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Enhancing responsible tourism by establishing 'smartness' at destinations

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Abstract

Tourism growth drives considerable shifts in environmental quality levels and natural resource exploitation patterns. This study aims to develop a theoretical perspective for the context and 'functionality' of 'smart' technologies that will remove the existing barriers of traditional tourism practices with new and modern alternatives to search, educate, and learn at destinations. At a time of an increasing interest in developing destinations, this proposal stresses the importance and contribution of integrating smart technology when planning and implementing tourism programs to conceptualize and contextualize sustainability in the real world and make tourism more responsible and sustainable. This perspective might cause positive practical implications to the broader community of the relevant tourism beneficiaries, namely visitors and satisfaction through tourism experience, private sector and economic benefits (gains) through entrepreneurship (investments), society and well-being through the provision of environmental benefits, public policy through legislation and regulations, and mainly host communities that accommodate all tourism ventures in their territory.

Keywords: 'Smart' technology; sustainability; tourism.

JEL Codes: Q50; Q56; Z32; O00.

1. Introduction

It is widely known that the tourism sector remains one of the most challenging and demanding fields for conducting scientific research since its theoretical and practical implications have shown that it deeply affects the environment, economy, and society to a great extent and on different scales. It is then evident that sustainability issues should be seriously considered when tourism stakeholders form plans and work processes in the name of development, growth, and progress.

Nowadays, all efforts are focused on putting into practice viable tourism programs that act in favor of experiencing a state that ensures the well-being of all living (biodiversity) and non-living (geodiversity) things. Interestingly, these issues demand responsibility and require ‘smart’ ways of thinking and acting, processing and progressing at destinations. But what is the nature and content of responsible tourism, and how can ‘smartness’ at destinations help achieve equilibrium within the concepts of good ecological status and environmental goods and services, supply and demand perspective, business investments, and destination’s visitation rates in a responsible manner?

This study aims to structure a theoretical approach to foster and support a balance between environmental sustainability, economic development, and social growth by using technology and innovations when exploiting natural resources at destinations.

2. Responsible tourism

The concept of responsible tourism was defined in the World Summit on Sustainable Development at Cape Town in 2012. This concept includes the efforts to improve places in two ways: (i) to live and (ii) to visit.

In essence, all tourism stakeholders must take responsibility and action in light of offering advanced tourism experiences at destinations that thrive for sustainability, environmental justice, and social benefits. And this is a huge and outstanding responsibility for all parts of the tourism system. A responsibility to take action and restore dysfunctions that limit environmental performance and discrepancies owed to easy-to-fix solutions, battle delays and time-consuming processes that set barriers to systems viability and productivity, secure integrity and resilience of ecosystems, and structure approaches that are based on scientific evidence, and characterized by integrity, completeness, comprehensiveness, applicability, and coherence.

On the same wavelength, AITR (2005) argues that responsible tourism meets all justice principles regarding society and the economy, whereas it concerns environment-related issues and cultural topics. The concept of responsible tourism widely acknowledges the crucial role of the host society in achieving sustainable results. This ‘type’ of tourism facilitates the relationship across all core stakeholders, namely local society, visitors, and the tourism market. As a result, responsible tourism could and should be applied in the natural environment, socio-cultural environment, and economy.

Responsible tourism aims to eliminate negative environmental, economic, and social impacts that emerge from potential unstructured policies. At the same time, responsible tourism acts in favor of generating greater benefits for everyone by making positive contributions and offering inputs and insights on development-oriented decision-making processes. These decisions are profoundly associated with environmental biodiversity, geodiversity (conservation and geoheritage), cultural heritage and traditions, social bonds, and cohesion. Not to mention the necessity of communicating and promoting such a concept to visitors and the host community

regarding guiding principles for fostering economic, social, and environmental responsibility.

Therefore, at the World Summit on Sustainable Development held in Cape Town in 2012, one of the most communicated economic responsibilities was the ability to maximize economic benefits for local communities as a function of increasing linkages and reducing leakages based on the active participation and involvement of local population in practicing tourism products. Moreover, major environmental responsibility remains the assessment of environmental impacts throughout the life cycle of accomplishments within the tourism sector in a timely manner (efficiently, effectively), while great importance should be placed on putting into place plans that have taken into consideration host communities' opinions and decisions concerning its place (territory), heritage, culture, and proposals for improvement (e.g., education, health conditions, development, quality of life)

It would be wise to mention that when we refer to responsible tourism, we deeply recognize the big challenge of reducing inequalities (establish balances) and poverty issues (alleviate poverty) at all destinations in global terms by communicating and sharing our commitment to creating responsible ways of visiting and making business in vulnerable places and ecosystems. To this effort, benchmarking studies, adoption of appropriate and suitable for the case key performance indicators to identify gaps, and establishing continuous improvement processes are deemed crucial. But above all, education and knowledge, learning and training are highly valued when 'consuming' natural resources or tourism products, developing or experiencing visitors' preferences, or depicting travel behavior at destinations.

