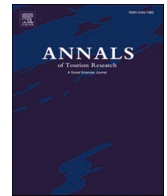




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Annals of Tourism Research

journal homepage: www.elsevier.com/locate/annals

Destination Design: A heuristic case study approach to sustainability-oriented innovation

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ARTICLE INFO

Associate editor: Daniel Fesenmaier

Keywords:

Destination Design
Participatory design
Design thinking
Place design
Case study
Dolomites UNESCO WHS

ABSTRACT

The landscape of research outputs in tourism planning is fragmented and multi-disciplinary. Design as a meta-discipline has the power to integrate sectoral thought and inject creativity, non-linear thought and transdisciplinarity into planning processes, particularly when tackling sustainability challenges. This paper defines Destination Design as a novel framework capable of evolving the concepts of *spatial and participatory planning using the design thinking cognitive style* to address sustainability paradoxes. The features of Destination Design are explored through the unique case study of sustainability-oriented innovation in the Dolomites UNESCO World Heritage Site. Results show that *design thinking* can be invaluable for pioneering pro-sustainability initiatives. Further, creative forms of engagement might encourage the acceptance and support of local transformations, but are difficult to implement.

Introduction

Methods of tourism planning have evolved over time, responding to different governance structures, changing environmental conditions and regulations, and improved marketing strategies (Hall, 2008). Historically, tourism planning focused on developing tourism infrastructure; later, the importance of environmental issues and public-private relationships was acknowledged (Lane, 2018). More recently, thanks to the experience economy turn (Pine & Gilmore, 1999) and to the performance turn (Ek et al., 2008), tourists are acknowledged as co-creators of tourism spaces (Mossberg, 2007) and both service and experience design have become prominent in tourism planning. This gradual transformation led to the interpretation of planning as a *form of territorial design* (Beritelli & Laesser, 2017). A broader and more comprehensive interpretation of tourism planning recognises an additional effort in coordinating the demand and supply sides of the tourism economy, an increased integration of tangible and intangible service elements, objective and subjective market perspectives, as well as hard and soft planning factors. Within this novel framework, the *vacationscape* (Gunn, 1972) is shaped by strategic choices in spatial planning; but it is also modified and co-designed by the social practices, habits and perceptions of humankind, i.e. not only of tourists, but also of local communities. This emerging approach to planning recalls the principles of the Lefebvrian socio-spatial theory (Lefebvre, 1991), understanding space as a network of relations. Tourism planning, therefore evolves as a complex exercise of social construction of space, in which local communities, tourists and decision-makers are actively and (more or less) consciously involved.

Within this relational network, sustainability-related choices and planning procedures acquire a more complex dimension and are increasingly addressed as “wicked problems” (Balint et al., 2011). The attempt to co-design a delicate, new balance between economic prosperity, wellbeing and environmental integrity at a destination scale is very ambitious and not always successful. This “implementation

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<https://doi.org/10.1016/j.annals.2020.103068>

Received 23 June 2020; Received in revised form 12 September 2020; Accepted 13 September 2020

Available online 16 November 2020

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gap” was recently highlighted by UNWTO and UNEP following a systematic review of national tourism policies that showed that while the concept of sustainability was a major issue at the strategy level, the ability to implement it was low (UNWTO & UNEP, 2019, p. 9). One of the reasons for the difficulty in transforming sustainable tourism concepts into daily practice might be the application of solely rational thinking (and planning) to solve complex problems. Normative thinking modes have been criticised in sustainable tourism literature and a “critical turn” was advocated to analyse social complexity (see, e.g. Bramwell & Lane, 2014). Rational planning – even if evidence-based – has led to paradoxes and impasses at policy level that inhibited implementation processes (Hughes et al., 2015). In this contribution we argue that non-linear approaches and creative problem-solving techniques linked to design theory have the potential to help close the implementation gap in sustainability issues (Acaroglu, 2014). The potential of these approaches in tourism was recognised in the early 2000s (see e.g. Farrell & Twining-Ward, 2005; McDonald, 2009), but is still not fully explored (Meekes et al., 2020).

The novel approach of Destination Design is capable of adding a relational perspective to tourism planning by assessing the active, creative, participatory and concurrent design of places, services and experiences, both for tourists, for hosting communities and for sustainability purposes. It should be acknowledged here that the connection between design studies and tourism is not completely new. It dates back to Clare Gunn’s seminal work about landscape architecture (Gunn, 1972) and to a later reflection about the “sensitivity” of designers to tourists (Gunn, 1997). More recently, the tourism services literature increasingly links to design theories. Zehrer (2009) explores the relationship between service experience and service design; Tussyadiah (2014) suggests three fundamentals in tourism experience design: human-centredness, an iterative designing process and a holistic experience as an outcome of designing. Instruments such as service blueprinting, customer journey mapping and technology-based systems enable service design in tourism (Stickdorn & Zehrer, 2014). Notwithstanding their pioneering role in tourism research, these approaches appear to only partly assess the complex territorial unit of a destination (Erschbamer, 2019), since they tend to consider a single aspect of destination development, under-investigating the relationships between infrastructures, the governance systems and the servicescape. The work edited by Fesenmaier and Xiang (2017) sets a milestone for the interface between tourism and design research at a destination level and approaches diverse aspects of experience and emotions in tourism. However, these issues are not linked to sustainability-oriented innovation at the destination scale (Scuttari et al., 2016). In this contribution we further develop design science in tourism by linking destination-specific planning issues to sustainability-oriented innovation. We argue that the application of design theory to sustainability-oriented innovation basically determines a novel injection of *creativity*, *non-linearity* and *transdisciplinarity* in the rational planning process.

In light of the above, the aim of this paper is to understand and better define Destination Design as a conceptual framework that enables the creative, collaborative and sustainability-oriented creation of *vacationscapes* (Gunn, 1972). Creativity, transdisciplinarity and non-linear thinking are used as leverages to redefine planning problems and support the solution of complex, sustainability-oriented problems at destination level. The definition of Destination Design as a novel framework in tourism studies also indirectly introduces a critique of the prevailing structures of (disciplinary) knowledge (Gibbons et al., 1994; Nowotny, 2003) and opens the post-modern discussion on “Mode 2” science in the tourism field (Tribe, 1997).

Destination Design: old wine in a new bottle?

Design is key to holistically approach the fragmented landscape of theoretical and applied research in tourism planning (Dredge & Jamal, 2015). As a *meta-discipline*, it is capable of mediating and coordinating many fields of knowledge and has the unique ability to develop – through integrative forces – new understandings of problems and thereby new solutions to them (Brandes et al., 2009).

Planning is defined as the process of establishing a strategic vision for an area that reflects the community goals and aspirations and identifies preferred patterns of land use and appropriate development paths (Dredge, 1999). Approaches recurring in planning research are manifold: process-oriented and based on rational planning, geographic-oriented and linked to spatial planning, or governance-oriented, with a focus on community relationships and power (Bramwell, 2010; Dredge & Jamal, 2015; Hall, 2008). Planning research can also specialise in sustainability (Bramwell & Lane, 2011), economic growth and impact-assessment.

