

Knowledge Management and Emerging Collaborative Networks in Tourism Business Ecosystems

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Abstract: If we critically look at the evolution of the Tourism Industry (TI), we can note that, in the past decade, nothing has changed as much as ICTs and the Internet which caused an extensive transformation of the TI. Both demand and supply of ICT, together with innovation in transportation and international trade agreements, have evolved the tourism sector in operational workflows, management and marketing of new of tourism experiences.

The massive use of new technologies has facilitated the rise of new flat organizational models where traditional brokers have disappeared, replaced by direct connections between local providers and tourists, or they have been reconfigured into new forms of dynamic and web-based tourism package providers.

The depicted industry evolution shows potential, unthinkable just a few years ago, for local service providers usually marginalized from main tourism flows, due to their small sizes, and who are unable to compete in the globalized market. In many regions characterized by a niche tourism vocation, local tourism operators have started organizing themselves spontaneously in Collaborative Networks in order to create aggregate tourism offers that are able to compete with big tourism operators thus transforming regions with potential and vocation in real tourism destinations. The main social effect of instantiating these tourism partnerships, is the stimulus towards Tourism Business Ecosystems (TBEs) giving local tourism service providers a means for economic growth.

The aim of this paper is to describe how the organizational paradigm of CNs, applied to the TBEs knowledge management and supported by ICTs, can be the key means for the growth of emerging TBEs. Such models are able to reengineer the tourism destination management model in order to gain much more flexibility in service provision and provide tourists the possibility to live an augmented tourism experience. In this paper we point out that tourism destinations, in an effort to give services able to actively support each phase of the 2.0 tourist lifecycle, can benefit from collaborative network models.

Keywords: Tourism Business Ecosystem, Collaborative Network, ICT, tourist 2.0 lifecycle

1. Introduction

The last decades were characterized by a growing interest toward the tourism sector which made a significant contribution to the economies of many countries due to its ability to create income, taxes, and employment (Wan Lee and Brahmasrene 2013). Tourism is one of the largest industries in the world providing a strong impact on global economic development, employing more than 210 million people worldwide and generating an estimated US\$ 5,474 billion of economic activity (WTTC 2009).

Over recent years, ICT has changed within the tourism sector. The Internet has caused an extensive transformation of the industry itself. Both demand and supply of ICT, together with innovation in transportation and international trade agreements, have innovated considerably the tourism sector in operational workflows, management and marketing of tourism packages and new paradigms of tourism experiences (Polo Peña et al., 2013).

From the business side, ICTs provide significant opportunities for internal business process re-engineering (back-office systems, reservation systems, etc.) and e-business at the company level, while, at the supply chains level, ICTs allow communication and information exchange with partners and an integration of information flows from a wide spectrum of suppliers (Stamboulis and Skayannis 2003).

From the tourist side, the breakdown of geographical and cultural barriers is a result of international cooperation agreements and fast advances in transportation and electronic communication. New and cheap transportation marketing policies, reductions on limitations to cross-countries tourism, allow people to easily consume tourism products almost everywhere. E-commerce developments enable tourists to interact directly with tourism services providers, allowing travellers to retrieve reliable and accurate information, disintermediating players in the tourism market such as travel agencies and tour operators (Mihajlović 2012). Overall, the main changes for tourists are the ever more diffused self-creations of personalized tourism packages (O'Connor and Frew 2004), the continuous decline of mass and standardized tourism as well the increasing requests for personalized forms of tourism experience, is changing the meanings of the tourism experience itself (Ammirato and Felicetti 2013).

The depicted industry evolution shows new potential for local service providers usually marginalized from main tourism flows, due to their small sizes, and inability to compete in the globalized market. In many regions characterized by a niche tourism vocation (e.g. historical, business, sport, cultural, rural, religious etc.), or localized in developing countries lacking in infrastructures, or simply where some organizations decided to create "alternative" development paths, local tourism operators have started organizing themselves spontaneously into Collaborative Networks (CNs) in order to create aggregate tourism offers that are able to compete with big tourism operators.

