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Abstract: In the increasingly saturated tourism market, an effective tourism destination management is essential to support competitive and sustainable growth. The topic becomes interesting in light of the spread of the collaborative network (CN) organisational models and the massive diffusion of web 2.0 and mobile technology. The formers have proven to give concrete opportunities of development in many industrial sectors, the latter has been changing the way tourists experience a destination. Even if several case studies of CNs in tourism are known, a comprehensive study of how tourism destinations can benefit of CN models and enabling technologies is not present; especially in the effort to help tourism destinations in setting up services able to actively support each phase of the tourist 2.0 lifecycle. In this paper we highlight how CN models are able to support the tourism destination management in order to gain competitiveness for local areas, to improve flexibility in services provision and to give tourists the possibility to live an augmented tourism experience. Furthermore, a review of the most suitable forms of collaborative network for tourism destination and their ways to actively support the augmented experience of the tourist 2.0 are proposed.

Keywords: tourism business ecosystem; TBE; collaborative network; augmented tourism experience; tourist 2.0; tourism destination; sustainable growth; knowledge-based development.

1 Introduction

In recent years the tourism sector has been characterised by a growing interest due to its increasing impact to the economic development of many countries (Massidda and Mattana, 2013). Tourism is one of the largest industries in the world providing a strong impact on the global economic development; the World Travel and Tourism Council stated that in 2013, the industry employed more than 265 million people worldwide (8.9% of global employment) generating an estimated 6,990 US\$ billions of economic activity (9.6% of global GDP) and is forecast to rise by 4.3% in 2014, and by 4.2% per year, from 2014–2024 (WTTC, 2014).

The availability of new technologies, in particular the spreading of the mobile ICTs, has had a significant impact on tourism sector. As a matter of facts, both demand and supply of ICT have innovated considerably such sector, providing noteworthy opportunities for internal business process reengineering (back-office and reservation systems), connecting tourists among them and with service providers, enabling an always more personalised supply of tourism experience (Polo Peña et al., 2013; Buhalis and Law, 2008; Ammirato et al., 2014, 2015).

Changes in tourism sector are evident both from the industry and tourists perspectives. The internet is changing the tourism industry structure by altering barriers to entry, minimising switching costs, revolutionising distribution channels, facilitating price transparency and competition, as well as enhancing production efficiency (Mills and Law, 2004). From a tourist perspective, the breakdowns of geographical and cultural barriers, and the availability of new and cheap means of transport, allow people to easily consume tourism products (Cabiddu et al., 2013). E-business development allows tourists to directly interact with tourism services providers, often disintermediating traditional interfaces in tourism market such as travel agencies and tour operators (O'Connor and Frew, 2004). Furthermore, the customer insights and reviews, provided by people through social media, represent important sources of information for travellers, helping them to choose tourism services (Volpentesta and Felicetti, 2012).

Anyway, not all *tourism destinations (TDs)*, over the world are able to benefit of the tourism industry changes. Indeed even some traditional and renowned TDs are experimenting the discharge from the tourists' preferred destinations due to the current financial and economic downturn at global level (Papatheodorou et al., 2010). The traditional development model, based on an outdated tourism supply chain model, appears inadequate and unsustainable to support TDs in the strong and globalised competition and unable to understand the new needs of tourism market (Ammirato and Felicetti, 2014).

At the demand side, the *tastes of tourists* have changed and the amount of tourists in search of 'something different' from conventional tourism is growing. Culture and people thus become part of the tourism product (Burns and Novelli, 2006); competition is always more based on offering tourists articulate packages composed by different services (hotel, restaurant, nature, visits to cultural heritage, sports, handicrafts, etc.) that, all together, enable tourists to experience a territory as a whole. This market scenario is quite new giving unexpected opportunities of sustainable growth to lagging behind regions. In many regions with tourism vocation, small size service providers, which were usually marginalised from main tourism flows, have started organising themselves spontaneously in tourism networks in order to create aggregate tourism offers able to compete with big players in the globalised market.

New and alternative business models have developed with the aim to guarantee competitive advantages, to improve operators' revenue streams, to return in taking an active role in the tourism system (Robinson and O'Connor, 2013; Craig Wight, 2013). Such models of *collaborative networks (CNs)* in the tourism sector are characterised by a direct connection among local service providers and tourists. They exhibit explicit ethical and political goals: revitalisation of territory identity and local community relations to natural, cultural and historical heritage, linking with sustainable agriculture and handicraft, economically viable and socially responsible practices (Volpentesta and Ammirato, 2013). In essence, CN is a promising organisational paradigm for sustainable growth in order to transform regions with potential and vocation in real TDs where tourists have the opportunity to experiencing a good holiday respecting the local place and people. CNs consist of a variety of entities that are largely autonomous, geographically distributed, and heterogeneous in terms of their operating environment, and goals, but that collaborate to better achieve common or compatible long term goals (Camarinha-Matos and Afsarmanesh, 2006). In the tourism sector, CNs are characterised by a reconnection or close communication among tourism operators and tourists, allowing the development of new forms of relationship and governance of the actors' network (Ammirato et al., 2013).

Local tourism operators and tourists are engaged in social relations and actively participate in continuous experience-based learning processes that can be facilitated by appropriate organisational processes and managerial choices. Recent development in ICTs (in particular the web 2.0 and mobile technologies), enable and provide new learning opportunities during the tourism experience. Not only tourists get connected in an anticipatory way with destinations/attractions through web media contents, but they become more and more autonomous in decision-making processes, getting personalised and context-aware access to tourism information at any time, from anywhere with any media, creating a paradigm shift in how information is accessed and digested. In the next sections, we introduce this new paradigm of *augmented tourism experience* and we describe the traveller who experiment a such experience as *tourist 2.0* (Egger and Herdin,

2010; Lo Presti and Raj, 2014; Fotis et al., 2012; Latorre-Martínez and Iñíguez-Berrozpe, 2014; Milano et al., 2011).

