UPORABA ODPRTIH INOVACIJ PRI RAZVOJU STRATEGJE TRAJNOSTNEGA TURIZMA

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Povzetek: *V prispevku avtor obravnava, kako bi lahko z odprtimi inovacijami kreirali turistične strategije. Namen prispevka je troplasten: (1) Predstavitev poglavitnih informacij s področja odprtih inovacij. (2) Prisotnost odprtih inovacij v turizmu. (3) Vloga odprtih inovacij pri razvoju strategije trajnostnega turizma.*
Ključna ugotovitev je, da je smiselno pristopiti k oblikovanju turističnih strategij skupaj. Vsekakor se je potrebno posluževati odprtih inovacij. Le na ta način pride do večjega sodelovanja vseh deležnikov na destinaciji.
V prispevku je zbrana teorija s področja odprtih inovacij. Gre za pregledni znanstveni članek, ki temelji na analizi teoretičnih spoznanj in javno dostopnih študij primerov.
Deležnikom na turističnih destinacijah so podana osnovna izhodišča, kako naj pristopijo k oblikovanju turističnih strategij.
Vrednost se kaže predvsem v tem, da je narejen celovit pregled odprtih inovacij z možnostjo implementacije na področje kreiranja strategij za trajnostni razvoj v turizmu.

Ključne besede: *odprte inovacije, Turizem, študije primera, trajnostni razvoj, turistične strategije*

THE USE OF OPEN INNOVATION IN CO-CREATING SUSTAINABLE TOURISM STRATEGY

Expanded Abstract: *This paper discusses the use of open innovation in co-creating sustainable tourism strategies. The objective of this paper is threefold: (1) To present key information on Open Innovation. (2) The presence of Open Innovation in tourism. (3) The use of Open Innovation in co-creating sustainable tourism strategy.*
The paper emphasizes the value of co-creation in developing sustainable tourism strategies. The use of open innovation is necessary in order to achieve successful collaboration of stakeholders in tourist destination.
This paper presents theory on open innovation. It provides a comprehensive overview build on the analysis of theoretical findings and publicly available case studies. It provides destination stakeholders with starting points for the development of sustainable tourism strategies.
The value of this paper lies in the comprehensive review of open innovation and the possibility of its implementation in co-creating of sustainable tourism strategies.

Keywords: *Open Innovation, tourism, case study, sustainability, tourism strategy*

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Introduction

The concept of “open innovation” (OI) has attracted great interest from the academic and industrial sectors alike (Marques, 2014). OI has so far been studied mainly in high-tech, multinational enterprises (Van de Vrande idr., 2009). This exploratory paper investigates if open innovation practices are also applied by small- and medium-sized enterprises (SMEs) or in tourism.

In the past, researchers and managers in the field of technology and innovation management associated strong internal R&D capabilities with innovativeness (Herzog, 2011). Classical, manufactured centric models of innovation have assumed that innovation starts –usually– from insights created in a research and development unit or its equivalent. Those are then developed into a product (offering) by a company or manufacturer, and then marketed and further 'diffused' to end-users (Godin, 2006). As companies attempt to do "more with less" and increase the speed and number of products markets, many are opening up their business models to a much larger ecosystem of "partners" also means addressing issues infrequently encountered in traditional closed systems (Munsch, 2009).

One of the practical implications of this view for those involved in the management of new product and service development has been to keep the process strictly controlled between the boundaries of the firm (closed). When it comes to the rest of us, the immediate consequence has been to believe that it is mostly experts, usually within firms, who hold a monopoly in innovation and design processes (Botero et al., 2009).

We need to clarify two key concepts of the article: Open Innovation in Co-creating.
Open innovation has been proposed as a new paradigm for the management of innovation (Chesbrough, 2003a). It is defined as ‘the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and to expand the markets for external use of innovation, respectively.’ (Chesbrough et al., 2006). On the other hand, co-creation is understood as a powerful approach to foster innovations (Ramaswamy & Gouillart, 2010). It thus comprises both outside-in and inside-out movements of technologies and ideas, also referred to as ‘technology acquisition’ and ‘technology exploitation’ (Lichtenthaler, 2008). Careful consideration, of the cultural fit of the organizations, the contractual and intellectual property ownership terms of the relationship, and the competitive implications of working together need to be assessed. These, in turn, encompass a number of factors that companies need to keep in mind as they evaluate and implement, improve their co-development and other open innovation models to chances for success (Munsch, 2009).

The concept of OI is often studied supposing an artificial dichotomy between closed and open approaches, whilst the idea of exploring different degrees and types of openness in a sort of continuum seems to be promising (Lazzarotti idr., 2010). Shorter innovation cycles, industrial research and development’s escalating costs as well as the dearth of resources are reasons why companies are searching for new innovation strategies (Gassmann & Enkel, 2004).

The objective of this paper is threefold:

- Present key information on Open Innovation.
- The presence of open innovation in tourism.
- The Use of Open Innovation in Co-creating Sustainable Tourism Strategy.

The cases provided aim to improve the understanding of open innovation activities and develop skills required for open innovation adoption in the company.

Elaboration of the topic

Innovation has been recognized as a key determinant of success for companies (Farha, 2016). Classical, manufactured centric models of innovation have assumed that an innovation starts –usually– from insights created in a research and development unit or its equivalent (Botero et al., 2009). With the identification of its overall importance for innovation management, the OI concept has developed itself as an own research area shortly after its first introduction by Chesbrough in 2003. Chesbrough suggests that companies have started to shift their innovation paradigm to a rather more open and collaborative one to take advantage of the knowledge, resources, and innovations existing outside their boundaries (Chesbrough, 2003a). Chesbrough’s definition of openness, the most commonly used in the literature, is broad and underscores that valuable ideas emerge and can be commercialized from inside or outside the firm.

The concept has a common currency for at least four reasons (Dahlander & Gann, 2010):

- First, it reflects social and economic changes in working patterns, where professionals seek portfolio careers rather than a job-for-life with a single employer. Firms, therefore, need to find new ways of accessing talent that might not wish to be employed exclusively and directly.
- Second, globalization has expanded the extent of the market that allows for an increased division of labour.
- Third, improved market institutions such as intellectual property rights (IPR), venture capital (VC), and technology standards allow for the organization to trade ideas.
- Fourth, new technologies allow for new ways to collaborate and coordinate across geographical distances.

The impact of OI models on performance has been analysed in terms of company's competence base, development costs and time to market of new products/processes, the level of innovativeness of new products/processes and sales volume/market acceptance of new products (Lazzarotti et al., 2010).

With regard to the different levels of analysis (Figure 1), much of the OI research has focused on the firm level (Vanhaverbeke & Cloodt, 2006).