Based on recent literature (Kortelainen & Järvi, 2014), there are emerging notions of the ecosystem in various literature sources (Moore 1993; Iansiti&Levien 2004; Sharma & Henriques 2005; Adner 2006; Basole et al. 2012; Lusch 2010; Cusumano & Gawer, 2009). The unifying framework includes the Business Ecosystem, Technology Ecosystem and Innovation Ecosystem.

According to Moore (1993), Business Ecosystems cross a variety of industries and companies, and co-evolve capabilities around a new innovation. The characteristics of the ecosystem are *value logic*, *participant symbiosis* and *institutional stability*. Furthermore, value can be found in innovation benefits. Participant symbiosis becomes explicit in co-specialization, complementarity and co-evolution in the ecosystem. Together these provide a mechanism which drives value creation (Thomas & Autio, 2012).

In a tourism destination, live and operate many autonomous entities which conduct a variety of tourism related activities.

While these entities can be heterogeneous in terms of their operating environment, culture and goals, they all aim to achieve the common goal of local tourism development and to increase the general competitiveness in respect to other geographical areas and global competition (Akoumianakis, 2014). We name each of these operating environments as a *Tourism Business Ecosystem (TBE)* i.e. a Business Ecosystem in tourism sector whose members share values, culture and infrastructures and have the potential and the will to cooperate in order to pursue the general long-term objectives of territory development and competitiveness.

The aim of this paper is to properly describe how the organizational paradigm of CNs, applied to the tourism sector, and when correctly managed and supported by ICTs, can be the right means for the growth of a TBE, by giving local people the possibility to be employed in the local economy and thus to enhance its sustainable development.

2. Collaborative Networks in a tourism destination

According to Presenza (2008), the touristic competitiveness of a territory comes from the particular kind of available resources. Territories characterized by relevant attraction factors are often not able to compete in the market. The reason resides in the lack of integration with tourism services and of inadequate collaborative and managerial support behaviour.

More generally, scholars agree that the presence of attraction factors (both physical elements, like natural resources and monuments, and social factors, like the language spoken and friendliness of the local people) (Buckley 1994) although a necessary condition, is not enough for turning a territory into a Tourism Destination. The key factor for the rise and continuous development of a Tourism Destination resides in the quality and efficacy of relations among service providers and between them and the destination's environment. Effective relations can give the basis for agility in dynamic and turbulent market conditions. Offering to an always more demanding tourist, an integral, flexible and personal experience, that is a result of the interactions among specialized service providers, can be a winning strategy to gain sustainable development and emerge from global competition.

When some of the service providers decide to reinforce collaboration, they can set stable agreements in the form of Touristic Associations or Touristic Districts, adhering to a base long term cooperation agreement, and adopting common operating principles and infrastructures. Each agreement is characterized by an organizational form in terms of structure of membership, activities, definition of roles of the participants,

governance principles and rules (Ammirato and Felicetti, 2014). Such agreements constitute the basis of a TBE (Fig. 1). In a TBE, each member competes with the others and with players outside the TBE when searching for new business opportunities in the global market. When a business opportunity is identified, a subset of the TBE members can be rapidly selected to become part of short term *Collaborative Networked Organizations*, *CNOs*, oriented to catch the opportunity. Two kinds of short term CNOs are most evident in a TBE:

- *Tourism Extended Enterprise* (TEE): it refers to a tourism operator that “extends” its business boundaries by involving all or some of its suppliers in the product packaging and delivery in order to offer customers possibilities to a more complete tourism experience.
- *Tourism Virtual Organization* (TVO): It represents a temporary alliance of private and public organizations that come together to share skills or core competencies and resources in order to better respond to business opportunities, and whose collaboration is supported by computer networks. A TVO is established in a short period of time to respond to a competitive market opportunity; it has a short life cycle dissolving when the short-term purpose of the TVO is accomplished (Volpentesta and Ammirato, 2013). ICT advances enable tourists in customizing services on the basis of their own specific taste. Availability of systems for tourism packaging enables tourists to (self) compose a personalized tourism product choosing a subset of services provided by TBE members.