Even if the concept of CNs in tourism has been introduced in literature and several case studies are known, a comprehensive study about the benefits of CN models on TDs is not present. At the same time, how such models can enhance the effective provision of services able to satisfy requests of the tourist 2.0 still remains unclear. The aim of this study is to describe how the organisational paradigm of CNs applied to the tourism sector, when correctly managed and supported by 2.0 technologies, can be the right means for the sustainable growth of TD. In particular, the paper highlights that CNs in the tourism sector, whose diffusion grows up with the spreading and the evolvement of ICTs, can be successful in giving:

- tourists, the chance to experience, attractive destinations, personalised offer and flexible tools for an augmented tourism experience
- local areas, a competitive and sustainable way to a jointly and flexible management of the TD.

The paper is structured as follows. In Section 2, a characterisation of a TD, highlighting the key factors for its development is proposed. Section 3 introduces advantages and typical forms of CNs for the TD management. In Section 4, the concept of the tourism 2.0 lifecycle is introduced, related to the tourist's needs for an augmented tourism experience. Section 5 reports the operationalisation of the concept of CN in tourism, giving the motivations why the adoption of a CN model is an effective way to answer the tourist 2.0's needs. Conclusions are reported in the final section.

2 Characterising a TD

According to Presenza (2008), the touristic competitiveness of a selected territory comes from the particular kind of available resources. Anyway, territories characterised by relevant attraction factors are often not able to compete in the market. The reason resides in the integration with tourism services and in the dearth of adequately support of collaborative and managerial behaviours. The ability to intercept significant tourism flows does not simply depend on single territorial components' actions but it is the result of a systemic action of joining all the territorial components in a coherent tourism development plan aimed to stimulate and integrate the different interests.

Such concept has been long studied in the literature. Cohen (1979) stated that a tourist's destination experience derived not only from the consumption of various travel services but tourists desire experiences both from the territorial setting and from the service infrastructure that supports their visit. Mo et al. (1993) argued that the destination's environment (including the social and culture features, physical access infrastructures, etc.) was the primary factor in an international tourist's experiential destination product, but it is useless without the support of an effective local service infrastructure (transportation, food and lodging services, etc.). Hu and Ritchie (1993) conceptualised the TD as "a package of tourism facilities and services, which like any other consumer product, is composed of a number of multi-dimensional attributes". Murphy et al. (2000) view a TD as "an amalgam of individual products and experience opportunities that combine to form a total experience of the area visited". In Fabricius

et al. (2007), the World Tourism Organization deepen the concept affirming that “to compete effectively, destinations have to deliver wonderful experiences and excellent value to visitors. The business of tourism is complex and fragmented and from the time that visitors arrive in the destination, until they leave, the quality of their experience is affected by many services and experiences, including a range of public and private services, community interactions, environment and hospitality. Delivering excellent value will depend on many organisations working together in unity. Destination management calls for a coalition of these different interests to work towards a common goal to ensure the viability and integrity of their destination now, and for the future.”

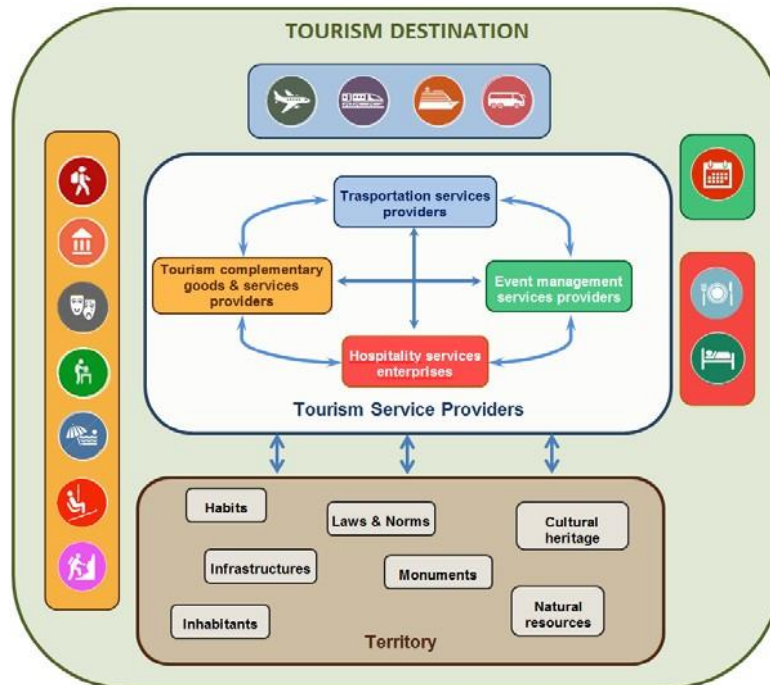
The presence of attraction factors (i.e., natural resources and monuments), and social factors (i.e., the language spoken and friendliness of the local people), although a necessary condition, is not enough for turning a territory in a TD (Dunn Ross and Iso-Ahola, 1991; Buckley, 1994). A key factor for the rise and continuous development of a TD resides in the quality and efficacy of relations among service providers and between them and the destination’s environment. Moreover, another key factor is represented by the social context in which service providers are embedded, that influence their behaviour and performance (Gulati et al., 2000). Effective relations can give a TD the basis for agility in dynamic and turbulent market conditions offering to an always more demanding tourist an integral, flexible and personal experience. The continuous interactions among specialised service providers can be a winning strategy for the TD to gain sustainable development and emerge in the global competition.