Design studies are multifaceted concepts: they include a mixture of *creativity* and *non-linear thinking* non, an attitude to problem-solving, a way of integrating disruption into a coherent whole *transcending disciplinary boundaries* (Lawson & Dorst, 2009). *Creativity* is an individual or inter- and intra-organisational group property, characterised by original productions, problem-solving abilities and the involvement of personal experiences and subjectivity (Getzels & Csikszentmihalyi, 1964). Common traits of creative individuals or groups are generativity and cognitive flexibility (Klein, 2017), whereas “bisociative thinking” (Koestler, 1964) enables the connection of seemingly unrelated information coming from diverse fields. *Non-linearity* refers to the application of “user-oriented and heuristic approaches that are also responsive to contingencies of context” (Klein, 2017, p. 55). It refuses rote application and requires empathy, sensitivity and adaptability. Finally, *transdisciplinarity* – born as a narrower form of interdisciplinarity – transcends disciplinary worldviews and advocates for a unifying approach to knowledge (Klein, 2017), but it was only recently contextualised to the tourism field (Volgger & Pechlaner, 2014). These three characteristics of design studies enable the generation of new visions, novel tools, unusual procedures and therefore unconventional solutions to planning problems.

The novel use of design studies and methodologies in tourism introduces the notions of creativity, non-linearity and transdisciplinarity to address the complexity of sustainable tourism planning and tackle sustainability-related paradoxes. In this paper we argue that Destination Design basically includes (at least issues of) *place design* and *collaborative design*, as well as cognitive procedures related to *design thinking* (Fig. 1). Place design and collaborative design further develop the well-known concepts of spatial planning and community-based planning (Hall & Page, 2014). The transformation of these two traditional research fields happens thanks to the application of the design thinking cognitive style. Design thinking can be described as a human-centred process of innovation that focuses on creativity, collaboration, fast learning, visualisation of ideas, rapid prototyping and observation involving customers, designers and businesspeople (Grots & Pratschke, 2009; Lockwood, 2009). This process has its origin in the skills of industrial designers: while transforming the initial idea into a

new item, their main goal was the fulfilment of the constructive, functional and utilitarian needs of users (Brown, 2008). Soft skills such as technical and analytical knowledge, open-mindedness, cognitive flexibility and “bisociative thinking” (Koestler, 1964) enabled generativity and the ability to tackle and rapidly solve complex problems. Five phases are traditionally applied in a design thinking process (Brown, 2008). First, the understanding of the problem (*problem definition*); second, the observation (*monitoring* people in everyday life); third, a synthesis (through *storytelling*); fourth, the phase of idea generation (*brainstorming*); ultimately, the phase of *prototyping* and testing that concludes the process. Special emphasis is placed on visualisation in all phases (Bresciani, 2019). The application of design thinking to operations and business management brings in creativity and empathy, which turns into market innovation (Brown, 2008; Wattanasu-pachoke, 2012). Design thinking as a cognitive style represents an immense resource for organisations (Kimbell, 2011), particularly when it comes to sustainability-related issues (Buhl et al., 2019; Stevic & Breda, 2016), since its heuristic approach can lead to an increased openness to radical ideas and unusual practices (Cross, 2011). The shift in planning from linear, rational knowledge creation processes to more user-oriented and relational processes can happen using the leverage of behavioural geography and the instrument of cognitive mapping (Lynch, 1960), as well as visual ethnography and the instrument of composite images (Pearce et al., 2020). Both approaches are discussed in the methodological section.

Place design and place(-)making

Design as a meta-discipline bridges the land use perspective on planning (Dredge, 1999), the notion of socially constructed space (Lefebvre, 1991; Tuan, 1977) and the construct of atmospherics (Kotler, 1974). As a field of research, *place design* is multidisciplinary, embracing “organisational studies, political science, business management, planning, policy studies, regional development, geography, economics and sociology” (Dredge & Jamal, 2015, p. 286). Geographers have tried to explore the “black box” of tourism planning (Hall, 2008, p. 44) applying multiple perspectives to recreation (Hall & Page, 2014) and investigating the relationship between space, place, experiences and the construction of identities (Williams & Lew, 2015). Within this framework, they have also addressed the so-called “place making actions” (Lew, 2017, p. 448), introducing a distinction between *place-making* and *placemaking*. *Place-making* refers to unplanned and organic actions by individuals, whereas planned and intentional global theming by governments and tourism stakeholders is *placemaking*. *Place-making* is a social construction of localities including local aspects of place, culture, history and nature (Hultman & Hall, 2012). Place-making processes can rely on tourist experiences and mobility patterns (Beritelli et al., 2020; Tuan, 1977), as well as on digital social network technologies (Bødker & Browning, 2013). More recently, the more institutionalised concept of placemaking also incorporates issues of place-making, becoming itself “a subtle form of art” (Al-Kodmany, 2020, p. 66), “a creative process that considers people’s social needs and psychological responses as integral to the design of a physical space” (p. 67). These new forms of “participatory placemaking” (ibid.) (or co-design), happen in tourism destinations under the assumption that tourism is fundamentally a place-based social practice (Tussyadiah, 2017).

The consideration of design in planning issues builds on Gunn’s assertion that “the integration of design activity is essential” (Gunn, 1993, p. 337), particularly when it comes to community participation. However, place design is different from “destination visioning” (Ritchie, 1994) because, even though they have the use of participatory approaches in common, place design focusses on non-linearity, creativity and transdisciplinarity, whereas destination visioning might also follow very linear and predefined development paths. The use of design is not only instrumental to participation processes: it bridges the *geographical* perspective of defining “a preferred pattern of land

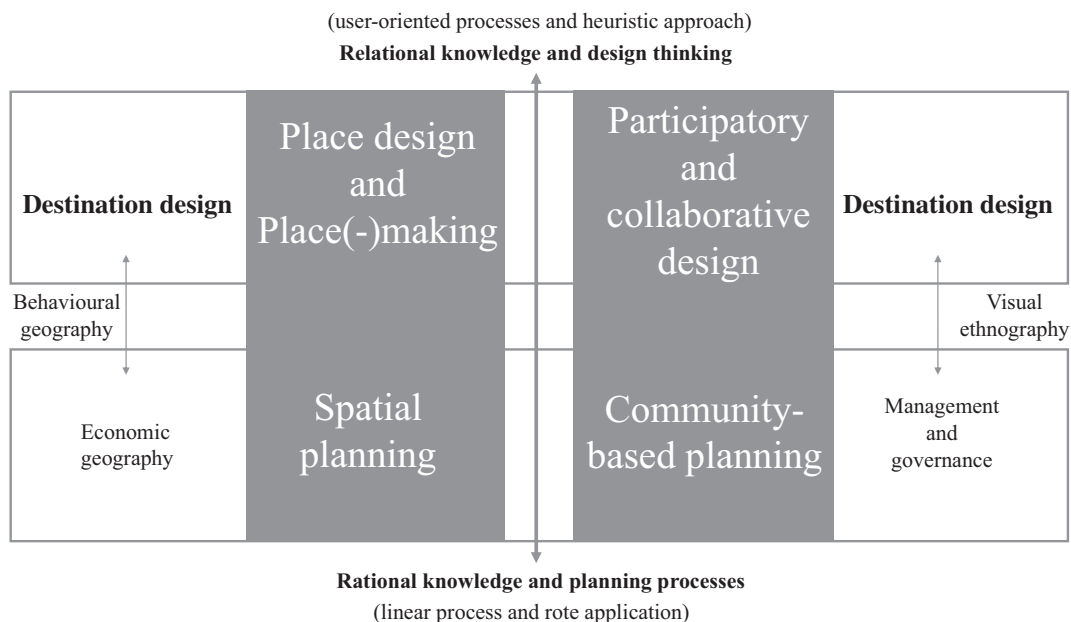


Fig. 1. Destination Design.

