line with this argument, a range of studies on inbound open innovation, and especially on sourcing of external knowledge, indicate that openness has an internal component and requires internal R&D (Dahlander & Gann, 2010). In tourism SMEs, R&D is usually not a formal process and absorptive capacity cannot be inferred from a measure like R&D expenditures (Thomas & Wood, 2014). Given their limited resources, SMEs may also call upon third parties to support them in building absorptive capacity (Spithoven et al., 2010).

Even though absorptive capacity is important for open innovation, it concentrates on using external knowledge internally only and neglects other important organizational capabilities which are required in open innovation; neither does it address all dimensions of managing knowledge flows in open innovation, nor does it acknowledge the distributed character of knowledge in open innovation. For example, absorptive capacity does not capture the specifics of outbound open innovation. It also does not address the question of how to apply innovative knowledge and means to turn it into successful outcomes (Bianchi et al., 2010). Recent theoretical contributions propose additional capacities (groups of capabilities) for managing different knowledge processes in open innovation, which complement the construct of absorptive capacity (Robertson et al., 2012). While there

are new knowledge capacities required for managing the acquisition and retention of knowledge at the intrafirm and interfirm level, open innovation also implies new capacities for applying knowledge, and turning external and internal knowledge into successful outcomes. Examples of such knowledge capacities for managing open innovation are accessive, adaptive, and integrative capacities (Robertson et al., 2012).

Further, these knowledge capacities do not function "automatically" and therefore firms need some sort of a higher order capacity to guide these capacities. Thus, innovation management capacities represents relevant facilitators for open innovation in SMEs; however, they are regularly lacking in SMEs (Brunswicker & Vanhaverbeke, 2015; Robertson et al., 2012). Literature on innovation in tourism highlights that SMEs are particularly limited in their ability to manage innovation internally (Thomas & Wood, 2014). As innovation is organizationally pervasive, the required innovation management capacity relates to different managerial levels. They include strategic as well as operational components for effective and efficient attainment of organizational innovation goals (Brunswicker & Vanhaverbeke, 2015). In a recent empirical quantitative study based on more than 1,400 SMEs, results show that a particular mix of four internal organizational practices facilitates SMEs in benefiting from open innovation. These organizational practices related to different stages of the innovation process: (1) *Long-term investment processes*, (2) *innovation strategy processes*, (3) *innovation development processes*, *and* (4) *innovation project control*. *Long-term investment processes* enable SMEs to build sufficient internal knowledge in order to sense external knowledge. An *innovation strategy* supports the identification of future business opportunities and the exploration of new technologies, solution principles or market functions. *Innovation development processes* subsume formal processes and systems that provide structure for moving an idea from its inception to commercialization, and *innovation project control* describes the coordination mechanism to effectively and efficiently manage individual innovation projects through process and output control. For SMEs to benefit from a full scope sourcing strategy, they require *all four* practices and routines. Jointly they mediate and channel external knowledge inside the firm. Innovation strategy processes are particularly important. In contrast, application-oriented sourcing does not demand such a sufficient managerial capability. It is sufficiently supported by an operational capacity for managing the development process, and effective and efficient innovation project control (Brunswicker & Vanhaverbeke, 2015).

While internal organizational practices provide the foundational building blocks for successful open innovation, SMEs need to build upon them and establish very targeted practices for the open innovation mode they have chosen and realized. As interactive mechanisms and network relationships are an important mode of open innovation in tourism SMEs, literature suggests that they need to establish "coordination" and "governance" capabilities in order to align their value network. In some cases, they need to successfully act as a hub (Brunswicker, 2013; Gardet & Fraiha, 2012). To do so, different coordination practices may constitute their success in governing an interactive and networked mode of open innovation.

Examples of such practices are a diligent mix of informal, semiformal, or formal *communication* practices. In addition, they need to decide upon the proper allocation of *decision rights* and intellectual property rights (IPR) among the innovation partner network, as these rights align incentives and also direct innovation activities (Gardet & Fraiha, 2012). The governance mode may also change over time, as with increasing trust, tourism SMEs may also increase their ability to negotiate a stronger position in the network and maintain higher control over the interactive innovation process.

4.2 Managing the Change from Closed Towards Open Innovation

The second perspective of managing open innovation in SMEs is about the transition from closed towards open innovation over time. As highlighted in prominent case studies on large firms, such as the case study on Procter and Gamble, this transition implies significant organizational change and transformation (Dodgson, Gann, & Salter, 2006; Huston & Sakkab, 2006). Regularly, a first open innovation project triggers a more fundamental and strategic change (Chiaroni et al., 2011; Gassmann, Ellen, & Chesbrough, 2010). Chiaroni et al. (2011) describe the change process from closed towards open innovation, highlighting the important role of the top management in enabling the change and the need for a champion promoting the change along different managerial levels. Further, they show that in large firms the starting point of the transition is a change at the organisational structure level. The establishment of a new independent open innovation unit (or role) represents an important trigger for change and sends signals to other organisational units (Chiaroni et al., 2011). In SMEs there might be different triggers. For example, in a small tourism firm, units that develop integrated solutions for the customer might trigger a change for greater opportunities. Such units might take the role of an internal promoter of open innovation through a pilot project and the purposive design and management of a promoter network for open innovation (Fichter, 2009).

5 Conclusion

SMEs are of high economic relevance in the tourism sector. As open innovation offers a range of benefits for innovation, tourism SMEs can reap such benefits by engaging in the appropriate open innovation mode. This paper presents a conceptualization of open innovation in SMEs that subsumes open innovation modes and internal organizational practices for them. It highlights that there are different modes available for tourism SMEs: (1) inbound, (2) outbound, and (3) networked modes of open innovation. The latter one, the interactive and networked mode, is

particularly important for open innovation in tourism SMEs, and requires deeper consideration in future management practice and research. At the same time, this chapter highlights that managing open innovation in tourism SMEs is quite specific in nature and requires a well-developed internal capacity. SMEs in the tourism sector need to establish internal managerial capabilities in order to benefit from open innovation. To mange the transition from closed towards open innovation, new functions inside the organization might be required. However, for new practices to flourish, they require foundational organizational practices and routines for innovation that span strategic and operational practices and routines. They provide the foundations for specific open innovation practices and tools, such as internal open innovation roles and promoters.

Today, there is only marginal insight into the specific nature of open innovation in SMEs in the tourism sector and there are manifold research questions to be explored. In particular, research into new *inbound* open innovation practices like crowdsourcing and the role of digital technologies within them is needed. In addition, a deeper examination of advantages and disadvantages of *outbound* open innovation like selling and revealing is encouraged. At this stage it is too early to draw any conclusions related to potential outcomes of such research. There are great opportunities for exploring the specifics of open innovation in the tourism SMEs. Thus, future research should build upon this conceptual paper that provides a framework for potential research. Both theoretical and empirical research is encouraged. Overall, research on open innovation in tourism SMEs will benefit open innovation scholars as well as researchers that have specialized on the tourism sector. In addition, it will also provide fruitful insights for scholars from adjacent areas like entrepreneurship and innovation studies.

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