In a TD, live and operate different autonomous entities (people and organisations) whose business is related to the sector. While these entities can be heterogeneous in terms of their operating environment, culture and goals, they all aim to achieve the common goal of TD development and to increase the general competitiveness of their TD respect to other geographical areas within the global competition. We define these entities as *tourism service providers* that can be grouped into the following categories (Ammirato and Felicetti, 2013):

- *hospitality services enterprises*: companies that offer overnight accommodation (e.g., hotels, B&B) and meal provision (e.g., restaurant)
- *transportation services providers*: public and private companies that provide services of people transportation (i.e., buses, taxis, airplanes, trains, etc.)
- *event management services*: public and private companies dealing with the organisation of events (e.g., conferences, conventions, concerts, sport events)
- *tourism complementary goods and services providers*: companies that produce and offer complementary goods and services for travellers, like local shops, museums, excursion services, sport and leisure facilities, handicrafts.

Although the tourism service providers interact at different levels, from the commercial to the operational one, they all collaborate to develop the TD in the forms of both market agreements and informal relations. Their aim is to deliver a competitive offer of tourism services. Interactions among service providers compose the set of all services characterising the TD.

Figure 1 The TD interaction model and the offered tourism services (see online version for colours)



The tourism supply chain results from the set of relations within a TD, and its success depends from the way it is managed.

Actually, the real obstacle for the sustainable growth of a TD is often that the tourism supply chain control remains in the big companies charged to market the destination (generally, the international tour operators). Big tourism corporations control almost every services among disconnected operators and tourists through complex supply chains. This general trend in the dominant tourism system results in the loss of bargaining power for local service providers, that are generally small sized, and in a ‘crisis of trust’ in mass-produced ‘placeless and faceless’ tourism packages among tourists. A typical example is the tourist village model, where all the services are provided by the village owner, often a big not-local company whose aim is not the overall destination sustainable exploitation (now and for the future), but the fast return on investment with all the consequences for the local socio-economic and natural environment. Consequences of the traditional tourism supply chain control’s model, reside in territory saturation, environmental degradation, stress on infrastructures and, with time, the deterioration of the services provided.

The traditional control model is questioned also for the effects of globalisation. In a globalised tourism market, destinations can no longer take their traditional visitors for granted and escape growing competitive pressures, because increasingly experienced, specialised and demanding travellers now have a vastly greater number of potential destinations to choose from (Halkier et al., 2013). Long-term forecasts about tourists flows becomes always more difficult so propensity to big investments decreases. While TDs need further investments able to give new meanings to the tourism experience and,

thus, to intercept fleeting touristic flows, the centralised control model is averse to big investment decisions of uncertain return.

As tourism service providers become a part of the global economy, local collaborative actions that generate externalities for the companies increase in importance (Erkus-Otzurk and Eraydin, 2010). Engaging in new forms of collaboration and promoting and maintaining relationships within business networks have become a natural way for organisations to meet increasing flexibility and performance requirements in competitive markets (Camarinha-Matos and Afsarmanesh, 2004). Reduced cost and investments, improved efficiency, scale and scope economies are further motivations for local players in engaging collaborative actions within the industry.

3 CNs for Td management

Since '90s, several case studies and conceptual models highlighted the increasing importance of partnerships in many industrial sectors, assessing new organisational forms and identifying key factors in successful initiatives of sustainable development (Camarinha-Matos et al., 2010). First successful initiatives of CNs were developed in Italy and Japan since '70s shaping the forms of 'industrial district'; since then, many other similar initiatives spread all over the world, like 'technological' or agro-food districts (e.g., the Silicon Valley, the Bangalore District, the Parmigiano Reggiano area, etc.) (Sofa et al., 2008).

Today, reasons for establishing CNs are stronger than in the past, since they are a recognised driver of sustainable industrial development. Due to the growing awareness within the political and social sphere of the importance of sustainability, the business sector starts to acknowledge that preserving the environment and the other inter-related pillars is both a good business and a moral obligation (Camarinha-Matos et al., 2010). In the current economy, sustainable productions, scientific research and technological transfer are critically important activities for local communities. CNs are forms of learning community that particularly concentrates activities on high-intensive marketing performance, distributed operational processes and joint research including knowledge sharing and technological innovation. The incentive to collaborate derives from the fact that the success of a firm does not necessarily mean the failure of the others and different forms of cooperation may be adopted in order to simultaneously enhance individual and common interests. The development of complementary cooperative relationships within a CN is the key source of innovation (Patrucco, 2003; Quintana-García and Benavides-Velasco, 2003). From a social point of view, the notion of community, as implicit in the CNs, helps in building the perception of mutual dependency and co-responsibility for the stakeholders involved, highlighting the great potential for mutual beneficial synergies between the two fields of CNs and Sustainability Science. There are a large number of examples, in different domains, about the contribution of the CNs to the sustainability agenda and new implementation approaches are being identified and tried: from the agribusiness to the collaborative transportation systems, from the smart energy grid to the biodiversity infrastructures, from the disaster rescue networks to the ageing, etc. (Camarinha-Matos et al., 2010).