use” (Dredge, 1999, p. 773) with the *relational* perspective of activating placemaking *and* place-making processes. A place is co-designed not only through community participation to planning processes, but also through the day-to-day consumption of space. Further, design introduces patterns of creativity and disruption in placemaking processes, using different questions, unusual visualisation processes and innovative complexity reduction patterns (Cilliers & Timmermans, 2014) (e.g. the use of rapid prototyping and recursive actions).

Ultimately, place design also adds an aesthetic perspective to planning that considers both the tangible and intangible elements of destinations, such as the perception of the atmosphere. *Atmospherics* as a marketing tool was introduced in the early 70s by the seminal work of Kotler (1974), according to which the *total product* – including the tangible and intangible features and the place of retail – should be considered as distinctive factors for marketing purposes. The concept of atmospheric design in tourism (Mattila & Gao, 2017; Pfister, 2013) merges notions from design and marketing theories and integrates human-centred sensory elements into product and service design (Volgger & Pfister, 2019).

Participatory and collaborative design

Participatory approaches have a long history in tourism. Murphy was the first to introduce the community approach to tourism development, advocating an ecological approach for local control over the development process (Murphy, 1985). Later, Haywood (1988) highlighted the importance of a high degree of public participation in the planning process. Using the notion of “relational turn” in policy and planning, Dredge and Jamal (2015, p. 291) identify a stream of community-oriented scholars active in the field of participatory planning in tourism. Acknowledging the long history of community-oriented tourism planning, the discussion on participatory design refers to a novel form of actors’ involvement.

Participatory design involves injecting creativity as a novel steering approach to install new transdisciplinary networks and concertedly manage them in both a linear and non-linear way. It normally includes the involvement of non-professional designers – including users, researchers and developers – in a co-design process. Originally, the concept of participatory design was used as an approach to ensure shared agendas in labour and to foster technology design (Disalvo & Disalvo, 2014), but later it was applied in several other fields, including social sciences (Disalvo et al., 2012). Participatory design research can be grouped into three main areas: political explorations of participation, theoretical explorations of participation, and finally tools, techniques and methods (Kensing & Blomberg, 1998). Often, participatory design is referred to as collaborative or collaborative-participatory design (Harrington et al., 2019). Collaborative design processes relate to the concept of co-design, i.e. collective creativity as it is applied across the whole span of a design process (Sanders & Stappers, 2008). Participatory (or collaborative) design might therefore be a way to introduce creativity as a new leverage to collective actions, as collaborative work is key to addressing a fragmented tourism industry (Bramwell, 2011). Creativity works thereby as an additional steering approach to shape governance systems, normally ruled by the steering mechanisms of trust, money, formal power and knowledge (Pechlaner et al., 2012).

Participatory design was used in tourism planning research by Reid (2015), using the design-inspired method of participatory inquiry to develop innovative capability in tourism firms. Further, Koens et al. (2019) introduced the Smart City Hospitality Framework, which aims to stimulate *collaborative* (and informed) reflections on overtourism issues by applying a design-driven approach to urban tourism governance. This research attempts to apply the participatory design tools, techniques and methods to a territorial innovation, namely for a traffic management initiative in the Dolomites UNESCO World Heritage Site (WHS), Italy.

Case study

The Dolomites area is situated in the Eastern Italian Alps and received UN recognition as a Natural World Heritage site in 2009. The WHS area is known as a “serial good”, because it is composed of nine separate units, five different Italian provinces and 137 municipalities managed by the Dolomites UNESCO Foundation (www.dolomitiunesco.info). This geographical complexity is reflected in the governance structures and extreme challenges for destination management on site. Each year, between 1.1 and 1.4 million vehicles access the heritage site for tourism purposes, the majority in summer (Scuttari et al., 2018). Regular traffic congestion around a mountain pass (the Sella Pass) led to a delicate discussion on traffic management and sustainable tourism. After decades of impasses, in 2017 the Autonomous Provinces of Bolzano and Trento (both involved in the management of the aforementioned scenic road) decided to implement a mix of traffic management measures to reduce congestion. The initiative, known as “#Dolomitesvives”, consisted of a temporary road closure between 9 a.m. and 4 p.m. on the curvy Sella Pass road involving nine Wednesdays of July and August 2017. The implementation of the #Dolomitesvives initiative was possible thanks to an enormous endeavour: the coordination of all the interested stakeholders representing public and private institutions belonging to the two provincial entities (Bolzano/Bozen and Trento) and two Alpine valleys (Val Gardena/Gröden and Val di Fassa) in charge of the administration of the area. The road closure initiative was accompanied by an increased bus transport service and a series of events on culture, sport, gastronomy and music in the pass area. The ultimate goal was twofold: to limit traffic congestion, noise and the visual intrusion of vehicles in the landscape; and to enhance the tourist experience on site. “#Dolomitesvives” was designed based on scenarios proposed in previous research (Scuttari et al., 2019) and it included a long-term and collaborative creation of a new vision for the Dolomites’ passes, involving tourist product innovation and novel travel experiences. The project was originally planned as a multi-year pilot for innovation in sustainable tourism, during which feedback from stakeholders and researchers in 2017 was carefully used to redesign the initiative in 2018.

The “#Dolomitesvives” initiative represents therefore a “unique case” (Yin, 2006) when it comes to the implementation of destination design for sustainability-oriented innovation. It is unique in that it combines academic and non-academic perspectives, it uses instruments of design and it bridges disciplinary boundaries to solve complex sustainability-oriented problems. It does so by introducing a multi-year implementation pilot in the field of tourist transport, designed to reduce the impact of tourist mobility and planned and

monitored using participatory processes and design-related tools. Relying on this combination between participatory approaches, spatial planning interventions and creative and iterative approaches, the transformation process is presented as a design intervention.

Methods

Empirical research on the Passo Sella was carried out using a mixed method research strategy (Johnson et al., 2007, p. 123) and adopting a concurrent embedded design (Creswell, 2009). The use of mixed methods is motivated by the need for a holistic and heuristic approach to the research problem and by the need for both subjective and objective knowledge related to the research question – the characteristics of destination design and their reciprocal relationships to foster sustainability-oriented innovation.