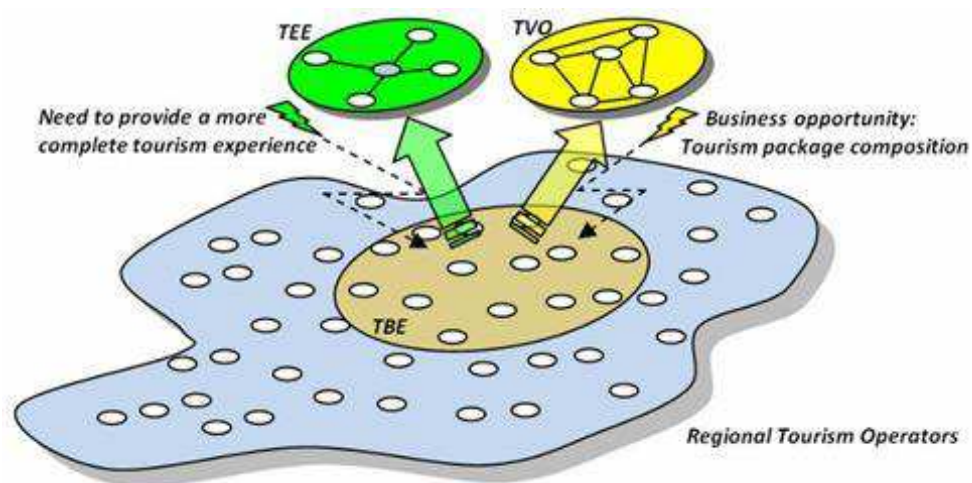


Figure 1: TBE within a Tourism Destination.

3. The tourist 2.0 lifecycle and the augmented tourism experience

In an effort to clarify what tourists do experience and need along the duration of their vacation, scholars introduced the concept of the *tourism experience lifecycle* (Gilbert 1991). A diffused approach in defining it consists of adapting generic models to describe consumer behaviour in purchasing products or services. However, characteristics such as product intangibility, heterogeneity of the tourism offer and of consumer, interdependence between services, and seasonality, make the tourism product different from ordinary consumer goods.

Unfortunately, according to Swarbrooke and Horner (2007), there are several reasons why most of the previous models are no longer adequate to describe the process of tourism today: many of these are not based on empirical research, some models do not recognize the importance variables that motivate and influence the decision-making process, and in many others cases the tourists are treated as homogeneous groups that express similar needs and preferences. Moreover, available models are outdated and do not fit to the present scenario in which the use of the Internet has dramatically changed ICT use and consumer behaviour; the models do not consider the role of ICTs, and the Internet among the others, in reengineering the industry.

Internet technologies, by the providing of sharing, context-aware and automation services provided during the different *tourism experience phases*, radically changed the meaning of mediation in a tourism context (Gretzel et al. 2011): not only tourists get connected in an anticipatory way with destinations/attractions through web media content, but they become more and more autonomous in decision-making processes, disintermediating

players of the tourism market, such as travel agencies and tour operators, and exploiting the customer insights and reviews provided by people through social media, in the decision-making processes.

From a business perspective, since the mid-nineties, the tourism sector adopted the Internet as an advertising medium and distribution channel, providing the basis for the development of new patterns for linking consumers and booking systems, leading to a lowering of entry barriers. As a consequence, a wide range of Online Travel Agencies (e.g. Priceline, Expedia, TravelBids) have arisen, proposing innovative business models based on customer orientation and price flexibility. ICTs improved the efficiency and effectiveness of tourism organizations and the way to manage businesses within the marketplace, as well as how consumers interact with broker organizations, facilitating operations, business transaction and networking among operators in the tourism industry (Buhalis and Law, 2008).

From a tourist perspective, ICT provides software applications able to help the decision making process by reducing time and costs of the tourist preparatory activities and thus making easier and cheaper the processes of planning the trip and booking a tourism product. The possibility to taste in advance a trip (thanks to videos, photos, opinions and storytelling of other users), the opportunity to compare thousands of offers through tools such as fare aggregators and meta search engines are among the features that make the Internet&tourism an absolutely winning combination (Kracht and Wang 2010). The emergence of social networking platforms have further influenced the tourist experience lifecycle by means of the new ways tourist interact with peers. (Gretzel et al., 2011). The "social web environment" enables new mechanisms of interaction, cooperation and "social experience" among tourists, fostering the spread of electronic word-of-mouth communication, opinions about places, services and tourism operators. Moreover mobile technologies have challenged the expectations of today's tourists, by getting personalized access to tourism information at any time, from anywhere with any media, creating a paradigm shift in how information is accessed and digested, and transactions performed (Karanasios et al., 2011).