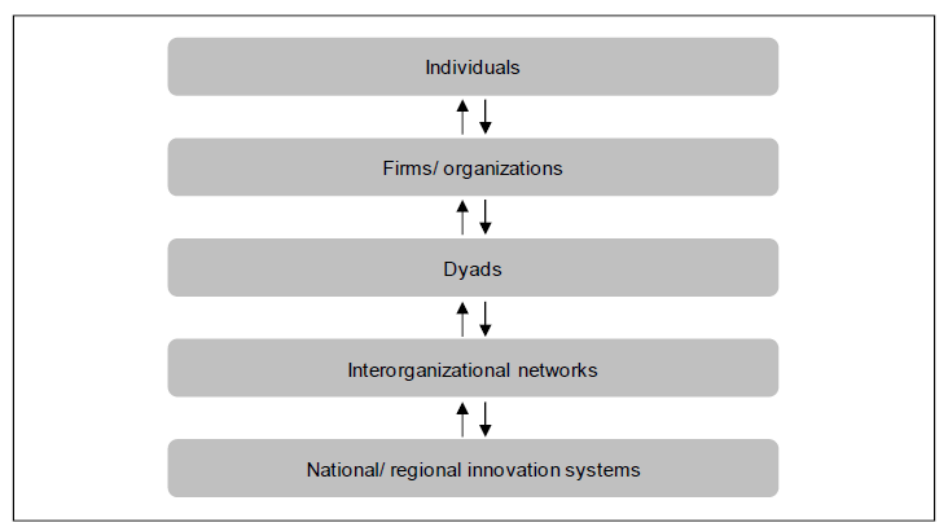

Figure 1, Open Innovation and different levels, (Herzog, 2011)(Vanhaverbeke & Cloodt, 2006)

Innovating in an open system requires a different way of thinking (Van der Meer, 2007). The set of norms, beliefs, and values that work well in the open innovation system (or open innovation culture) is illustrated in Table 1. Chesbrough (Chesbrough, 2003a) (Chesbrough, 2006) thus presents six principles of innovation, so-called 'closed innovation', countering them with the principles of so-called "open innovation". Botero and his colleagues upgraded the model with Community Innovation. When a principle of OI is that: "not all of the smart people work for us so we must find and tap into the knowledge and expertise of bright individuals outside our company", our principles suggest that: "Not all people we could work with need to be smart, it is enough that they are connected". The principles are described from the point of view of communities, so in our case, the "we" is not necessarily a company (Botero et al., 2009).

Table 1
The Culture of Open Innovation expanded with work-in-progress community innovation principles (Chesbrough, 2003a)(Chesbrough, 2006)(Botero et al., 2009)

Closed Innovation	Open Innovation	Community Innovation
The smart people in our field, work for us.	"Not all of the smart people work for us" so we must find and tap into the knowledge and expertise of bright individuals outside our company.	Not all people we could work with need to be smart, it is enough that they are connected. We value all contributions and help each other.
To profit from R&D, we must discover, develop and ship it ourselves	External R&D can create significant value; internal R&D is needed to claim some portion of that value.	The whole R&D is distributed by nature. Value can be made by other means such as by providing supporting services
If we discover it ourselves, we will get it to market first.	We don't have to originate from the research in order to profit from it.	We also have other interests and motivations for doing the work than to profit from it. By solving an existing problem everybody eventually benefits from it.

If we are the first to commercialize an innovation, we will win.	Building a better business model is better than getting to market first.	It is more important to utilize existing business models and make our offering available to as many people as possible.
If we create the most and best ideas in the industry, we will win	If we make the best use of internal and external ideas, we will win.	It is easy, cheap, and fun for us to try out all our ideas.
We should control our intellectual property (IP) so that our competitors don't profit from our ideas.	We should profit from others' use of our IP, and we should buy others' IP whenever it advances our own business model.	We should openly share all of our IP, utilize existing open works, and not waste our resources on IP management.

Open Innovation

In recent years there have been numerous publications and references to the growth of an approach by which companies can create new value. This approach fit has been labelled by various authors (most notably Henry Chesbrough) under phrases such as Open Innovation, Open Networks, Open Platform, Open Business Models and the like (Munsch, 2009). OI became the umbrella that encompasses, connects, and integrates a range of already existing activities (Huizingh, 2011).

OI has received increasing attention in scientific research, but so far it has mainly been analysed in large, high-tech multinational enterprises (MNEs) drawing on in-depth interviews and case studies. Few studies have demonstrated that OI also exists in smaller organizations (Van de Vrande et al., 2009) and tourism organizations, but however, they are still not sufficiently developed and will need to be encouraged.

Open Source is the most prominent example of the revolutionizing of the conventional innovation process (Gassmann & Enkel, 2004): worldwide, several thousand programmers develop highly sophisticated software that competes with e.g. Microsoft's products. The Open-Source approach is the phenomenon of co-operative software development by independent software programmers who, on-demand, develop lines of codes to add to the initial source code to increase a program's applicability, or enable new applications. The idea behind this approach is co-operative software creation outside firm boundaries, which is thereafter freely available. However, the source code has to be freely available. This principle drives the evolutionary development and improvement of the software. Famous examples of the development of Open-Source software are e.g., Linux, the Apache server or Freemail.

This more "open model" approach can provide three clear benefits to an organization (Munsch, 2009):

- New ideas can be contributed from a much larger range of parties and from different perspectives than what might be contributed internally.
- Business and financial risk can be mitigated by the participation of one or more third parties and a greater market scale can be achieved by joining forces.
- Speed to market may be accelerated by particular contributions made by other partners or contributors in the ecosystem.

Alone or together?

Another important research stream in the OI theory is to understand networks as partnerships as a key component of innovating with the market (Farha, 2016). OI requires collaborating with external networks to create and capture value (Chesbrough, 2003a). Although in reality, not many firms followed a fully closed innovation approach, a multitude of developments within and outside the innovation arena made it necessary to make innovation processes more open (Huizingh, 2011).

"Closed" innovation models

In the traditional closed model shown in Figure 2 inputs to the model come from both internal and external sources – whether customer inputs, marketing ideas, marketplace information, or strategic planning inputs. In the context of Closed Innovation, research in the field of technology and innovation management has largely focused on finding the optimal innovation process which resulted in a multitude of different process models with the stage-gate model probably being the most wide-spread used concept (Herzog, 2011).

With these inputs in hand, R&D organizations go about their tasks of inventing, evolving and perfecting technologies for further development, immediately or at a later date. Companies often used to refer to developing technologies and innovations that could even

be placed "on the shelf" for later development by their teams (Docherty, 2006). Several reasons, such as stronger global competition, increased technological complexity, or greater availability and mobility of highly skilled research & development (R&D) personnel, have caused the former 'do-it-yourself' mentality of Closed Innovation being unsustainable in many industries (Herzog, 2011). The traditional funnel analogy is appropriate here because large numbers of internal concepts are narrowed down to the ones that best fit that company's needs at that point. The focus is on the internal development of technologies and products for internal commercialization.

Implicit rules of Closed Innovation (Chesbrough, 2003b):

- A firm should hire the best and smartest people.
- Profiting from innovative efforts requires a firm to discover, develop, and market everything itself.
- Being first to market requires that research discoveries originate within the own firm.
- Being first to market also ensures that the firm will win the competition.
- Leading the industry in R&D investments results in coming up with the best and most ideas and eventually winning the competition.
- Restrictive intellectual property (IP) management must prevent other firms from profiting from the firm's ideas and technologies.