The research was constructed around two methodological phases, linking back to the two main elements of destination design (see Fig. 1). The *first phase* makes use of ethnographic methodologies – visual ethnography and participant observation, as well as cognitive mapping – and occurred during the 2017 #Dolomitesvives initiative with the aim to understand place design and place(-)making processes. The *second phase* uses network analysis – Visual Network Analysis and some metrics of Social Network Analysis – to investigate the participatory design for #Dolomitesvives. These concurrent methods helped to analyse and represent spatial and relational dynamics, and to present possible solutions for a desirable future in sustainability-oriented innovations.

Issues of objectivity should be addressed while considering the epistemological approach of the work, to take into account the possible effects of the positionality of the researchers as co-designers of the initiative. The paper takes a critical realist approach to knowledge creation, i.e. a middle ground between positivism and constructivism (Bhaskar, 2008). This approach claims that “reality” and knowledge exist independent of human thought; however, it accepts that knowledge is influenced by the individuals’ interpretation of it. By doing this, it also accepts a dual objective and subjective perspective to construct knowledge, an approach also reflected in the variety of methods applied in the research.

Visual ethnography, participant observation and cognitive maps for place design

Ethnographic methodologies have been used in design for decades, particularly as informative tools for product design and later as a valid instrument for explorative, collaborative and participatory design (see, e.g. Blomberg & Karasti, 2013; Hughes et al., 1993; Tussyadiah, 2017). Their use in tourism is also extensive and serves many purposes, from the study of authenticity, to the investigation of cultures or mobility patterns (see, e.g. Leite et al., 2019). Notwithstanding the long history of ethnographic research in design and tourism studies, *visual ethnography* is a quite recent field of research for both, drawing from nonrepresentational theory (see, e.g. Pink, 2007; Vannini, 2015). Non-representational theory “seeks to better cope with our self-evidently more-than-human, more-than-textual, multisensual worlds” (Lorimer, 2005, p. 83) and often makes use of visuals to grasp them. Visual ethnography – as one possible approach to collect non-representational data – is not just a method for data collection through visuals, nor a research strategy for data treatment, but it is rather a dynamic and self-reflective process of knowledge creation and interpretation based on visual methodologies (Pink, 2007). The ethnographer works thereby as a mediator between the social world and the design project (in this case the #Dolomitesvives project) and collects, reports and analyses visual material on it. Notwithstanding a systematic approach for data collection, the theorists of visual ethnography acknowledge that objectivity is not entirely achievable while collecting or analysing visuals and – what is more important – objectivity is beyond the scope of visual ethnographic work, as subjectivity is key in the process of collecting visual data (Pink, 2007). Visual ethnography was only recently applied to tourism research, but when it was, it proved to enlighten underexplored practices and phenomena during tourist consumption, particularly in the transport and mobility field (see, e.g. Brown, 2015; Scuttari, 2019). Triangulation and moments of (self-) reflection on collected data were deemed fundamental to avoid biases in data analysis (Scuttari, 2019). Visual ethnography was contextualised in mobilities research within the socio-spatial theory of Lefebvre (1991), since it enables grasping patterns of (individual and socialised) space consumption (Scuttari, 2019).

Within the methodological framework of visual ethnography, participant observation was used from an operational perspective to collect insights into special landscape features, social practices and place-making processes of the research field (Malinowski, 1922). A team of three researchers – an economist, a political scientist and a geographer – entered the field and monitored the initiative. Deliberately taking on the role of observers, they took field notes and pictures and made videos on site. Covert observation in this context was unfeasible, since one of the three observers had already taken part in previous co-designing activities; researcher triangulation was pursued to minimise distortive effects, relying on two additional researchers with no previous role in the co-design of #Dolomitesvives. Further, a deductive approach was used to systematically collect and classify textual and visual data: it applied the conceptual framework of vacationscape (Gunn, 1972), interpreted through the three elementary spaces of a destination by Pechlaner et al. (2009): *space of mobility, space of attractions, and space of experience*. Notes and pictures were taken guided by these three basic elements of the conceptual framework.

In total, 1147 pictures were collected, stored and analysed by means of a quantitative visual content analysis (Rose, 2012) using the software MAXQDA™. A first set of codes based on the screening of around 10% of the total pictures was developed by a member of the research team not participating in the observation phase. Criteria were established to interpret and codify subjects appearing in the picture, based on their position and dimension. The first draft of the code-book was then cross-checked by the three observers separately and the system of codes was then confirmed and applied. Subsequently, hierarchical graphs were produced to show the frequencies of each code using the open source data visualisation framework RAW Graphs (<https://rawgraphs.io/>). The associations of subjects in pictures was represented through relational data using Gephi with a circular (not force-directed) layout. Gephi is an open source platform developed to visualise networks without being primarily directed at exploring their structural properties (Bastian et al., 2009). Finally, composite images (also called ‘technical’ images) were built as rapid prototypes to represent selected phenomena, based on a hierarchical image fusion of the photographic material (Toet, 1990). The creation of the composite image was based on a

purposive selection of pictures with the most frequently occurring codes. The creative adoption of composite images, often used in media studies to investigate visual discourse (see Pearce et al., 2020) enabled provocative disruption and reflection among stakeholders during planning meetings, to improve the design of the upcoming editions of #Dolomitesvives.

The collected texts (notes of the observers) converged into the collective production of cognitive maps. The three observers worked together to draw the spaces theorized by Pechlaner et al. (2009) onto a physical map of the area, later digitalised. Mental (or cognitive) maps (Downs & Stea, 1973) are indeed defined as “[t]he psychological transformation processes by which we gather, retrieve, arrange, store, encode, and interpret information relating to characteristics of the environment” (Greenberg Raanan & Shoval, 2014, p. 29). Mental maps, rooted in behavioural geography and linked to the aforementioned socio-spatial theory by Lefebvre (1991), are not new to (tourism) research (Fridgen, 1987; Lynch, 1960). However, their ability to tackle the complexity in tourism policies is still underexplored (Farsari et al., 2011), which makes them suitable for a novel application in sustainability-oriented innovation.

Finally, the visual ethnographic approach is capable of analysing and supporting creative problem-solving, rather than objective descriptions of phenomena. It supports bisociative thinking and enables the alternation between divergent and convergent thinking processes to tackle sustainability-related complex problems, as results will show.

Visual network analysis of the stakeholders involved in participatory design

To assess the complexity and variety of stakeholders involved in the planning phase, a visual network analysis (Venturini et al., 2015) was performed using secondary documentary data. Visual network analysis is a qualitative method to analyse relational data that involves four main steps (Decuyper, 2019): collecting and coding data; visualising network diagrams; analysing the form of these diagrams; interpreting the resulting visualisations by offering narrative readings. Visual network analysis is different from the more common Social Network Analysis (SNA) in that it does not focus on mathematical qualifications of networks, but rather analyses their visual properties. However, visual proximities are indeed representations structural proximities if specific algorithms, e.g. ForceAtlas, are used to spatialise data (Noack, 2009). Besides visual network analysis, system level network metrics of SNA have been added, in order to sharpen the insights into the relational dynamics of co-design (Baggio et al., 2010).