We can name this paradigm shift as *augmented tourism experience*. To be effective and competitive on the market, a TBE needs to deliver information services for matching necessities of each phase of the *tourist 2.0 life cycle* in an effort to give tourists the best way to live an *augmented tourism experience*. In what follows, we propose the *tourist 2.0 lifecycle* i.e. a model of tourism experience that fits the modern consumption paradigm of tourism products/services. The model consists of the following phases:

- *Dreaming*: Emerging desire to travel. In this phase, tourists gain virtual previews of the holiday. Using category of ICT services that could be delivered by "inspiration portals", like Tripfilms, Flickr, or Panoramio, Pinterest, Facebook etc., which provide the opportunity of sharing geotagged multimedia content among users by allowing them to get a preview of the territories, places, cultures and type of vacation that will inspire potential tourists in TBE.
- *Planning & Booking*: Before travel reservations. Until a few years ago, planning and booking activities were generally carried out by travel agents and tour operators. The massive use of the web had a major impact on this phase of the life cycle. Examples of TBE web portals and mobile applications based on comparison, recommendation, and booking services are booking.com, trivago, e-dreams, expedia, etc.
- *Experiencing*: On the actual trip. The availability of contextualized information and additional services (location-based services, context-aware mobile tourism guides, augmented reality etc...) offered to the tourist 2.0 through mobile devices as well as the possibility to share location-based multimedia contents through web-services like Foursquare, Facebook Places, Loopt, etc... These services support the tourist on the move and enrich his or her experience.
- *Recollecting*: After experiencing the holiday. The use of portals to share photos, videos, stories and opinions on visited places is to collect some snapshot of the vacation in order to remember it and to revitalize its memory and to give tips and advice on the experienced TBE.

4. Operationalizing the concept of CNs in Tourism: Tourism Business Ecosystems and forms of collaboration

Extensive academic literature recognizes the benefit derived from CN agreements both from partner organizations and customers (Romero and Molina, 2011).

For TBEs, increasing requests for augmented tourism experiences obligates tourism operators to create new and improved services, to adjust them to individual consumer needs and specific interests, to deliver up-to-date information and knowledge sharing systems in supporting the self-configuration of tourism packages.

Considering that an augmented tourism experience is based on a wide range of heterogeneous aspects (including transportation, accommodation, catering, entertainment, cultural heritage, information systems, knowledge sharing), service providers have to integrate their resources and organizational systems with others to form networks able to exploit market opportunities. Motivations to establish a CN among operators of a

TBE also reside in the business flexibility that such model guarantees to partners in the configuration of an augmented tourism experience. Concentration of each member on core competencies, charging the marketing and information services to a destination manager, strong orientation to tourists' needs, creation of value-adding tourism services are the main competitive advantages of CNs.

In a TBE the tourism supply chain control and ownership are distributed among members. They generally appoint the task of activity coordination and supply chain management to a *Destination Management Organization (DMO)*, which creates and manages an overall strategic plan for the TBE development (Fig. 2). It can be a public institution or private organization that aims to promote incoming tourism (territorial marketing), by selling composite packages of hotel accommodation, excursion tickets, and other services. The focus of the DMO is to look inward and toward destinations to ensure the quality of the visitors stay while its fundamental task is to create a sustainable ecosystem on which the marketing of the destination and the delivery of the experience are dependent. Due to the distributed nature of control, tourism service providers may interact in different ways in a TBE. In particular, four coalition types can be recognized within a TBE, each of them representing a different level of integration among considered groups of actors: *networking, coordination, cooperation, collaboration*. According to Camarinha-Matos and Asarmanesh (2006), "as we move along the continuum from networking to collaboration, we increase the amounts of common goal-oriented risk taking, commitment, and resources that participants must invest into the joint endeavour".