In the tourism sector 'alternative' business models are allowing for the development of new forms of relationship and governance of the tourism actors' network. Such models are aimed to combine tourism stakeholders' capabilities and resources to propose

integrated value-added services capable to satisfy consumer needs in TD. Scholars have named these models under different terms: Akoumianakis (2014) used the term *cross-organisational virtual alliances*, referring to the *affiliation of partners* in collaborative product development (dynamic packaging) in tourism sector; Lemmetyinen (2009) introduced the term *strategic business network* in cruise-tourism sector; Hopeniene et al. (2009) defined the concept of *virtual tourism business system* as a dynamic CN of tourism stakeholders (private and public organisations). The main motivation of the diffusion of CN models among tourism operators is related to the strengthening of alternative forms of tourism experiences based on the rediscovery of rural places as a way to gain wellbeing and relaxed life by enjoying the benefits of *relocalisation* (Volpentesta and Ammirato, 2013).

As a matter of fact, a new concept of tourism is emerging since tourism demand and supply are becoming more independent, active, individual and flexible (Vainikka, 2013). Tourists are increasingly searching for 'something different' from traditional mass tourism (the so-called '4Ss tourism': sea, sun, sand and sex tourism) preferring local forms of tourism that are economically friendly, sometimes non-commercial, and which have a meaningful ideology (Gursoy et al., 2010).

Scholars tried to deepen the understanding of the CN in tourism phenomenon mainly identifying successful case studies of 'alternative' tourism supply chain. Akoumianakis (2014) proposes a case study in order to assess possibilities of and impediments to cross-organisation collaboration in building tourist vacation packages in a regional setting. A case study about a cross-organisational virtual partnership in tourism sector in Greece is presented in Akoumianakis et al. (2011). In particular, authors study the mechanism allowing such organisation to operate as a virtual community of practice and how collective intelligence of the members is appropriated to ensemble innovative information-based products for tourists. Other authors address the importance of a collaborative approach as a means to plan sustainable tourism strategies. As an example, the study presented in Graci (2013) sought to determine the success of the multi-stakeholder formalised partnership to guide the implementation of sustainability initiatives. The study was conducted in Gili Trawangan – Indonesia, aimed to highlight how a common vision among all stakeholders is mandatory to protect the resources. A similar approach is showed in Jamal and Stronza (2009) where authors present the characteristics of a community-based partnerships designed with the explicit goals of generating both material benefits for people, and to conserve biodiversity in the lowland rain forests of Madidi National Park in northern Bolivia. The importance of a collaborative approach in the marketing of the destination is recognised in Wanga and Fesenmaier, (2007). In this paper, authors present the case of Elkhart County – Indiana (USA) where collaboration is expressed only through common marketing policy of the local convention and visitors bureaus who are charged with developing an image which will position their destinations in the marketplace as a viable destination for meetings and visitors.

In Novelli et al. (2006), authors analyse the UK Healthy Lifestyle Tourism Cluster as an experience of cooperation in order to exploit the opportunities offered by coastal/rural/urban SMEs' interactions in tourism. In Lemmetyinen (2009) is presented a collaborative project aimed at providing an integrated and sustainable growth strategy for the Baltic region's cruise-tourism industry. Hopeniene et al. (2009) focused their research on the empirical evaluation of relationship among the Lithuanian tour operators and

travel agencies as collaborators and competitors. The analysis of these case studies shows that several collaborative initiatives in the tourism sector have been developed in many countries shaping different organisational forms in relation to the peculiarities and to the socio-economic context of the reference territories. Anyway a limitation of the literature is evident considering that the methodologies scholars usually adopted have mainly been based on single case study analysis. Literature lacks of researches about the systematisation of the various CN organisational models and levels of collaboration that can be adopted in the tourism sector, and the link between these collaborative models and the benefits that derive from their application.

From an operational point of view, when some of the tourism service providers decide to reinforce collaboration, they can set stable prescriptive agreements in the forms of touristic associations, syndicates, touristic consortia or touristic districts. These collaboration' forms led participants to adhere to a base long term cooperation agreement, and to adopt common operating principles and infrastructures which constitute the framework of the tourism supply chain. Each agreement characterises the organisational form of the tourism supply chain in terms of structure of membership, activities, definition of roles of the participants, governance principles and rules.

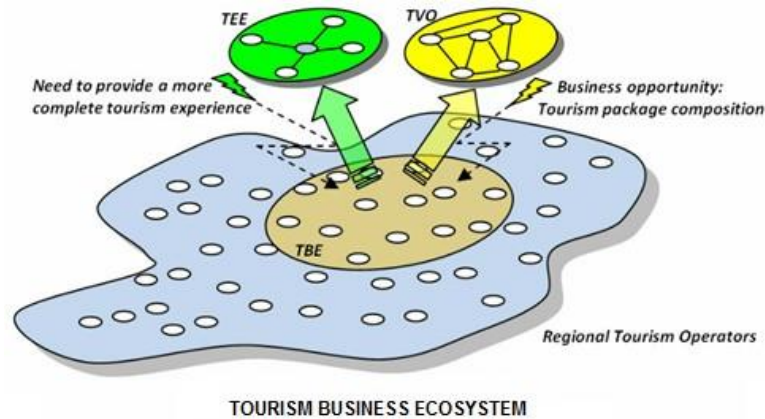
In a TD, live and operate many autonomous entities which conduct a variety of tourism related activities. While these entities can be heterogeneous in terms of their operating environment, culture and goals, they all aim to achieve the common goal of local tourism development and to increase their general competitiveness in respect to other geographical areas and global competition. Tourist destinations with characteristics of participant symbiosis, complementarity and co-evolution can be considered within the meaning of business ecosystem introduced by Moore (1993). In particular, we use the term *tourism business ecosystem (TBE)* to refer to 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.