In the case of the #Dolomitesvives initiative, relational data was derived by documentary material, i.e. the protocols of every planning meeting over 2016 and 2017, including the names of participants for each meeting. The visual network analysis of stakeholders was developed around the assumption – supported by the content of the protocols – that stakeholders present in any meeting were co-designing the initiative, so that the edge matrix of the network reflects the number of meetings in which two stakeholders (nodes) were present. A total amount of 29 meetings and 96 stakeholders were registered in the two years of planning (March 2016 to August 2017). The 30th meeting was held after the implementation of the project, but it was included in the analysis to also consider the degree of stakeholders’ participation immediately after the initiative, when the monitoring results, including composite images, were shared.

The representation of the network was done using Gephi software. Data was visualised adopting a common force-directed layout in the Gephi software: Force Atlas2 (Jacomy et al., 2014). The presence of a force-directed algorithm beyond the spatialisation of the network actors enables a qualitative, visual interpretation of cluster structures, and structural holes in the relational data. This approach was used to understand the participatory design process of #Dolomitesvives. Unfortunately, the screening of participatory methodologies to involve tourism stakeholders in the planning phase was not possible retrospectively.

Results

Results are presented in relation to place design and participatory design, applying a design thinking cognitive style to both.

Place design is investigated adopting the conceptual framework by Pechlaner et al. (2009) and thereby assessing the space of mobility, attraction and experiences. The *space of mobility* refers to the tangible part of the pass area, including transport infrastructure, means of transport (vehicles), paths and routes, forming the territorial base for the movement of people. The *space of attractions* includes, along with the typical touristic services, the areas where culinary and cultural events were held, as well as other points of attraction, such as recreational areas on the pass, refreshment points, etc. This space also includes areas that attract tourist flows but have a negative connotation (e.g. the gates where vehicles were redirected to the valley because of the road closure). Finally, the *space of experiences* refers to the intangible dimension generated by values, emotions and the atmosphere that is created in the interaction between individuals (local inhabitants, guests, and tourism businesses), attractions and infrastructure. Results overall show that all three spaces underwent a change during the #Dolomitesvives initiative, related to new spatial functions, active place-making actions and different proportions of individuals and objects on site (see Table 1). Results further display the complexity of the participatory design process for #Dolomitesvives and, given the introduction of stakeholder subgroups, they showed a lack of success in striving for a transdisciplinary approach to participatory design.

Place design: redefining spatial functions through place(-)making actions

Analysing the over 1100 pictures taken by the three researchers during the #Dolomitesvives initiative, it is possible to report on the most frequently perceived objects, landmarks and individuals and on their mutual relationships. This is based on the coding system developed during the visual content analysis. Results highlight the importance of the natural landscape, which appears as a salient element in almost all pictures (1045 codes), with the road as a transport route of secondary importance, appearing only 367 times. Below are some specific considerations of the frequency of appearance of the codes by destination space (Fig. 2), as well as of their concurrent appearance in the pictures (Fig. 3). Overall, pictures reveal that during #Dolomitesvives, the beautiful mountain area of the pass partly changed its original function and turned from a place of crossing or departure into a place for entertainment, thanks to several place(-)making interventions.

Table 1
Main results.

	Space of mobility	Space of attractions	Space of experience
Place design and place (-)making	<ul style="list-style-type: none"> • Predominance of roads and parking lots in visual material • New power balances between vehicles • Innovation in vehicles (e-vehicles) and transformation of public space use • Appropriation of road space by hikers 	<ul style="list-style-type: none"> • Predominance of natural areas, huts/hostels/restaurants in visual material • New patterns of spatial and temporal consumption of services • New soundscape • Gates with ambivalent meaning (place for repulsion or attraction) 	<ul style="list-style-type: none"> • Predominance of outdoor social practices in visual material • New eudaimonic and hedonic experiences
Participatory and collaborative design	Stakeholders' subgroup on infrastructures	Stakeholders' subgroup on marketing and communication	

Source: own elaboration.

Space of mobility

Within the space of mobility, the road (367 pictures) and the parking lots (218 pictures) often appear in the visual material, as do cable cars and funiculars (170 pictures), and the hiking trails (147 pictures) (see Fig. 2). Less frequent are pictures of circulating vehicles (buses, cars/motorcycles, bicycles) and of bus stops. Indeed, the number of private vehicles circulating in the area was perceived to have dramatically reduced (see also the corresponding quantitative monitoring by Scuttari et al., 2018), which had evident positive effects in terms of less congestion, less noise and a lower occupancy of parking lots on top of the pass. Besides the reduced traffic, a *different* traffic was noticed during observations. Indeed, unusual mobility phenomena such as e-vehicles tests unpredictably happened since these types of vehicles were not subject to any restriction and could profit from the curvy and empty panoramic road. The scenic road turned therefore into a testing setting thanks to a private initiative that we can ultimately interpret as a place-making action. This innovation created on the one hand a sense of surprise among road users, but on the other hand also a perception of danger. Drivers of e-vehicles used the hooter to warn all cyclists when overtaking them, to avoid accidents related to their high speed and unusual silence when approaching. Further conflicts among vehicles resulted due to the introduction of a massive number of buses (four per hour and per direction), an issue that provoked huge difficulties of manoeuvre on curvy and narrow road segments. Moreover, when the road was empty, a re-appropriation of public space by hikers took place, as depicted in the composite image below (Fig. 4). The relative high occurrence of parking lots in visual material in comparison to, for instance, buses or bus stops seems to stress the visual intrusion of cars that were still parked in the area, notwithstanding driving limitations. Ultimately, a crucial role in reorganising mobility within the initiative was that of gates: the areas where rangers and policemen stopped unauthorised traffic. Due to the territorial and road morphology, the location of these barriers was not always functional to their scope. The gates were located far away from the parking lots and even more distant from bus stops, which made a modal shift from car to bus transport difficult.

Space of activity

Spaces of activity are spaces of attraction or repulsion (see Fig. 6). Along with the power of the natural landscape (1045 pictures), mountain huts/hotels/restaurants are often portrayed (149 pictures) as spaces of attraction. The mountain huts seem to be important markers of the local landscape, according to the pictures, although they were quite underrepresented in the participatory planning process, as will be discussed later in this section. Events, signs and the project flags (used both as markers of the road closure and at the events) also appeared in the pictures. Concerning attractions, researchers noted that spatial and temporal patterns of place consumption changed. Each event attracted a variable number of participants – from a few dozen to several hundreds, on average 383 per day (Scuttari et al., 2018) – but in cases of popular concerts, waves of visitors filled the green grass of the pass, transforming a wide area into a natural *and* cultural space of attraction (place-making action). Fig. 5 illustrates one of the most visited events and the resulting use of the green space as an amphitheatre. Not only the landscape, but also the soundscape of the place was transformed: the sounds of cars and motorcycles on the road was replaced by the sound of music, provoking a pleasant perception of harmony between humankind and nature. The use of the space for the purpose of concerts and other events also posed some noticeable challenges in service design. For instance, the food service facilities (mountain huts and restaurants) had to manage different and unpredictable waves of customers: the attractiveness of each event was diverse and not foreseeable (since it was dependent on weather conditions) and consumption was concentrated in a peak when the event was over, subject to the schedules of the bus transport service. In normal conditions, visitor flows would have been much more scattered throughout the day. Researchers noticed an increased degree of uncertainty that local tourism entrepreneurs had to face, as well as the organisational challenges in terms of labour force recruitment and stress management under peak consumption moments.