"Open" innovation models

Figure 2 presents a graphic view of an OI model, a much more dynamic and less linear approach to innovation management. You'll find numerous different approaches to depicting these models in Chesbrough's book and in published articles by companies employing open and collaborative innovation. In open models, companies look inside-out and outside-in, across all three aspects of the innovation delivery chain (Research, Development, and Commercialization). In doing so, much more value is created and realized throughout the process.

However, many of the OI tools, such as licensing, joint R&D agreements, minority investments, and corporate venture capital, or spin-offs, were well known before the term took root in theory and practice (Herzog, 2011). But OI is more than just the sum of its parts. OI is a holistic approach to innovation management as "systematically encouraging and exploring a wide range of internal and external sources for innovation opportunities, consciously integrating that exploration with firm capabilities and resources, and broadly exploiting those opportunities through multiple channels"(West & Gallagher, 2006).

In the Research, not only are companies now looking externally for problems to be solved, but now also to inventors, startups, and other sources of available technologies (External Sources) that can be used as a basis for internal or joint development (Docherty, 2006). Therefore, the OI paradigm goes beyond just utilizing external sources of innovation such as customers, rivals, and universities and is as much a change in the use, management, and employment of IP as it is in the technical and research-driven generation of IP (West & Gallagher, 2006).

There are two important kinds of OI: outside-in and inside-out (Chesbrough, 2012). The outside-in part of open innovation involves opening up a company's innovation processes to many kinds of external inputs and contributions. Outside-in process: enriching the company's own knowledge base through the integration of suppliers, customers, and external knowledge sourcing (Enkel et al., 2009). It is this aspect of open innovation that has received the greatest attention, both in academic research and in industry practice.

Inside-out open innovation requires organizations to allow unused and underutilized ideas to go outside the organization for others to use in their businesses and business models. In contrast to the outside-in branch, this portion of the model is less explored and hence less well understood, both in academic research and also in industry practice. The inside-out process refers to earning profits by bringing ideas to market, selling IP, and multiplying technology by transferring ideas to the outside environment (Enkel et al., 2009).

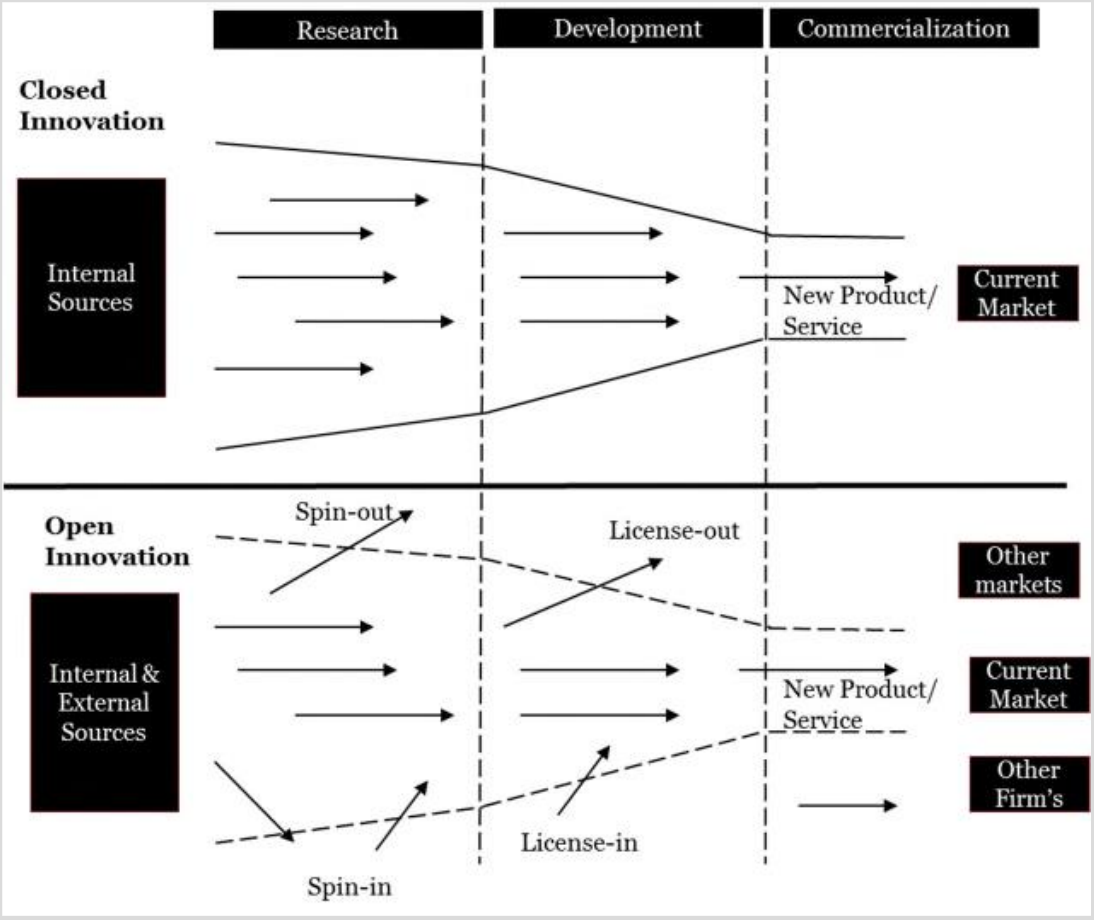

Figure 2, Closed versus open innovation approaches (adapted from (Chesbrough, 2003a) (Farha, 2016)

OI is reflected in the following principles (Chesbrough, 2003b):

- A firm does not need to employ all the smart people, but rather work with them inside and outside the firm.
- Internal innovation activities are needed to claim some of the significant value which can be created by external innovation efforts.
- In order to win the competition, it is more important to have a better business model than getting to market first.
- Winning the competition does not require coming up with the best and most ideas, but to make the best use of internal and external ideas.
- Proactive IP management allows other firms to use the firm's IP. It also considers buying other firms' IP whenever it advances their own business model.

Many authors investigated the role of R&D intensity (Lazzarotti et al., 2010). They analyse the effect of R&D intensity and find that the greater the level of R&D intensity the greater the technological exploration (Lichtenthaler, 2008) (Lichtenthaler & Ernst, 2009). This provides support for the assumption that firms pursue external technology acquisition as a complement to internal R&D and not as a substitute (Cohen & Levinthal, 1990) (Zahra & George, 2002).

Traditionally, large firms relied on internal R&D to create new products. In many industries, large internal R&D labs were a strategic asset and represented a considerable entry barrier for potential rivals (Van de Vrande et al., 2009). As a result, large firms with extended R&D capabilities and complementary assets could outperform smaller rivals (Teece, 1993).

In particular, issues that arise regarding practically implementing an open model approach tend to cluster into three categories: Culture, Contract, and Competition (Munsch, 2009). Contained under Culture are a number of elements including differing perspectives on speed, resource commitment, organizational changes, and even such mundane issues as common terminology (i.e., the same word meaning the same thing to both parties). Contracts are the second part that needs to be regulated. In preparing such agreements, one will need to be prepared to deal with complexity, intellectual property ownership, and contingent risk. The third category (Competition)

that needs to be considered prior to engage in open model innovation is to consider what the longer-term competitive implications may be. These competitive implications can be specific to the likelihood of future direct competition between two or more of the open model partners or, more indirectly, by enabling a more structural change in the market such that one party establishes and commands a key position in the value chain and derives most of the benefit (Munsch, 2009).