In a TBE the tourism supply chain control and ownership are distributed among members. When a business opportunity is identified, a subset of the TBE members can be rapidly selected to become part of a short term *collaborative networked organisations, CNOs*, oriented to catch the opportunity.

Overall, 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 (Ammirato et al., 2015).
- *Tourism virtual organisation (TVO)*: It represents a temporary alliance of private and public organisations 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 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 customising services on the basis of their own specific tastes. Availability of systems for tourism packaging enable tourists to (self) compose a personalised tourism product choosing a subset of services provided by TBE members.

Figure 2 Relationship between TBE, TVOs and TEEs (see online version for colours)



4 The rise of the tourist 2.0

The rise and diffusion of CN models all around the world is strictly related to the availability of web 2.0 and mobile ICTs, which enable operators to develop original ways to manage the tourism supply chains, the destination marketing and the relations with customers. Actually, ICTs have been transforming tourism globally and their developments have undoubtedly changed business practices, strategies and industry structure (Porter, 2001).

From a business perspective, since the mid-‘90s, the tourism sector adopted the internet as an advertising medium and a new distribution channel, providing the basis for the development of new systems able to link consumers and CRSs/GDSs (Werthner and Klein, 1999). ICTs have a considerable impact in the efficiency and effectiveness of tourism organisations as well as on how consumers interact with broker organisations, facilitating operations, business transaction and networking among partners in the tourism industry (Buhalis and Law, 2008). Moreover, the direct social interactions between tourism service providers and tourists are enabling new learning opportunities for all the actors operating in a CN. As a matter of fact the use of ICTs engenders trust and cooperation within a community and supports the exchange of local knowledge that can revitalise local/traditional knowledge and encourage sustainable territorial management (Volpentesta et al., 2014). On the one side, direct social interactions are important way to educate tourists about tangible (infrastructure, monuments, typical foods, etc...) and intangible assets (culture heritage, traditions, history) of TDs. On the other side, direct interactions with consumers, supported by the adoption of ICTs, lead producers to face new systems of activities and new technical, managerial and marketing choices.

From a tourist perspective, software applications are able to help the decision making process by reducing time and costs of his 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 from around the world

through tools such as fare aggregators and meta search engines, the immediate delivery of a set of tourism services (e.g., reservation or booking, payment, etc...) are among the features that make the internet and tourism an absolutely winning combination (Kracht and Wang, 2010; Buhalis and O'Connor, 2005). Xiang et al. (2014) surveyed that 85.5% of travellers prefer internet respect to offline sources as information sources for trip planning. Gretzel and Yoo (2008) found that over 30% of internet users have rated a tourism product/service online and about 70% of adults currently use online reviews to choose a tourism service.

The emergence of social networking platforms have profoundly influenced the way tourist interact with other tourists. 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 (Volpentesta and Felicetti, 2012). Thanks to the web 2.0 tools, sharing activities and social interactions are not only limited to the sharing of multimedia contents (publication of photos, holiday memories and storytelling) at a stage located downstream of the tourist experience, but they involves any activity that accompanies the traveller through the tourism experience. Moreover, mobile technologies have challenged today's tourists expectations getting personalised 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). A recent study surveyed that travel mobile applications are the seventh most popular category of apps being downloaded; 60% of smart phone users have downloaded travel apps and of those individuals, 45% plan to use the apps in the firsts phases of the tourism experience life cycle for research and travel planning; 55% of travel apps are purchased within three days of travel or while travellers are at the destination which helps demonstrate how important mobile apps are in influencing tourists' decision-making along all the tourism experience life cycle (Kennedy-Eden and Gretzel, 2012).

The *tourist 2.0* is the one who starts his/her travels on the internet, plans and books online, and promotes the storytelling that happens after the trip (Egger and Herdin, 2010; Fotis et al., 2012). He/she makes use of web 2.0 instruments, such as websites, blogs, social media, and mobile applications, to preserve, accumulate and increasingly share the 2.0 experience (Egger and Herdin, 2010; Latorre-Martínez and Iñíguez-Berrozpe, 2014). This *tourist 2.0* does not only use the internet and social networks to evaluate travel information and plan the journey, but to assist him/her in the meanwhile of their trip too. The use of web 2.0 and mobile applications during the trip allows tourist to search situated information, make reservations, and buy tourism services and products; moreover tourist 2.0 shares and disseminate its experiences on the web not only with family and friends, but also with strangers (Lo Presti and Raj, 2014; Latorre-Martínez and Iñíguez-Berrozpe, 2014). According to Milano et al. (2011), tourist finds in travel 2.0 services an information source that can be used and influence the main stages in the tourist experience.

4.1 The augmented tourism experience and the tourist 2.0 lifecycle

The provision of new informative services supporting the tourist 2.0 activities, always available through mobile technologies, made the conventional tourism experience enriched in each phase of it. A diffused approach in defining a tourism experience consists in adapting generic models to describe consumer behaviour in purchasing

products or services. Swarbrooke and Horner (2007), focus on individuals making decisions about the use of their available resources (time, money and effort) in purchasing goods and services related to tourism services consumption. However, characteristics such as product intangibility, heterogeneity of tourism offer and consumer, interdependence between services and seasonality, make the tourism product different from ordinary consumer goods. In the effort to clarify what tourists do experience and need along the duration of their vacation, several scholars introduced the concept of 'tourism experience lifecycle', (Gilbert, 1991; Gunn, 1989; Mathieson and Wall, 1982; Wahab et al., 1976). In their studies, scholars suggested that travel is a 'linear' process, defining the tourist experience from a temporal perspective which involves three phases: the anticipatory phase; the experiential phase; and the reflective phase (Jennings, 2006). Other researchers stated that the tourism experience lies 'beyond' the temporal dimension (Jennings and Weiler, 2006). Experiences are reflective and personal, each tourist objectifies and interprets the places visited, depending on psychological processes and emotional states as well as by the diversity of his motivations (Jennings and Weiler, 2006; Uriely, 2005). Anyway, Swarbrooke and Horner (2007) highlight that there are several reasons why most of 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 recognise 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. Available models are dated and do not fit to the present scenario in which the use of web 2.0 and mobile applications have dramatically changed consumer's behaviour; the models do not consider the role of ICTs in reengineering the industry.