The gates, i.e. the locations where road closure entered into force, were also challenging spaces of activity and worked as places of attraction and repulsion (see Fig. 6). Despite having the potential to become information hubs to promote an alternative, innovative, sustainability-based vision of the area, they were rather perceived as roadblocks lacking attractivity. The predominance of police forces and the scarce presence of tourism board staff on site turned the gate into a roadblock only, where even language competencies to address the needs of international tourists were lacking. The placemaking intervention in this area did not appear to work successfully for the #Dolomitesvives initiative. It seemed that the sustainability-oriented “place design” exercise only took place *after* the



Fig. 2. Coding categories of pictures collected during participant observation (N = 1147).

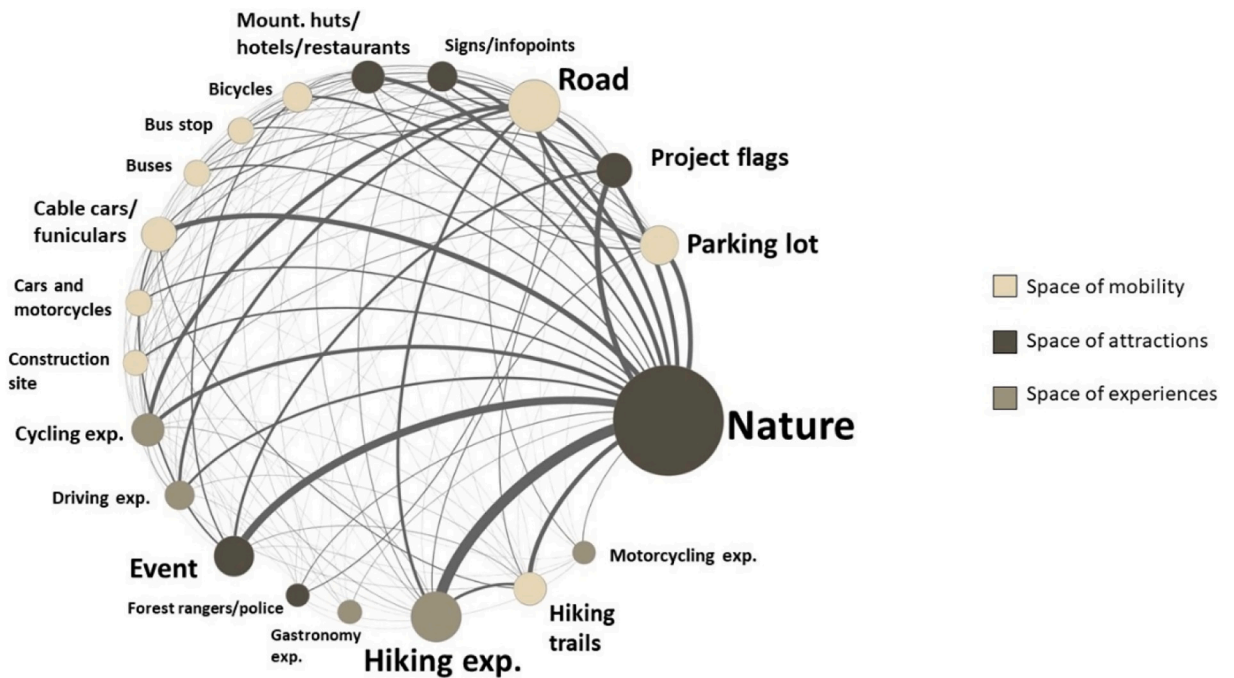


Fig. 3. Circular network graph of picture coding categories. Node dimension related to coding frequency, Edge related to co-occurrence of coding categories in pictures (N = 1147).



Fig. 4. Composite image illustrating the hikers' re-appropriation of public space.



Fig. 5. New recreational function of the pass area.

roadblocks, and not *up to* the gate. As a consequence, because of the possibility of access or rejection at the gate point, the gate was perceived as the beginning of a new attraction or the end (or transformation) of the planned travel. For those users rejected at the gate and unwilling to travel by bus there was a little chance to savour the new car-free atmosphere.

Finally, one of the most evident (and only partially addressed) challenges was related to road signs. Researchers observed that bus stops were hard to identify, that the information about schedules and prices was inhomogeneous and sometimes unclear across the two provinces involved. Overall, road signs aimed to communicate the initiative were problematic to read, because of the uncommon

challenge of explaining a complex message of a traffic management measure – and all its exceptional cases – using a standard (and multilingual) sign format.

Space of experience

Among the possible experiences, the most photographed were hiking experiences in nature, whereas the experiences on the road (journey experiences by bicycle, car and motorcycle) were perceived as less important. Gastronomic experiences were underreported in the analysis, probably because the gastronomic tours were created in the form of hiking tours between different mountain huts, and the visual material was collected while hiking along the trails, rather than when eating in the facilities. Several recreational experiences changed their importance or were newly discovered in the area during the road closure. The cultural events offered an unusual form of entertainment in a natural environment. The culinary events combined a hedonic experience of food tasting with a learning component on regional cuisine and products. The cycling climbs led by famous athletes introduced an additional layer of eudaimonia, i.e. a form of well-being related to an experience of fatigue and challenge. Finally, the hiking tours introduced geological aspects related to the rock formation of the Dolomites as a form of learning experience. The experience of visitors in transit by car changed in that they were forced to use public transport or reschedule their travel. Conversely, visitors who had already planned to access the pass area using cable cars or buses from the valleys were sometimes unaware of the existence of a road closure. In sum, the initiative added new layers to the existing forms of experience on site. Most were positive, but some forced unwanted behavioural change and possibly also a drop in visits.

These unique features of place were then reproduced on a perceptual map that helps identify the three spaces and their perceived location (Fig. 6).