In the new paradigm of open innovation, firms collaborate with universities, customers, suppliers, and other partners to develop new products or services, penetrate new markets, etc. Some early adopters of open innovation have also created their own ecosystems (Chesbrough, 2003a).

What are the characteristics of organizational culture in open innovation? Accordingly, the major building blocks of open innovation culture, such as encouragement of risk-taking, openness to new ideas, failure tolerance, emphasis on learning, and openness to constructive dissent (Herzog, 2011).

Open innovation was first understood and implemented as a series of collaborations between two organizations to open up the internal innovation process. Today, though, we see many instances in which the concept is being used to orchestrate a significant number of players across multiple roles in the innovation process. Put simply, designing and managing innovation communities is going to become increasingly important to the future of open innovation (Chesbrough, 2012).

OI as a part of The Quintuple Helix Model

The “Triple Helix” (three-helix) model focuses on the interaction of the state, academia, and industry. In accordance with the OECD classification of sectors, the state represents the government sector, academia the higher education sector, and industry the business enterprise sector. The “Quadruple Helix” (four-helix) model adds the “public”, more precisely be defined as the “media-based and culture-based public”: “This fourth helix associates with ‘media’, ‘creative industries’, ‘culture’, ‘values’, ‘lifestyles’, and perhaps also the notion of the ‘creative class’ (Carayannis & Campbell, 2010). The quadruple helix model can be seen as an enhancement of the triple helix perspective that not only focuses on the actors from academia, government and industry but also recognizes the increased role played by civil society (Leydesdorff, 2012). Quadruple helix as a network of relationships, where public and private organizations interact in value-creating processes to transform various inputs into valuable outputs for themselves and others (Hasche et al., 2019).

Therefore, the Quintuple Helix has the potential to serve as an analytical framework for sustainable development and social ecology, by conceptually relating knowledge and innovation to the environment. (Carayannis & Campbell, 2010). The Quintuple Helix innovation model offers here an answer that is oriented toward problem-solving and sustainable development, furthermore, indicating how this socioecological transition may be mastered in combination with knowledge production and innovation (see Figure 3). In fact, this socioecological transition behaves also as a (social) driver for innovation, creating incentives for more knowledge and better innovation (Carayannis et al., 2012).

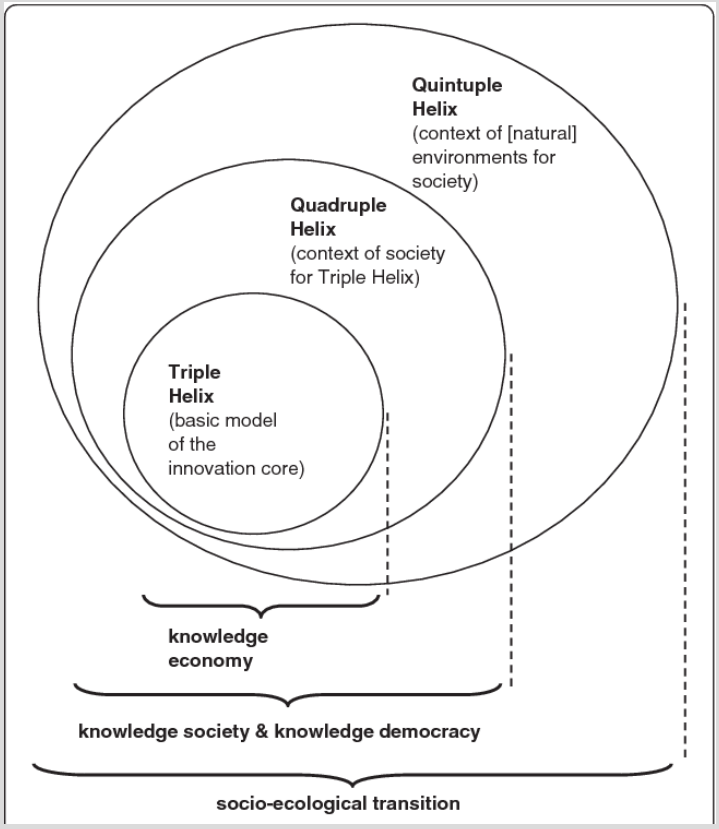

Figure 3, Knowledge production and innovatin (Carayannis et al., 2012)

"The Quintuple Helix Model is interdisciplinary and transdisciplinary at the same time: the complexity of the five-helix structure implies that a full analytical understanding of all helices requires the continuous involvement of the whole disciplinary spectrum, ranging from the natural sciences (because of the natural environment) to the social sciences and humanities (because of society, democracy, and the economy)" (Carayannis & Campbell, 2010). The Quintuple Helix Model is very suitable for co-creating sustainable tourism strategy it involves all stakeholders and, in the first place, puts sustainable tourism development first.

Company's objectives of collaboration and OI models

The question that arises is why companies strive for OI. The main reasons that push firms towards OI choices are the need of reducing costs-innovation risk and of extending skills, competences, and creativity (Huang et al., 2009). Outsourcing can be as a tool for increasing staffing efficiency measured in terms of employee sales efficiency (Calantone & Stanko, 2007). They infer that the decision to reduce employees' number is related to the outsourcing of innovation in the short run but not over the long term. Usually research-driven companies aim at reducing the R&D's fixed costs and sharing risk (Gassmann & Enkel, 2004). The reason for accessing external sources is the willingness to minimize risk by investing in technologies that are already proven in other applications (Chiaroni et al., 2011). Another main reason for firms to undertake R&D outsourcing include accessing to specialized skill sets and creativity exposing the internal development staff to new knowledge, technology, and organizational development processes, although this strategy implies drawbacks in terms of opening the market to new entrants and exposing core competencies to imitation and substitution (Lazzarotti et al., 2010).

When is open innovation superior to closed innovation? Almirall & Casadesus-Masanell show that an open approach to innovation allows the firm to discover combinations of product features that would be hard to envision under integration. However, when partners have divergent goals, open innovation restricts the firm's ability to establish the product's technological trajectory. The resolution of the trade-off between benefits of discovery and costs of divergence determines the best approach to innovation (Almirall & Casadesus-Masanell, 2010).

In comparison with the other firm-specific variables, the objectives of collaboration are studied even more restrictively in that they are analysed in relationship with only one of the two directions (inbound process). Hence the impact exerted by the objectives of

collaboration on the OI models analysed according to the number/typology of partners and the number/typology of phases has to be covered (Lazzarotti et al., 2010).

Business models and open innovation

Companies realize different outcomes from OI. Three possible reasons emerge from extant open innovation literature (Saebi & Foss, 2015). First is the inter-company performance heterogeneity to differences in open innovation strategies. Here, studies assume a main effect relationship between the degree of openness (commonly measured by the breadth and depth of knowledge search) and innovative performance. The second is the moderating or mediating variables between open innovation and performance. Here, studies (implicitly) assume that open innovation strategies are fairly similar, but that companies adopt different organizational designs, some of which are mismatched with the open innovation strategy, leading to performance differentials. Integrating these two perspectives, a third possible reason for performance differentials may stem from the fact that open innovation strategies are in fact different and thus are aligned with different business models. As companies are not equally good at matching open innovation strategies to business models, this can result in performance differentials.

