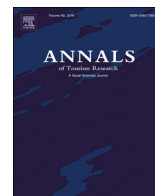


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Research note

Adaptive tourism areas in times of change

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Theories of complex adaptive systems (CAS) have been brought into tourism literature by a range of scholars (e.g. [Baggio, 2008](#); [Baggio, Scott, & Cooper, 2010](#); [Brouder & Eriksson, 2013](#); [Ma & Hassink, 2013](#); [Hartman, 2016](#); [Hartman, 2018a](#)). Whereas these theories are strongly embedded for instance in evolutionary biology ([Kauffman, 1993](#); [Walker et al., 2004](#)) and urban and regional planning and development ([Davoudi, 2012](#); [Sengupta et al., 2016](#); [Rauws, 2016](#)), it is not yet widely embraced in the field of tourism areas development and governance. Theories of CAS can help to further theorize the mechanisms at play regarding destination development in order to help tourism areas adapt in times of change. The capacity to adapt is a crucial property to develop as a means to survive and thrive in the context of continually changing circumstances e.g. related but not limited to (recent) phenomena such as overtourism, COVID-19 climate change, economic crises, and many other factors that put pressure on tourism areas. Adaptation can be understood the process of changing the structures and functions of systems as a means to respond to changing contexts and to maintain or improve the performance of these areas as competitive tourism areas ([Heylighen, 2001](#); [Hartman, 2016](#), p. 299). Theories of CAS can contribute to these debates by providing a systems perspective on tourism areas' development. In line, the theories help to draw attention to a set of characteristics of systems that has explanatory and analytical value in the context of dynamic tourism areas in times of change. This research note highlights how those characteristics can help to identify avenues for further research.

Tourism areas need the capacity to adapt to dynamic environments

Theories of CAS adopt a perspective of systems that are open and adaptive. Open means that systems are continually exposed to relatively autonomous pressures that stem from its dynamic environment. For tourism areas these pressures include natural disasters, global warming, economic crises, political transformations and more recently pressures related to phenomena such as overtourism and COVID-19 (cf. [Boschma, 2015](#)). Systems cope with and respond to pressure by means of adaptation. The process of adaptation is fueled by the choices and actions of individual and (semi-)interdependent agents. Through processes of adaptation and agents' interaction, small adjustments may lead over time to the creation of macroscopic structures that are conceptualized as *emergent*

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structures (Heylighen, 2001). Such processes are referred to as self-organization when no single agent in complete control. Nevertheless, emergent structures can subsequently organize, coordinate and also constrain the actions of individual agents.

This perspective draws attention to a first set of avenues for further research. First, how do the organizational and institutional structures in place support the adaptive and self-organizing behavior of agents that are crucial for system adaptation? Second, to what extent do agents exhibit adaptive behavior and what factors are enabling and constraining them in doing so? Third, following Rauws (2016), to what extent are structures constructed amongst individual actors (self-governance), designed in formal settings (hierarchical governance), or designed in co-creation (shared or co-governance)? Asking and answering these questions may help to better understand emergent phenomenon such as the sharing economy, how it is institutionalized via platforms (AirBnB) and causes changes in institutional structures and regulatory frameworks and subsequently affects the individuals that are at the core of the phenomenon – the individual inhabitant that rents out its property.

Tourism areas need to be ‘out-of-equilibrium’