Participatory design: engaging stakeholders for place design

Stakeholder engagement patterns during the planning phase were monitored using visual network analysis. The spatialisation of the 96 nodes and 1817 edges of the stakeholder network highlighted several features of the participatory dynamics in #Dolomitesvives planning. Overall, it should be noted that the 96 individuals involved in planning belonged to 36 different organisations: in addition to the two provinces, 11 municipalities, two provincial destination management organisations (tourism development agencies) and four local destination organisations (tourism boards) were involved, as well as two hiking associations, three hotel associations and two cable car businesses. The actor perspective was preferred to the organisational perspective in network visualisation to be able to highlight the multiple disciplinary experts involved within one same organization. Visually, the network seems to be quite dense, because several meetings involved a high number of participants, which resulted in a relatively high degree (=number of edges) per each node. Network metrics report a density of 0,398, that is 40% of all the possible ties are present. However centralization, measured using the graph diameter – i.e. the length of the shortest path between geodesics - is equal to 3. Considering the small scale of the network, 3 intermediary connections on average do not represent a very high integration level. On average, each node links to 38 other nodes in the network (average degree).

Heads of provincial offices and the project manager of the project attended the highest number of meetings, followed by

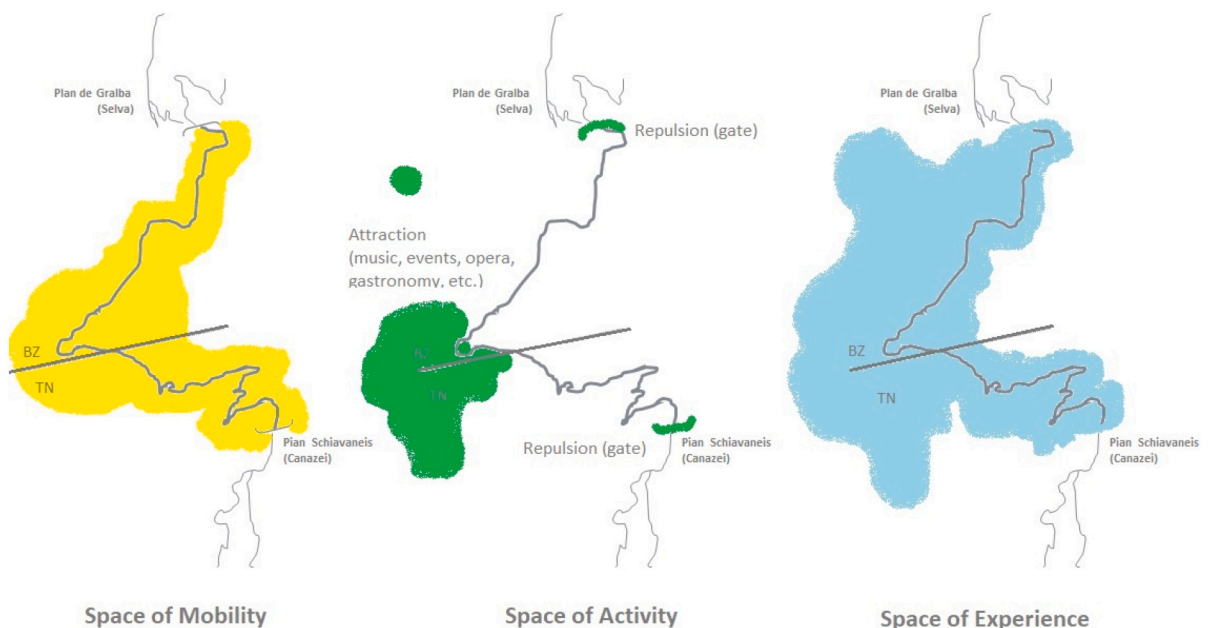


Fig. 6. Mental map resulting from participant observation.

municipality mayors and collaborators of local and regional organisations, as depicted in Fig. 7. The two municipality mayors of the local valleys show the highest betweenness centrality values in the network (284,3 and 269,8 respectively), working as brokers for the regional-local collaboration. The above mentioned local destination organisation director and the project manager of the initiative also showed high scores of betweenness centrality (respectively 269,6 and 226,1) and degree (76 and 77).

The presence of many representative organisations was motivated by the multi-level governance of the project (provincial and local), but also by its interregional nature (a condition that doubles the number of organisations involved). However, the nodes of the network seem to cluster around thematic issues (corresponding to the colours in Fig. 7), rather than around geographical areas of concern, which testifies to the strength of the interprovincial governance structure. A tourism cluster is visually recognisable at the bottom right of the network, involving both local and regional destination organisations as well as the world heritage site management institution. Additionally, a second cluster in the bottom left of the network is related to infrastructures and transport planning issues, and includes several offices of the two provinces involved, as well as a consultancy firm. These two thematic areas, tourism and infrastructure planning, reflect two sub-groups created along the participatory planning process— respectively – taking care of marketing and infrastructural issues. Running a modularity report on Gephi with a 1.0 resolution we obtain similar results: four communities, two of those are the one mentioned above. The third and the fourth community relate to minor players at provincial (top right) or local (top left) side of the network. While provincial players in this cluster are mostly members of the regional council, local players are not only mayors of involved municipalities, but also entrepreneurs, local cable car businesses owners, and representatives of the hospitality sector. These individuals and organisations actively participated in the early planning phase, but their participation decreased over time, with only a few representatives attending the meetings more than once. Some of them were businesses not in favour of the initiative that left the participatory design before implementation. Unfortunately, it was not possible to evaluate the reason for their drop out. However, what clearly stands out is that the private sector had a minor and decreasing role in the participatory planning process.

Finally, we address structural holes between clusters. A structural hole separates the infrastructure cluster from the tourism cluster, probably signifying that the internal meetings of subgroups were more frequent than the collective meetings, with sectoral thought prevailing on transdisciplinarity. Another structural hole separates the cluster related to the private sector and hotel associations, showing their limited participation. The central part of the network, and particularly the team around the project manager in charge of planning the whole initiative, seems quite dense and does not show any structural hole, signifying a regular and committed participation and, given the nature of the stakeholders, probably also a predominance of top-down dynamics.

Discussion and conclusion

The #Dolomitesvives is a unique example of a destination design intervention that highlights the potential of design science in supporting change, particularly towards more sustainable practices. Design with its heuristic approach injects creativity into practice and into science, and represents a powerful instrument to tackle sustainability-related paradoxes. Results of this study highlight the importance of place(-)making actions in destination design, the emergence of innovative practices on site and the potential for conflict resolution. In the #Dolomitesvives intervention, the *place(-)making actions* are both consciously taken by the organisers of the initiative and also (sometimes) unconsciously taken by visitors or players external to the case study field (e.g. the automobile industry). The monitoring and understanding of these actions during innovation processes enables the “subtle form of art” of placemaking, i.e. the ability to involve the perspective of users and their social needs in the design of a space (Al-Kodmany, 2020, pp. 66–67). Indeed, place (-)making actions design new functions of existing spaces, develop additional social interaction and ultimately create novel experiences. Examples thereof relate to the changing recreational functions of the pass road (used for hiking, for cycling events and for testing e-vehicles), the introduction of cultural and art expressions in natural environments (enabling a new land- and soundscape in the pass area), and the design of collective eudaimonic or learning initiatives (during hiking and culinary experiences) on site. Creativity and bisociative thinking emerges thereby as a common pattern in placemaking interventions by the organising group of stakeholders, but also in spontaneous place-making actions by visitors of the area, as a response to the radical decision to inhibit car access to a crowded road. These interventions recall phenomena of space appropriation (see e.g. Brown, 2015) and have the potential to support sustainability-oriented transformations.