Given its suitability with ICT, tourism has emerged as one of the most interesting sectors for mobile applications because tourists expect to get personalised access to information at any time, from anywhere with any media. Mobile technologies have challenged existing theoretical frameworks of information access and use, providing 'augmented learning' opportunities. Klopfer (2008) defined augmented learning as an on-demand learning technique which offer information and learning environment tailored to the tourist through the use of ubiquitous and context aware services. Mobile technologies offers new opportunities and challenges thanks to the ability to catch the user's current situation in terms of time-aware, location-aware, user profile etc. in order to provide personalised services which effectively meet users' needs by performing actions and offering information relevant to the current traveller context (Schwinger et al., 2005).

Mobile applications are capable of enhancing each phase of the tourist experience, 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*. In the effort to offer tourists such augmented tourism experience, a TD needs to deliver information and transaction services for matching necessities of each phase of the *tourist 2.0 lifecycle*.

In details, the *tourist 2.0 lifecycle* is a model of tourism experience that fits the modern consumption paradigm of tourism products/services. The model consists of the four phases:

- *Dreaming*: the process begins with the emergence of a need, a desire to travel. In this phase, tourists look for inspiration for their vacation. While in the past, most of the

ideas came from photos, stories and memories of friends' past experiences, or brochures of travel agencies (TAs), or tour operators (TOs), today the internet greatly simplifies this step. The dream of holiday is fed by an overabundance of photos, videos, or maps on the web, allowing users to gain virtual previews of the holiday, explore places, identify the location, refer to opinions and recommendations published by travellers who already had an experience and then prospected tourists begin to 'dream' their vacation. In this direction goes a category of ICT services that could be delivered by 'inspiration portals', like Tripfilms.com, Panoramio.com, Pinterest.com, Facebook.com etc., which provide the opportunity of sharing geotagged multimedia content among users by allowing them to get a preview of the territories, cultures and type of vacation.

- *Planning and booking:* once the tourist identifies the potential destination and the type of holiday he intends to do, he proceeds with the detailed planning of the trip. After establishing the details of the whole holiday, all that remains before travel is to make reservations of transportation, accommodation and any additional services (car rental, excursions, events, etc.) that will complete the tourism package. Until a few years ago, planning and booking activities were generally carried out by TAs and TOs, who had to book transportation, accommodations, and activities or to create complete packages for the customer whose only concern was to pay the broker. Nowadays the availability of web services based on comparison, recommendation systems, and booking services like booking.com, trivago.com, e-dreams.com, expedia.com, etc., leads consumers to make self-service reservations with increasing frequency, allowing them to enjoy lower costs related to the absence of intermediaries, to book at any time from everywhere.
- *Experiencing:* this phase is mainly related with the in-place tourism activities: the tourist overnight stays in hotels, make excursions, enjoy meals, visit local attractions etc.. The main difference with the past at this stage is the availability of contextualised information and additional services (maps, location-based services, context-aware mobile tourism guides, augmented reality etc.) offered to the 2.0 tourist through mobile devices as well as the opportunity to share location-based multimedia contents through web-services like Foursquare.com, Facebook Places, Loopt.com, etc. Examples of context-aware mobile tourism applications are mTrip guides, myTrip, Tripadvisor, that provide contextualised information and services to produce more focused and useful recommendations to the user enabling new opportunities for augmented and 'situated' learning. Based on location, user profile (preferences), time, and pre-stored trip information, a user get recommendations about points of interest, plan personalised tours, get informed on open nearby restaurant according to his time, be advised where to eat on the basis of his food preferences, get public transport information, etc. (Karanasios et al., 2011)
- *Recollecting:* After experiencing the holiday, the tourist comes back home and remembers the experience through photo albums, souvenirs and storytelling. At this phase of the tourism 2.0 lifecycle, the main ICT tools are those based on sharing services, as in the dreaming phase. The meaning of using specialised portals to share photos, videos, stories and opinions on visited places is to collect some snapshot of the vacation in order to recall its memory and to give tips and advices on the experienced TD.

Figure 3 The tourist 2.0 lifecycle (see online version for colours)



5 CNs model supporting augmented tourism experience in a TD

An extensive literature recognises benefits deriving from CN agreements both from partner organisations and customers. The satisfaction of customers' expectations, create wealth for CN members giving value for both parties, according to win-win logic. Organisations operate in collaborative networked environments seeking for complementarities that allow them to offer integral and personal experiences around their products and services for a specific customer at any specific time, location and context (Romero and Molina, 2011). Collaboration allows the leverage and rapid configuration of resources as well the possibility for organisations to continually disintegrate and reintegrate themselves in order to quickly respond to customers preferences, providing the basis for agility in dynamic markets (Camarinha-Matos and Afsarmanesh, 2006)

For TDs, increasing request of augmented tourism experiences obligate local operators to create new and improved services to deliver up-to-date information and knowledge sharing systems supporting the self-configuration of tourism packages, in order to satisfy individual consumer needs and specific interests. 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 both their resources and organisational systems with others to form networks able to exploit market opportunities. Motivations to establish a CN among operators of a TD 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. Competitiveness of a CN strictly depends on a correct exploitation of the ICTs which are the enabling factor for a modern CN rise and development. On the one side, ICTs are a means for coordination and control of CN

activities, inter-organisational business process automation, and decisional support. On the other side, ICTs can create an efficient and immediate interface between the destination and the web tourists; they can utilise the information and booking services, made available by the destination manager, for their needs during the 2.0 lifecycle.