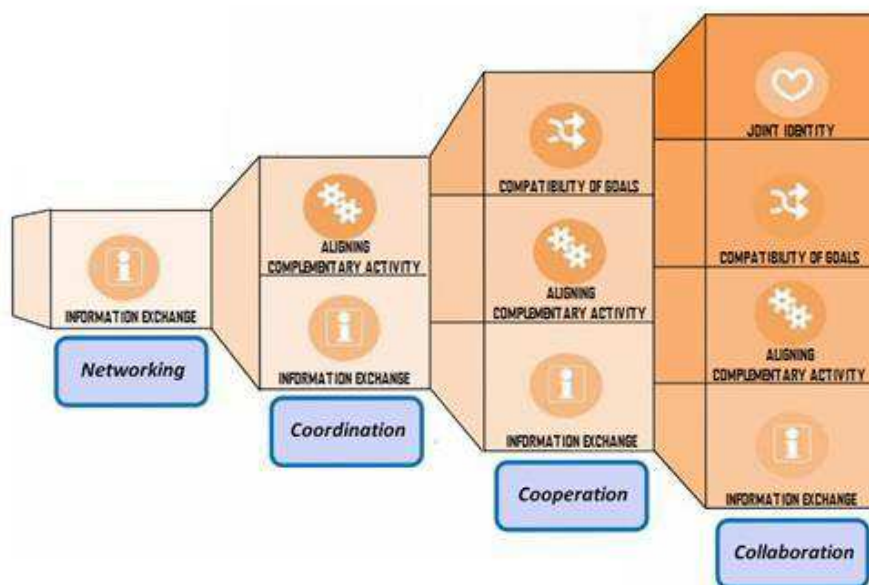


Figure 2: Building Blocks of Collaboration within a TBE.

Level 1 – Networking (Fig. 2). It involves communication and information exchange for mutual benefit of the TBE. Each service provider involved in the relationship can benefit from the information shared through the DMO but there is not necessarily a common goal influencing individual contributions as well as there is no common generation of value. At this level, it's not possible to highlight the presence of CNOs within the TBE. The TBE offers to each tourism operator a way to grasp opportunities that the current demand of tourist flows is producing. In particular, individual actors may benefit from integrating communication and promotion activities performed by the DMO. Promotion has a key role in the perception of the characteristics of the tourism system, since it is a filter that affects the perception of quality, creating expectations in the people (tourists or potentials). A TBE represents a local brand that proposes a diversified tourism offer, contributing to local tourism development and to increase the local competitiveness in respect to other geographical areas. This is the case for Touristic Associations or Syndicates or Touristic Consortia that aim to promote tourism activities in a specific territory and offer to tourism operator a "showcase" in order to promote their own services. While the DMO promotes a common brand, a slogan, a symbol, etc., individual operators are responsible for the accuracy and the correctness of the information provided about offered services.

At a networking level, it is possible to identify a set of ICT solutions representing a valid support for promoting a tourist destination: Inspiration Portals (Not and Venturini 2010), Tourism services comparators

(Akoumianakis 2014), Tourism social networks (Mihajlović 2012), Mobile and immersive technologies (Ladkin and Bertramini 2002).

Level 2 – Coordination (Fig. 2). In addition to communication and information exchange, more organizational commitment is evident at this level. Coordination involves aligning/altering activities so that more efficient results are achieved; nevertheless each networks member might have a different goal and use its own resources. In order to expand their own tourism offer and capture new customers, a tourism operator can tighten symbiotic relationships with other tourism operators that complement each other or have reciprocal products. This is the case of a service provider which, under the guide of the DMO, originates a TEE that “extends” its business services, proposing to the customer complementary services provided by other service providers.

At the coordination level, ICTs are intended to support automation of inter-organizational business processes. In addition to the tools typical of the networking level, which supports horizontal communication, at this level technologies need to support tourists to take advantage of integrated offerings. Examples of such technologies are the Destination Management Systems (DMSs), i.e. systems that gather into a single portal a variety of tourism services provided by heterogeneous tourism operators and related to a specific geographical area. DMSs attempt to utilize a customer centric approach in order to manage and market the destination as a holistic entity, typically providing strong destination related information, real-time reservations, destination management tools, and paying particular attention to supporting small tourism suppliers (Zanker, et al. 2008).