Notwithstanding the disruptive force of creativity on site, or maybe because of it, place(-)making actions caused some rebound or unwanted effects on individuals and businesses. For instance, the tests of e-vehicles on site and the increased bus frequency caused potentially dangerous situations for cyclists, while the unpredictability of attendance at events caused uncertainty at a business level. Moreover, although the creativity of planners and visitors definitely shaped the final outcome, results show the difficulty of introducing a creative and transdisciplinary planning process – a critical issue that is reflected in the creation of sector-specific subgroups (tourism marketing and communication vs. road infrastructures) and in the poor participation of the private sector in the participatory design. Command and control steering mechanisms (the road closure) and clusters of actors (sub-groups) prevailed over co-designed and inclusive planning procedures. The governance system of the initiative seemed therefore to be steered by “traditional” forces (Pechlaner et al., 2012): the knowledge, money, and formal power of public bodies, rather than the trust and creativity of all players, including private entities. This rather top-down planning process probably inhibited the sensitivity of public bodies to collateral effects of road closure (e.g. decreases in turnover for local businesses, mobility gaps for some visitors), so that the critical “acceptance phase” of local stakeholders (Scuttari et al., 2016) towards the initiative was not overcome. Indeed, the initiative was replicated in 2018 with a revised traffic management design, but it was later abandoned because of its unpopularity.

Along with the managerial contribution of this research, theoretical and methodological issues should be highlighted. From an academic perspective, the #Dolomitesvives intervention represents a unique instrument to reflect on mode 2 knowledge production in

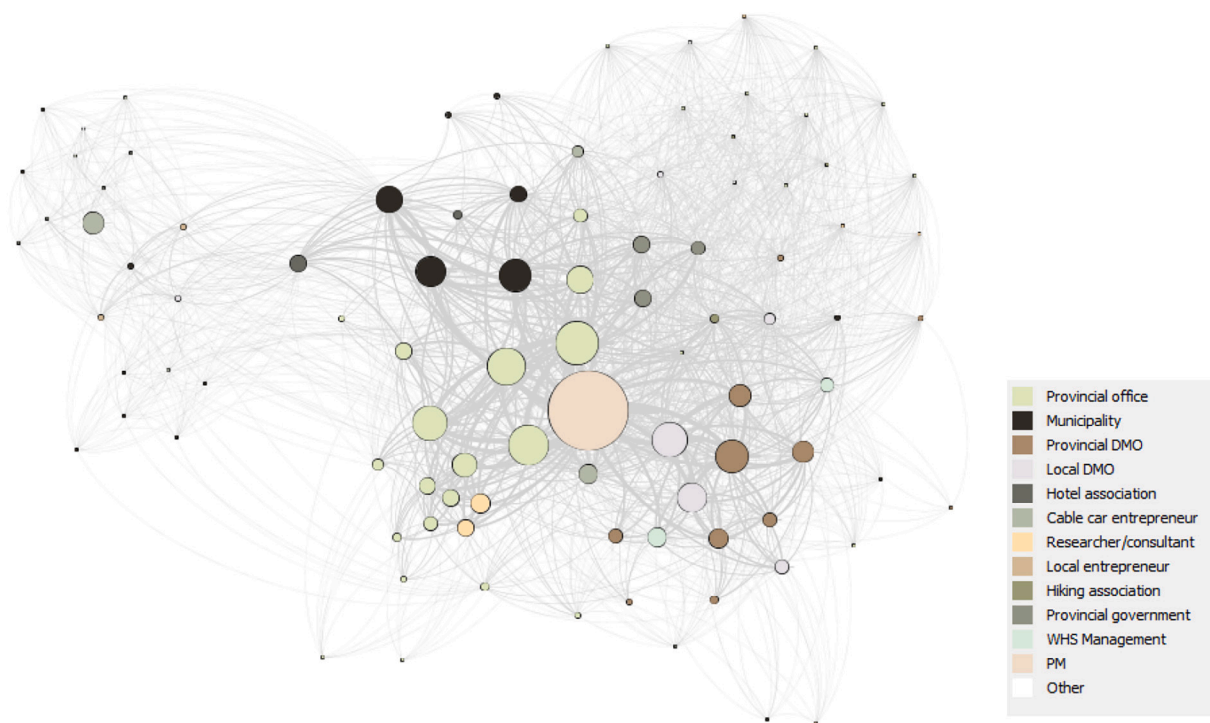


Fig. 7. Force-directed network graph of stakeholders participating in the planning process of #Dolomitesvives (nodes = 96; edges = 1817). Node dimension based upon participation frequency, Edge thickness based upon concurrent participation in planning sessions.

a context of sustainability-oriented innovation. Mode 2 science is based on the principle that new lines of intellectual endeavour are born in applied contexts, particularly when it comes to transdisciplinary research. *Wicked* problems (Balint et al., 2011) need to evolve into *shared* problems (Nowotny, 2003) thanks to a common understanding across disciplinary boundaries before they can be tackled and solved. The development of a common understanding of wicked problems is anchored in the empirical world, as a real-life setting works as a bridging instrument for disciplinary thoughts.

The destination design approach is heuristic in its nature: it enables the detection, description and support of creative and non-linear tourism planning, based on the study of objects, relationships and actors both in their spatial and relational context. Destination design also enables the creation, the analysis and the synthesis of disruptive transformations, as well as their systematic but creative monitoring. Disciplinary boundaries are blurred in destination design, since problems are tackled from a non-disciplinary perspective and solutions are sketched and prototyped at the interface of existing disciplines. Destination design acknowledges thereby that optimal solutions within a field of analysis (e.g. traffic management) need to be matched with effective strategies in other fields (e.g. tourism marketing) to achieve long-term success. It advocates for a transition from multidisciplinary towards transdisciplinarity in tourism research. In doing so, destination design affects not only scientific approaches to planning, but also research design methodologies and methods. As shown in this paper, methods are combined from the most diverse research fields (e.g. composite images, taken from media studies) and they converge into a calibrated mixed method strategy to assess the complexity of tourism planning problems. Notwithstanding the strength of its methodological innovation, destination design acknowledges its exploratory approach, as generalisability is not possible using single case studies. Further, it advocates for methodological cleanliness and transparency in data collection procedures, as they are crucial to pursue a minimisation of possible biases and a contextualised replicability. In sum, destination design sets the ground for theoretical and methodological transdisciplinarity in tourism science and practice.

Declaration of competing interest

None.

Acknowledgement

The authors would like to acknowledge the comments of the four anonymous reviewers and the support received from the #Dolomitesvives project team during the data collection phase (Anja Marcher, Gerhard Vanzi, Daria Habicher, Corinna Saeger, Giulia Isetti, Sebastian Ranigler) and from Vittoria Brolis and Camilla Valerio in the visual analysis. The data collection for this work was supported by the Autonomous Provinces of Bolzano and Trento.

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