Managerial-organizational actions allow OI to be pursued easily and more deeply: between them the commitment of the top management in promoting the transition towards an OI approach, the need for a champion supporting the integration of the external technology into an existing product development phase-gate process, the exploitation of the personal relationship of the R&D managers for starting technological collaborations, the formal evaluation of collaboration's objectives and risks, as well as the analysis and selection of the potential partners with a formal and explicit process (Lazzarotti et al., 2010).

Different open innovation strategies require different levels of co-creation in business model content (Table 2).

Table 2
A contingency framework for open business models (*Saebi & Foss, 2015)*

	Four Open Innovation Strategies			
	Market-based innovation strategy	Crowd-based innovation strategy	Collaborative innovation strategy	Network-based innovation strategy
Business model dimensions	**Efficiency-centric open business model**	**User-centric open business model**	**Collaborative open business model**	**Open platform business model**
Content	▪ Efficiency-centered value proposition, enabled by reduction in transaction and coordination costs	▪ User-centered value proposition, input from communities of users	▪ Radical innovations and opening up of new target segment	▪ Business model acts as open-innovation platform for multiple stakeholders
Structure	▪ Redefinition of role of internal R&D system ▪ Efficiency-centered structure	▪ Ideation phase of innovation process "outsourced" to the crowd	▪ Users / suppliers / customers / competitors become key partner in innovation process	▪ Re-organization of the production & distributional system ▪ Need for complementary internal network
Governance	▪ Monetary remuneration for external knowledge provider ▪ Use of "integration experts" to absorb market-available knowledge	▪ Monetary prizes or recognition for external knowledge providers ▪ Incentives to engage and manage communities of users for own employees	▪ Contract based, sharing of rewards on organizational level with external knowledge provider ▪ Incentives for own employees to engage with lead users and alliance partners	▪ Provide incentives for own employees to engage with multitude of knowledge partners (individuals, companies, communities) ▪ Re-distribution of risks & rewards

National systems of innovation are being reframed in context of multi-level systems of innovation. In principle, knowledge for a practical problem-solving of society or the economy has the same relevance as knowledge involved in basic research activities on the fundamental "principles of the world" (Carayannis & Campbell, 2010).

In high-technology industries, however, firms prefer other types of equity-based collaborations, i.e., joint ventures or minority investments, instead of acquisitions. The underlying rationale refers to technological uncertainty. In case of high technological uncertainty, equity collaborations present an option to defer the acquisition of a firm. Thus, the technology buyer limits its commitment,

while simultaneously being flexible to hold technology options open. Furthermore, acquisitions are the preferred option if the technological capabilities involved are part of the firm's core business (Herzog, 2011). Table 3 summarizes the different methods for technology sourcing and their underlying rationales and disadvantages.

Table 3

Open Innovation – forms of technology sourcing (Herzog, 2011)

Technology sourcing method	Typical duration	Advantages (rationale)	Disadvantages
Internal R&D	Long term	▪ Build absorptive capacity ▪ Exclusiveness of technology/ knowledge exploitation	▪ Usually no longer sufficient to keep pace with increasing speed and complexity of technological developments in high-technology industries ▪ High commitment ▪ Low/ medium reversibility
Licensing	Fixed term	▪ Fast technology access ▪ Lower development cost ▪ Less technology and market risks ▪ Low commitment and high reversibility	▪ Loss of control of decision-making because of contract constraints ▪ Competitive advantage usually not realizable unless exclusive license
Joint R&D agreements	Medium/ long term	▪ Explore emerging technologies ▪ Define and establish standards ▪ Access to public funding ▪ Reduce risk (horizontal and lateral collaboration) ▪ Exploit established technologies ▪ Develop system solutions (vertical collaboration)	▪ Limited flow of technological knowledge ▪ Knowledge leakage/ spillovers ▪ Opportunism
Corporate venture capital	Flexible	▪ Window on technology ▪ Option to defer high commitment of resources ▪ High reversibility	▪ Information asymmetries between new venture and investing firm ▪ Modest control over development of technology
Joint ventures	Long term	▪ Technology convergence ▪ Define and establish standards ▪ Smoother information flows ▪ Coordination and control ▪ Exclusivity of technology ownership	▪ Organizational risk ▪ High commitment ▪ Low/ medium reversibility
Acquisitions	Long term	▪ Hierarchical control over new technology/ knowledge basis ▪ Short-cut to new technologies	▪ Highest degree of commitment ▪ Low reversibility

In 2014, the definition of open innovation was refined to "Open innovation is a distributed innovation process based on purposively managed flows across organizational boundaries, using pecuniary and non-pecuniary mechanisms in line with the organization's business model" (Chesbrough & Brunswicker, 2014). This new definition brought the monetary dimension to the discussion of the open innovation process - monetary (pecuniary) and non-monetary (non-pecuniary), proposed by Dahlander and Gann (Dahlander & Gann, 2010).

To best illustrate the various activities in the respect to monetary and non-monetary dimensions is presented by Chesbrough and Brunswicker. They included both practices that offered some form of compensation, whether financial or not, for participants as well as those that did not, creating a four-part matrix for classifying open innovation practices (Figure 4). In a nonpecuniary mode of inbound open innovation, for instance, firms' source external knowledge without offering monetary compensation for ideas and contributions.

This may occur when firms can access freely revealed knowledge, for instance, knowledge shared via donations or as part of a standards setting process (Dahlander & Gann, 2010).