ICTs empower and support CNs to enable interactivity between tourism production and distribution partners, to support a closer cooperation towards the provision of wide ranging products, to enable organisations to adapt their product constantly to satisfy tourism demand, to use information and knowledge extensively, to develop partnerships, and to outsource a significant amount of functions in order to achieve economies of scope (Buhalis and O'Connor, 2005). ICTs enable the virtual business system where firms get a balance between cooperation and competition; in an always more globalised and unpredictable business environment, the CN model lead to a reduction of competitive uncertainty, sharing of risks and costs, and fostering the incentives to innovate and invest in common tourism assets.

The set of information shared among each service provider and its customers, concerning the context in which information services are used, can be exploited to generate more detailed knowledge about visitors' mobility at the destination. Immediate feedbacks of marketing choices come both from data-mining of tourism experience choices and from social networking analysis activities; they could be used to support destination managers in their decision making processes (Shoval, 2008). Data obtained from all the networked operators can be used to analyse the spatial and temporal behaviour of the entire body of subjects in aggregate. The destination manager can analyse and aggregate data coming from each service provider in the CN to understand the way in which space and time are consumed in order to formulate a more reasoned tourism planning policy aimed to manage the tourist flows in a more rational manner, to relieve the burden from the destination's more congested areas, to encourage tourists to explore other less visited sites or to buy less purchased services. The result would be a more coherent pattern of tourist temporal and spatial activity, which would benefit tourists and the destination as a whole (Shoval, 2008).

Members of a TBE generally appoint the tasks of activities coordination and supply chain management to a *destination management organisation, DMO*, which creates and manages an overall strategic plan for the TD development. It can be a public institution or private organisation that aims to promote incoming tourism (territorial marketing) selling composite packages of hotel accommodation, excursion tickets, and other services. According to Fabricius et al. (2007), focus of the DMO is to look inward and towards destination to ensure the quality of the visitors stay while its fundamental task is to create a sustainable breeding environment on which the marketing of the destination and the delivery of the experience are dependent. *A strong DMO will be necessary to provide the leadership and to drive and co-ordinate this process. Creating the right environment includes: planning and infrastructure, human resources development, product development, technology and systems development, related industries and procurement.* Besides its strategic planning and control tasks, the DMO is charged to manage the operational flows related to the service delivery on the ground. This means that the DMO ensures the quality of every aspect of the visitor's experience once they arrive at the destination.

Members of a TBE compete with the others and with players outside the TBE in searching for new business opportunities in the global market. Tourism operators may interact in different way and four coalition's types can be recognised within a TBE, each

of them represents a different level of integration among considered groups of actors: *networking, coordination, cooperation, collaboration*; “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 endeavor” (Camarinha-Matos and Afsarmanesh, 2006). In what follows we propose the four levels highlighting, for each of them, goals and characteristics of interactions and of supporting technologies.

5.1 Level 1 – networking

It involves communication and information exchange for mutual benefit of 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 current demand of tourist flows is producing. In particular, individual actors may benefit from integrate 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, at the same time, 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 respect to other geographical areas. This is the case of 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 networking level, it is possible to identify a set of ICT solutions representing a valid support for promoting a tourist destination:

- *Inspiration portals*: the portals of inspiration are defined as those websites that promote the sharing of multimedia content among users by allowing them to get a preview of territories, places, cultures and type of vacation that will inspire potential tourists (Not and Venturini, 2010).
- *Tourism services comparators*: web portals that allow travellers to compare tourism services offered by different providers. Travellers that access this kind of web portals have the possibility to compare services providers and chose the offer that best suits their needs (Akoumianakis, 2014).
- *Tourism social networks*: collection of individuals who share information, opinions and contents about tourism in an online setting over the internet (Mihajlović, 2012).
- *Mobile and immersive technologies*: technologies that harness the potential of mobile devices to provide information, geolocation, and augmented reality services; information about the surrounding real world becomes interactive and digitally manipulable (Ladkin and Bertramini, 2002). Mobile services support users with additional information such as maps, points of interest, tourist guides that overlaid

the real world. Tourists interact with the surrounding reality and get information on areas of interest typical of tourist services (hotels, restaurants, etc.) and public utilities services (public transport networks, events, etc.).

Tourism web portals as well as mobile apps provide a wide set of services and contents allowing their users to acquire rich information on the promoted destinations, although for inexperienced travellers it can be difficult to discover the specific tourist items of interest and organise them in a self-structured travel (Not and Venturini, 2010).

In particular, mobile-based services support users with a series of additional information such as maps, points of interest, tourist guides and guidelines that will overlaid the real world. The tourist will be able to interact with the surrounding reality and get information on areas of historical and cultural interest (e.g., receive information in audio/video format about monuments) typical of tourist services (information about hotels, restaurants and other services) and public utilities services (information about public transport networks, events, etc.).

From a functional viewpoint, process automation is low being related to supporting horizontal communication with the aim of developing teamwork, share information and promoting activities' coordination within and among organisations. From a technological point of view, automation technologies are intended to supporting communication technologies between tourism operators and tourists.