Systems are always “out-of-equilibrium” (De Roo, 2012, p. 153), caught up in a continual process of adaptation to respond and anticipate to ongoing pressures (e.g. rise of sharing economy, climate change, overtourism, COVID-19 ‘corona virus’) that challenge a systems’ their structures, functions, identities and practices of agents within those systems. This means that the emergent structures of CAS are continuously produced, reproduced and adapted. Over time, development trajectories may potentially evolve nonlinearly, meaning that structures, functions and identities fundamentally differ to those of the past. In fact, systems *should* be out-of-equilibrium, processes of adaptation *should* take place, and emergent structures *should* be renegotiated and reorganized otherwise a system cannot respond and anticipate to pressures. Systems exhibit the maximum creativity to do so when they are *on the edge of order and chaos* (Waldrop, 1992), continually generating diversity to explore new and better situations (Heylighen, 2001; Mitleton-Kelly, 2003), which make systems robust as well as flexible *at the same time* (Hartman, 2018b). In tourism destinations, diversity in terms of supply helps to prevent collapses when particular products, businesses or organizations are replaced or disappear for instance due to bankruptcy. On the scale of a destination, diversity helps to cope with changes in the economy, in demand, in competitiveness, etc. Fostering a degree of diversity involves experimentation, room for innovations and provides a range of alternatives that make shifting development paths possible – a process that includes letting go of old situations that include vested interest, sunk costs and other path dependencies. A governance challenge is to prevent chaos as a result of too much diversity versus avoiding too little diversity that may hamper flexibility. Boundaries need to be set, based on visioning processes or strategic storytelling that help to identify situation to achieve and situation to avoid (Hartman et al., 2019).

These characteristics draw attention to a second set of avenues for further research. First, is there room in policy frameworks for the experimental, trial-and-error processes of adaptation by agents that deviate from past situation (e.g. sharing economy, new forms of electric mobility, tourism activities in protected areas)? Second, is there a fail-safe mentality based on stability and control or a safe-to-fail mentality based on dynamics and adjustment (Ahern, 2011)? How do institutional structures and policy frameworks enable adaptation and stimulate maximum creativity while also setting boundaries to avoid completely uncoordinated, chaotic situations? Third, how are institutional structures and policy frameworks renegotiated and reorganized in the context of emerging overtourism? These questions help to understand how the actions of (individual) agents that enable adaptive capacity of systems are stimulated and whether there is a capacity to reflexively reorganize systems’ structures to do so. This is helpful in the context of managing emergent issues and tensions that arise between the actions of (private) individuals and (public) collective interests.

Tourism areas need time to adapt

Third, a CAS perspective draws attention to the factor of time. It shows how adaptation, emergence of structures and its subsequent reorganization is a complex combinatorial process of seeking optimization (Kauffman & Weinberger, 1989). This concerns an endless process doing, achieving, failing, interacting, learning, adjusting and (self)organizing. It is a process that depends on the actions of often many agents and their interactions. It takes time for structures to emerge that can provide feedback loops (learning, adapting) and feed forward loops (predicting, planning) that may amplify or reinforce actions while dampen or suppress other actions (Heylighen et al., 2007). Such feedback mechanisms are important as individual agents and their adaptive behavior may explore options and perform actions that may fit individual goals but may be negative for the overall functioning of a system. In itself, these actions are crucial for systems as they provide essential learning moments that help bring systems forward. These characteristics draw attention to a third set of avenues for further research. First, is there room for experiments, regardless whether they turn out positive or negative over time, to create essential learning moments? Second, are feedback and feedforward mechanisms in place to help guide individual agents to contribute to common or collective goals? Third, whereas adaptation takes time, how much time is there to respond to certain pressures (e.g. overtourism, COVID-19 ‘corona virus’) and does that align with systems’ properties? These questions help to understand that learning is essential for adaptation but also that adaptation requires time. Although failures stimulate learning, failures are controversial. Although processes of adaptation take time, decision makers regarding tourism destination development may want to speed up processes of adaptation to re-balance situations.

Overall, exploring theories of CAS is useful to shift debates to adaptive thinking and could potentially result in an adaptive-evolutionary approach to tourism destination development and management. It offers a range of avenues to further address destination governance and contribute to destination development in the context of the structural dynamic nature of tourism destinations as well as emergent phenomenon such as overtourism and pressures such as the COVID-19 ‘corona virus’.

Declaration of competing interest

None.

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