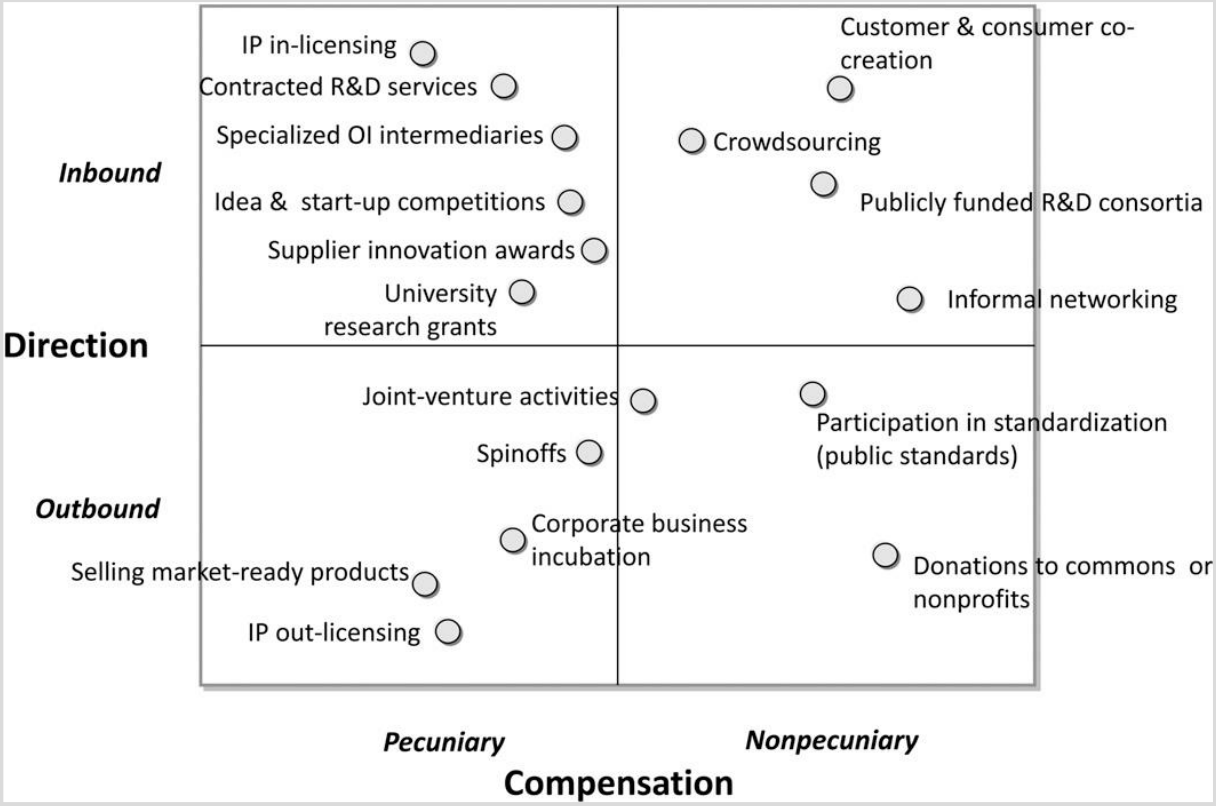

Figure 4, Inbound-outbound-pecuniary-non-pecuniary framework (Chesbrough & Brunswicker, 2014)

Based on this matrix, the open innovation practices are classified as acquiring, selling, sourcing and revealing (the full list of practices presented in the table 4 (Farha, 2016):

- Acquiring (pecuniary inbound innovation) – a company acquires new ideas / innovation projects / technologies from external partners through licensing or other operations with monetary reward for externally purchased ideas.
- Selling (pecuniary outbound innovation) - a company commercialises its ideas / innovation projects / technology by selling or licensing them to a third party.
- Sourcing (non-pecuniary inbound innovation) - a company searches for and uses freely available external ideas or knowledge and applies them in their own R&D process. It is expected that before investing in an R&D project, the company analyses externally available knowledge and solutions and searches for available free knowledge, after which it is easier to absorb the found external knowledge, or makes the decision to start an internal R&D process if the knowledge is not available.
- Revealing (non-pecuniary outbound innovation) - a company shares not-needed resources /surplus technology with external partners for free, without a monetary reward.

Table 4

Open innovation practices (Chesbrough & Brunswicker, 2014)

Inbound Practices	
Consumer and customer co-creation	Involvement of consumers or customers in the generation, evaluation, and testing of novel ideas for products, services, processes, or even business models
Information networking	Networking with other organizations without a formal contractual relationship, e.g., at conferences or events, to access external knowledge
University research grants	Funding of external research projects by researchers and scientists in universities (faculty, PhD students, or postdoctoral fellows) to access external knowledge
Publicly funded R&D consortia	Participation in R&D consortia with other public or private organizations in which R&D activities are fully or partly funded by governmental organizations (e.g., European Commission or National Science Foundation)
Contracting with external R&D service providers	Contracting with external service providers for specialized R&D services, including technology scouting, virtual prototyping, etc.
Idea and start-up competitions	Invitation to entrepreneurial teams and start-ups to submit business ideas via open competitive calls, with collaboration and venture support to winning teams
IP in-licensing	Licensing of external intellectual property rights (e.g., trademarks, patents, etc.) via formal licensing agreements
Supplier innovation awards	Invitation of existing suppliers to participate in innovation and submit innovative ideas
Crowdsourcing	Outsourcing innovation problem solving (including scientific problems) via an open call to external organizations and individuals to submit ideas
Specialized services from OI intermediaries	Contracting services of intermediary organizations specialized in open innovation to act as intermediary between a "searcher"—an organization with an open innovation problem—and "solvers"—a network of organizations or individuals with potential solutions
Outbound Practices	
Joint venture activities with external partners	Strategic and financial investment in independent joint ventures jointly with external partners
Selling of market-ready products	Sale of a market-ready novel product idea to a third party for sale to its customers
Participation in public standardization	Participation in standardization activities via formal standardization agencies (e.g., ISO) or informal standardization consortia (e.g., OASIS)
Corporate business incubation and venturing	Corporate incubators or accelerators developing potentially profitable ideas and offering supportive environments for entrepreneurs inside the organization to identify novel paths to market
IP out-licensing and patent selling	Licensing of internal IP to external organizations via licensing agreements or selling via single payment
Donations to commons or nonprofits	Donations to commons or nonprofits (e.g., open-source communities) to support external R&D
Spinoffs	Investment in new ventures founded by firm's employees outside organizational boundaries

OI in tourism

First of all, we can talk about tourism innovation which can reflect a humanity progress only if it is part of the sustainable development complex, as the sole realistic trend capable of saving the planet, of ensuring the natural environment which is so necessary for tourism and, last but not least, of maintaining the chance for carrying out all human activities. Throughout history, tourism has been a phenomenon characterized by immense innovativeness (Hjalager, 2010). Thomas Cook, for example, broke with the conventional thinking of his time and created – in congruence with the emerging rail infrastructure – a comprehensive concept that included the travel and entertainment ingredients for a completely new segment of customers, together with an efficient organisational framework that made it possible to provide the services at a price that people could afford (Brendon, 1991).

Only companies that wish to commercialise both their own ideas as well as other firms' innovation and seek ways to bring their in-house ideas to market by deploying processes outside their current businesses can start an "era of open innovation" (Gassmann & Enkel, 2004).

OI in tourism is particularly suitable for building information solutions (such as an app). The OI framework helps explain how firms have used the rise of open-source software to develop new forms of innovation strategies. The use of open source by firms typically begins in ways that does not disrupt their fundamental business model (e.g., selling complements), or comes at a time when their existing business model is so threatened that they are forced them to make drastic changes. We identified four OI strategies software firms used in order to exploit internal and external innovation. Open source software highlights many ways firms can enhance their competitive advantage by using the ideas of open innovation (West & Gallagher, 2006).

The Use of OI in Co-creating Sustainable Tourism Strategy

It seems that OI and co-creation have some overlapping characteristics (Keränen & Ligthart, 2017) and are useful for co-creating sustainable tourism strategy. Sustainable tourism, as a key element of sustainable development, is an alternative to practicing classical forms of tourism, such as mass tourism, instance in which the tourist has, more often nowadays, the possibility of choosing whatever he/she wants from a tourist experience, situation that can offer him/her new perspectives, new ways of spending leisure time (Diaconescu & Stanciulescu, 2016).
There are already some examples of how to Use of OI in Co-creating Sustainable Tourism Strategy. The vision of the Vienna Tourist Board's (VTB) initiative was to co-create a shared and mutually accepted tourism strategy for the City of Vienna based on input from the tourism industry and its stakeholders. The VTB therefore adopted an online collaborative open innovation process in order to develop its 2020 Tourism Strategy. The open innovation initiative served to enable local stakeholder collaboration, thus allowing the VTB to design a transparent and open process of stakeholder involvement aimed at creating an inclusive model of tourism governance. Consequently, Vienna's "2020 Tourism Strategy" provides a clear, shared and mutually accepted vision for Vienna 2020 that not only takes into account the agendas of the various stakeholder groups, but also encourages active participation and engagement in the implementation process. The approach adopted could potentially serve as a role model and be adopted at any level – local, regional, national or international – of tourism organizations and enterprises (*The Use of Open Innovation in Co-Creating Vienna's Tourism Strategy 2020*, 2019).
There are a potential possibilities for offering of mass customization (MC) and OI in tourism (Tudjarov & Anisic, 2011). The tourism sector is applying the new paradigm of open innovation (OI) supported by social media (Iglesias-Sánchez et al., 2019). It will only need to be further involved in strategy-making.