5.2 *Level 2 – coordination*

In addition to communication and information exchange, more organisational 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 its own tourism offer and capture new customers, a tourism operator can tighten *symbiotic* relationship 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 'extend' its business services, proposing to customers complementary services provided by other service providers.

At the coordination level, ICTs are intended to support automation of inter-organisational business process. In addition to the tools typical of the networking level, which support horizontal communication, at this level technologies need to support tourist 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. DMS attempt to utilise 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 and independent tourism suppliers (Zanker et al., 2008).

5.3 *Level 3 – cooperation*

In addition to level 2, it involves knowledge and resources' sharing for achieving compatible goals of 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 services provision. The risk of opportunism is crucial at this level and it is mainly based on partners' behaviour manifested during 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 customised tourism package (whether by means of an automated tourism packaging system or supported by a travel agency operator) combining and organising services provided by multiple tourism actors members of the TBE. The composition of a such tourism package indirectly determine the creation of a TVO among the providers of each service in the package. In the TVO, each tourism services 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. This 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. From a process automation point of view, distributed business processes management tools are required in order to allow integration and communication processes between individual information systems adopted by tourism each operator (Zach et al., 2008).

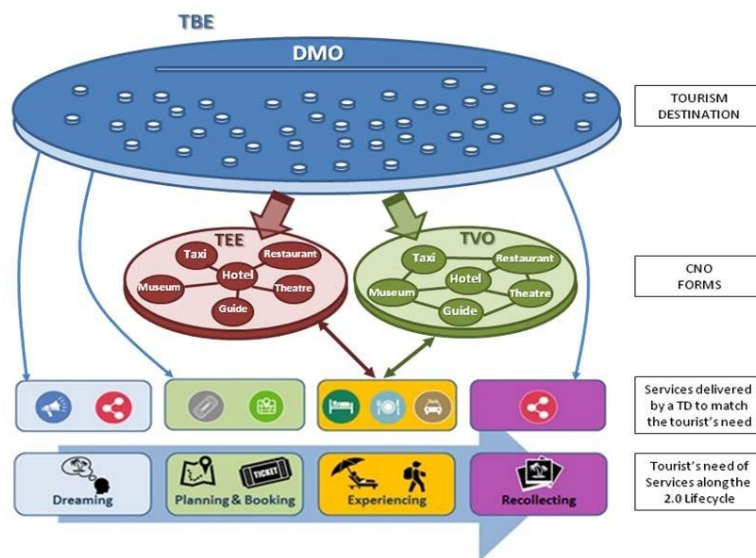
5.4 Level 4 – collaboration

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 collective decision making process have common values and visions. Organisations and individuals, as network members, are committed to learn from each other to become better at what they do. The TVO becomes a self-organising 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 customised tourism package in a seamless and transparent way to the customer. Partners of a TVO have joint identity, goals and responsibility; the DMO manage the unique interface for the customer and it is responsible for the correct provision of the tourism package.

At this level the inter-organisation 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* technologies for tourism networked organisations. 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.

“By providing a shared space for communication, collaboration, and the execution of shared business processes, the business network addresses the complications that can arise from the interdependence of a number of partners and allows them to collectively respond to the challenges and opportunities that emerge in the course of joint operations. Business networks supplement ERP systems, rather than replacing them. The ERP system remains the system of record and the guardian of the internal processes of the enterprise, while the business network provides the system of process, the platform for working with trading partners to meet customer needs profitably and expeditiously” (E2OPEN, 2013).

Figure 4 Relationship between the TD and the tourists needs along the 2.0 lifecycle (see online version for colours)



6 Conclusions

Tourism is one of the largest industries in the world subject to strong innovations in the last years essentially due to globalisation and availability of new ICTs.

The importance of a collaborative and distributed and efficient supply chain management for a TD is related both to the possibility to give sustainable development to the destinations, in the effort to overcome limits of touristic organisation's size and reach economy of scale and competitiveness in contrast to big players; and to the necessity to answer to the request of personalised tourism offer, in line with the new demand trends.

The availability of organisational models and ICT supporting solutions make possible the operationalisation of the collaboration concept in the tourism sector and the setting up of CNs in a TBE at different level of collaboration, in line with the territorial development strategies and tourism operators' propensity to risk taking.

In this paper, we proposed a characterisation of the organisational forms of collaborative organisations proper of the tourism sector and discussed the possible levels of collaboration that can be observed in those forms.

Moreover, we motivated the adoption of CN models for a TD highlighting how globalisation and ICT evolution made much more efficient and timely the way both of being a tourist (introducing the *2.0 tourist life cycle* and the *augmented tourism experience* concepts) and to manage, coordinate and control activities of networked organisations. The originality of this study consists in composing different perspectives in literature to propose an original framework to characterise forms of CNOs in tourism, taking into account the effects of ICT in reengineering the sector.

Further studies are undergoing in order to provide a mechanism to identify and assemble competencies in a TBE with the aim to determine the source and type of competencies needed to efficiently and timely catch business opportunities and to individuate the best TBE partners to involve to carry out a specific business. Moreover our future research concerns the identification and classification, through an empirical survey, of ICT tools to support the collaboration and development of local rural systems in the tourism sector. Particular attention will be given to emerging technologies within the ubiquitous (mobile and ubiquitous) services. The use of applications of this kind is able to increase the context-awareness of the different players in a CN providing added value to the traditional services, representing a new frontier of development in the fields rural tourism. The mapping of ICT allows the DMO an easier evaluation and selection of the most appropriate technologies to the specific form of organisation. Moreover, it allows third-party providers of ICT services to easily identify their target markets and devise the most appropriate types of services to be offered in relation to the various organisational models.

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