Level 3 – Cooperation (Fig 2). In addition to level 2, it involves knowledge and resources’ sharing for achieving compatible goals of the TBE. In this case the aggregated value is the result of the addition of individual “components” of value generated by the various participants in a quasi-independent manner. A common plan exists which in most cases is not defined jointly but rather designed by a single entity. Participants’ goals are compatible in the sense that their results can be added or composed in a value chain that, under the coordination of the DMO, leads to the end-product or service. Trust plays a key role in the willingness of network members to cooperate in tourism service provision. The risk of opportunism is crucial at this level and it is mainly based on partners’ behaviour manifested during a group’s interaction. A partner needs to signify its trustworthiness through the way it behaves in the alliance. This is the case of a DMO that gives tourist web-services to compose a customized tourism package (whether by means of an automated tourism packaging system or supported by a travel agency operator) combining and organizing services provided by multiple tourism actors of the TBE. The composition of such a tourism package, indirectly determine the creation of a TVO among the providers of each service in the package. In the TVO, each tourism service provider is responsible for the correct provision of its part of the service.

At this level, more than the ICTs identified at the previous level, it is desirable to use web and mobile based systems which enable consumers (or intermediaries) to build their own tourism package made of flights, accommodation, and other tourism services instead of purchasing a well-defined package from a catalogue. These kind of technologies are known as Tourism Dynamic Packaging Systems, TDPS, whose characteristics are: full automation through online applications; real-time update of travel product information; single price for an entire tourism package; guide consumers in the choice of products to add to the package, taking into account the compatibility with products previously added (Zach et al. 2008).

Level 4 – Collaboration (Fig. 2). At this level, all entities share information, knowledge, resources and responsibilities to jointly plan, implement and evaluate a program of activities to achieve a common goal. It implies sharing risks, resources, responsibilities, and rewards. Tourist operators committed in the collective decision making process have common values and visions. Organizations and individuals, as network members, are committed to learn from each other to become better at what they do. The TVO becomes a self-organizing system with global properties that cannot be predicted from the properties of the economic actors who are directly involved in it. This is the case of a TBE where the DMO allows the composition of a customized tourism package in a seamless and transparent way to the customer. Partners of a TVO have joint identity, goals and responsibility; the DMO manages the unique interface for the customer and it is responsible for the correct provision of the tourism package.

At this level the inter-organization process planning and management, is not only limited to packaging systems but regards many operative and supporting processes which are managed in a common way. In addition to TDPS, the CNOs need the supply a particular form of Enterprise Resource Planning technology for tourism networked organizations. Ideally, the CNO will take the form of a Cloud-Based Business Network that connects and coordinates all of the networked tourism operators on a common platform.

5. Conclusions

The importance of a collaborative and distributed approach to supply chain management for a tourism destination is related both to the possibility to give sustainable development to the destinations, in an effort to overcome limits of tourism organizations' size and reach in their economy of scale to compete with big players; and to the necessity to answer the request of a more personalized tourism offer, in line with the new demand trends. Even if consolidated literature in the field of CNs for tourism is not present, many analyses confirm that the increasing request of augmented tourism experience obligates tourism operators to create new and improved services, to adjust them to individual consumer needs and specific interests, to deliver up-to-date information and knowledge sharing systems supporting the self-configuration of tourism packages. In this sense, CN models for tourism can be the right means to "provide opportunities to acquire contracts, which would be too complex, large or of too great a spatial extent for any small company or a micro firm" (Hopeniene et al., 2009)

In this paper we provide further motivation for the adoption of CN models for a TBE, highlighting how globalization and ICT evolution has made more efficient and timely the way of both being a tourist (introducing the *tourist 2.0* and the *augmented tourism experience* concepts) and to manage, coordinate and control activities of networked organizations. Further studies are undergoing to set up CNs models for different tourism destinations

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