Tourist destinations as open innovation systems

In tourism studies, destinations have been studied from several perspectives. We therefore identify four different approaches to tourism destinations: (1) economic geography–oriented, (2) marketing management–oriented, (3) customer-oriented, and (4) cultural. Tourist destination is a set of institutions and actors located in a physical or a virtual space where marketing-related transactions and activities take place challenging the traditional production–consumption. (Saraniemi & Kylänen, 2011).

Once more it becomes evident that innovation management needs a more professional and strategic approach to tourism, both on the destination level as well as on the single business level. Innovation management in destinations is closely linked to networking and cooperation, which is sometimes difficult as businesses and entrepreneurs have to balance their interests between competition and cooperation within and beyond destinations (Pikkemaat & Peters, 2016).

Sustainable development is the framework for the evolution of sustainable tourism, the two concepts supporting each other through their specific features. The modern character of these trends places tourism on top of worldwide choices regarding tourist packages, being a natural response to human evolution and, implicitly, to the evolution of society that acknowledges the effects of economic and individual activities over the environment in which they live and on which they totally depend. Moreover, the initiative of sustainable tourism is attractive for the tourists who prefer holidays where they can be active, involved, connected to the new environment that they enthusiastically and willingly discover, wanting to become acquainted with the authenticity of the selected tourist destination (Diaconescu & Stanciulescu, 2016).

For the future development of innovation management in tourism, the innovation process has to be more open: in particular, customers' and guests' opinions should be treated as valuable sources for improving products and services. DMOs can play a mediating role when external stimuli need to be transferred into the destination (see Fig. 5, external circle).

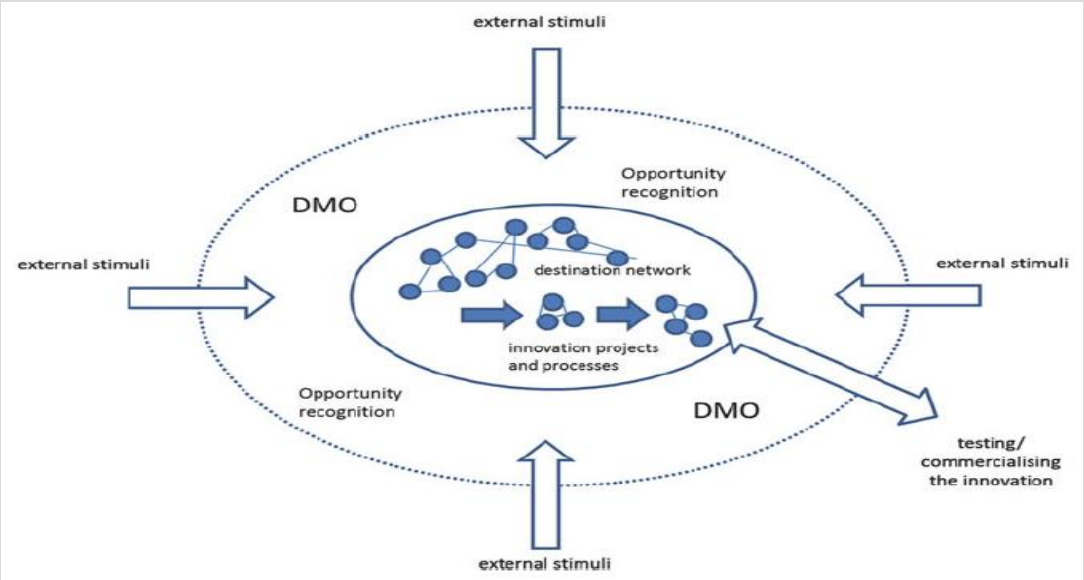

Figure 5, Destinations as open innovation systems (Pikkemaat & Peters, 2016).

Furthermore, DMOs can foster collaborative innovation networks and support them by providing innovation project structure and a framework for innovation processes (see Fig. 5, inner circle). Finally, measuring the fit of innovations with the overall destination value chain and the assessment of market reactions can be functional tasks of a modern open innovation-oriented DMO (Pikkemaat & Peters, 2016).

The effects of practicing this type of tourism, on an individual level, as compared with the ones gained from mass tourism have a particular value due to the genuine connection between the tourist and all the things that imply culture, traditions and specificity in a tourist destination, establishing a strong emotional connection as a result of which the sole beneficiary is the tourist. After acknowledging what he/she has received, he/she will return in the places to which he/she feels attached to and will want to (re)discover them, each time from a different angle – that of his/her own evolution (Diaconescu & Stanciulescu, 2016).

With regard to the limitations of the study, the choice of respondents has to be mentioned: Interviews were only conducted with successful key players in selected destinations in Tyrol, which is the most successful (in terms of overnights) winter destination in the world. Furthermore, interviews may have been influenced by actual developments in the destination.

Further research in this area is required. First, more empirical research into tourists' instead of entrepreneurs' perception and evaluation of innovation in tourism is needed: How do tourists perceive innovation? Do they require innovation? Are they satisfied with new products and innovation in the destinations? Which tourist segments demand which innovation? Second, the disciplines have to be extended and interdisciplinary research should be carried out, e.g. psychologists can deliver fruitful insights into entrepreneurs' characteristics and lifestyles (Pikkemaat & Peters, 2016).

OI in different business environments with examples of good practices

The following case studies are summarized by the book Open tourism. Open innovation, crowdsourcing and collaborative consumption challenging the tourism industry.

Case study 1: Innovation for Volunteer Travel

For school-leavers, students and early professionals it is becoming more common to take a gap year before starting a career. Some gap year students want to do community service at home, while others choose to travel or work abroad (Kohler et al., 2016).

The main aim of Travel2change's mission is to provide their community members the ability to create change while traveling. Travel2change was created as an online crowdsourcing platform in 2011. It started as an open call which connected local hosts to participate in challenges and travellers to experience the meaningful travel. In this way, crowdsourcing secures more innovative and beneficial approach to volunteer travel. Crowdsourcing enables all users to make experiences which link their passion to travel with a purpose. This kind of collaboration allows travellers, local communities and organizations to share uncommon ideas and new directions

that increase creativity. In the end, successful usage of crowdsourcing for volunteer travel is an on-going challenge and the planned end result is the creation of meaningful change around the world (Kohler et al., 2016).

Case study 2: "Schau auf Linz"

The municipality of Linz has a long tradition in achieving service orientation that satisfies citizens' needs. For over 10 years, the new City Hall has featured a service office based on a one-stop shopping system. An employee directly handles services such as proof of address, passports issuing, or special registrations (for dogs, parking permits etc.), without requiring citizens to visit specific departments (Etzelstorfer et al., 2016).

The case enables an efficient feedback mechanism for the citizens and fast, efficient access to local service administrations. It is a nimble website where everybody can report problems with the local environment. The complaint then goes to the relevant local authority who can fix it. "Schau auf Linz" is a model for mapping data and a platform the municipally provided to foster interactions and dialogue with the citizenry. This mechanism allows public units to address the knowledge and creativity of its citizens by conducting these kinds of open calls on idea-, innovation-, or complaint platforms.

This development may have a tremendous impact on the tourism capacity of a region as well. The City of Linz is a best practice example of a transformation process from industrial steel- and coal-producing city to a modern service industry venue and a tourism and vacation hotspot that attracts tourists from all over the world—especially with its cultural offerings and liveable urban scenery.

Case study 3: Open Innovation Südtirol

The case study relies on a sustainable multi contest crowdsourcing platform specially designed for small and medium-sized enterprises. The cases demonstrate how external designers, enthused consumers or interested tourists regardless of their geographic location may be integrated into an "idea and design contest" for small enterprises offering souvenirs from the local tourism region (Fuller et al., 2016).

The Open Innovation Südtirol consists 1618 user profiles and 103 company profiles which comment on ideas and advice how to improve ideas and to implement the feedback. In this way, this platform provides potential to develop creative ideas and innovative concepts by utilizing external parties and knowledge. Second sub-perspective of this platform presents marketing potential of crowdsourcing activities in tourism industry. Indicators of marketing potential are reported numbers of visitors, registered members as well as shared ideas. Finally, the last perspective provided by this platform is a network created between SMEs and external parties.

Case study 4: Collecting Tour Plans from Potential Visitors

With web-based tour planning service, people can consult on their tour plans casually from anywhere at any time. CT-Planner's interactive approach looks highly user-friendly because its users are allowed to specify his request piece by piece and not forced to evaluate unfamiliar POIs. The user log of web-based tour planning service will serve as a promising crowd data, as it enables us to analyse and monitor the demands of potential tourists without cost. CT-Planner considers two types of crowdsourcing: implicit crowdsourcing through daily service for marketing analysis and explicit crowdsourcing for the enrichment of its destination data. Some people have a strong passion to guide their hometown or favourite places. Once they find that CT-Planner is an effective platform for approaching potential tourists, they will gladly join the collaborative creation of destination data for CT-Planner. In addition, the link to existing resources of tourist destination data will accelerate this collaboration. (Kurata, 2016).

Case study 5: Online Smart City Magazine

The idea of Crowd City is to make it a place for contributions of citizens and visitors, not limiting it to stories about Vienna alone but opening it up for worldwide relevance. What is citizen's perception of a so-called Smart City? What is being considered a smart project, a smart building or even a smart way of living and traveling in cities? The goal is to increase the understanding of Smart Cities and to encourage ideas and different views, bringing together the crowd: opinion leaders, urban advocates, journalists, bloggers and "everyday people"(Blazek, 2016).

Case study 6: Gamification in Tourism

Gamification may facilitate consumers' part in value co-creation by making the act of extracting value from a company's offering more playful and encouraging Hence, "gamified" approaches may turn the act of co-creating value itself more appealing. Offering users a

"gamified" and interactive tour guide which enables them to share their experiences with their friends, for instance, creates additional value-in-use. Users may not only experience the travel destination using the app but actually, derive pleasure from having shared experiences with their friends (Stadler & Bilgram, 2016).

Case study 7: Case Study INNOTOUR

The University of Southern Denmark in 2009 launched an experimental web platform for tourism education, research, and business innovation. INNOTOUR is described as "an experimental meeting place for academics, students and enterprises with an interest in tourism and innovation, and who are seeking to enhance their knowledge, products, and skills" INNOTOUR facilitates open innovation through collaboration in tourism education, research, and business development. INNOTOUR is envisaged in international teaching and research contexts and is available both as a tool and to provide collaboration between universities, with industry, society, and beyond (Liburd & Hjalager, 2016).

How to become more open in tourism?

The employees and the environment where the company operates must be aware that they themselves can help make the tourist destination more open to the OI. Based on experience, I see the following options:

- **A book of complaints in the hospitality industry:** Guest is complaining about a particular service. The complaint needs to be addressed and a solution is sought. We can conclude that the customer has improved the service.
- **Travel to other countries:** Even in the most cautious organizations, at least some units, teams or employees will be compelled to innovate. Therefore, every enterprise will require, at least, some knowledge and competency in managing innovation.
- **Suppliers provide suggestions:** Suppliers suggest solutions or resolve customer problems. They can be proactive or find solutions when organization ask for them.
- **The locals make initiatives:** Active Citizenship, Initiatives and proposals for changes in policies and services in destination.
- **Stakeholders in the tourist destination:** All stakeholders at the destination are involved and committed to the development of a tourist destination.
- **App:** There are a lot of local national solutions that regulate accommodation and excursions. Solutions are created through local and national initiatives.

Summary

The phenomenon is reinforced by the increasing globalisation of research, technologies and innovation, by new information and communication technologies as well as by new organisational forms and business models' potential (Gassmann & Enkel, 2004).
It must be made the distinction between the emotional factor as a tool to influence tourists to purchase a touristic package again, to become faithful in visiting a certain destinations, to which he feels deeply connected, and the emotional factor as the trigger for revelations, for discovery of answers, for (re)discovery of himself by strong impressions on the spiritual level that provides new and deep insight of life (Diaconescu & Stanciulescu, 2016).

Tourism innovation and touristic emotional factor-premises for evolution?
And that is where we're going. Open innovation's effectiveness is not restricted to a few select corporations. It is a process that makes more effective use of internal and external knowledge in every organization. While we have much to learn about its problems, boundary conditions, and critical success factors, open innovation is going to be a part of the future for all of us (Chesbrough, 2012).
On the other hand, tourism is a valuable context in marketing research when trying to understand wider societal and political phenomena. This helps to understand (1) the borders of the product, (2) the responsibilities of different organizations and individuals, and (3) the interaction between the market actors (Saraniemi & Kylänen, 2011).

Once more it becomes evident that innovation management needs a more professional and strategic approach to tourism, both on the destination level as well as on the single business level. Innovation management in destinations is closely linked to networking and cooperation, which is sometimes difficult as businesses and entrepreneurs have to balance their interests between competition and cooperation within and beyond destinations. For the future development of innovation management in tourism, the innovation process has to be more open: in particular, customers' and guests' opinions should be treated as valuable sources for improving products and services. DMOs can play a mediating role when external stimuli need to be transferred into the destination. Furthermore, DMOs can foster collaborative innovation networks and support them by providing innovation project structure and a framework for innovation

processes. Finally, measuring the fit of innovations with the overall destination value chain and the assessment of market reactions can be functional tasks of a modern open innovation-oriented DMO (Pikkemaat & Peters, 2016).

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