3. Smart tourism

Natural ecosystems provide services that directly or indirectly support the quality of life and well-being of humans and society, namely, regulating, provisioning, cultural, and supporting services. Thus, ecosystem services are the benefits people obtain from ecosystems (Millennium Ecosystem Assessment 2005).

In this perspective, new trends and technologies that advance connections and links between benefits sought and environmental knowledge with society and the tourism economy fairly gain the interest of new researchers. Given this dynamic perspective of cutting-edge technologies, mobile applications hold significant potential for advancing resource sustainability and economic potential in increasing tourism demand. Debnath et al. (2014) describe the capabilities of a smart system as involving the basic functions of sensing, processing, controlling, and communicating and the advanced levels of predicting, healing, and preventing. In this perspective, it is defined as an ICT-integrated tourism platform, which integrates tourism sources and ICT, such as artificial intelligence, cloud computing, and Internet of Things (IoT), to provide explicit information and satisfactory services to tourists based on the development of innovative mobile communication technology (Zhang et al., 2012).

Analyzing “big data” can exact new insights that affect markets, organizations, and even relationships between citizens and governments (Mayer-Schonberger & Cukier, 2013; Halkos and Paizanos, 2017). The applications of cloud service, the Internet of Things (IoT), and the contacts with tourists through the Internet could produce a “big data” database covering information relating to business transactions, tourism attractions, and tourists' behavior (Wang et al., 2013). This is because the environment in which business entities operate, i.e., in and through which they produce, exchange, and consume value, rapidly changes and requires their

relationships to co-evolve (Gretzel et al., 2015). From a technical point of view, the ecosystem metaphor has been used to describe the so-called digital ecosystems, which are characterized by open, flexible, demand-driven, interactive networked architecture and collaborative environments (Boley & Chang, 2007).

Supportively, smart specialization should focus its interest on areas that are characterized by great potentiality and capacity, such as the environment and tourism. Tourism concepts (e.g., destinations identity and branding, diversification and competitiveness) allow for searching and hunting for funding support and investment opportunities in key regional practices, modern needs and challenges, technologies, and innovations for knowledge-based development. They deeply encourage technical and practice-based innovation and experimentation in light of facilitating local/regional sustainable entrepreneurship in the long run.

For instance, by its definition and content given by European Community, Research and Innovation Strategies for *Smart* Specialization Investment Opportunities (RSI3) have been designed to set priorities based on a bottom-up entrepreneurial discovery process supported by strategic intelligence about a region's assets (including universities, research institutes, science, technology, skills, human capital), its challenges (including environmental aspects, market labor mismatches), competitive advantages and potential for excellence (including foresight and trend analyses, technology mapping, entrepreneurial knowledge of market). To make things better, RIS3 supports thematic concentration and reinforces strategic programming and performance orientation.

Last but not least, the main concern for any attempt, outcome, or achievement remains the goal of balancing environmental, economic, and social impacts concerning the limits set by natural dynamics and our vision of avoiding the 'tragedy

of the commons.’ All efforts favor a smart, sustainable, and wide-ranging economy, which in turn will deliver high levels of employment, productivity, and social cohesion.

4. Linking ‘smartness’ with responsibility

Nature is one of the most complicated systems experienced so far, and it certainly deserves respect and appreciation from all users at any level and scale to continue to give generously. One of the most popular sectors that take advantage of the natural environment is the tourism industry. Tourism is recognized as a rapidly growing industry that mostly interrelates visitors (individuals who have preferences, make decisions, and demonstrate environmental behaviour), society (host communities that seek for social integrity and cohesion within a clean and safe natural environment), ecosystems (supply goods and services, supports all living and non-living things), economy (makes demand forecasts, calculates revenues, implements cost-benefit analysis, measures the social return on investment) and technology (offers accessibility to a wide range of information). Halkos & Ekonomou (2023) examined how business and leisure tourism spending interrelate to lower environmental degradation levels, indicating that ‘spending in tourism should be characterized by responsible patterns.

Smart tourism is a modern concept that brings ‘smartness’ into tourism management, which in turn is deeply associated with destination branding, identity, and personality no matter the area of interest (e.g., a beach, a city, or a tourism attraction); establishes ‘smartness’ in decision-making process, especially when we plan customer-driven tourism products; integrates ‘smartness’ in business ecosystems and accomplishments as a means of communicating and promoting competitive

advantages and technologically advanced services (intangible) to make matters much easier, simpler and safer rather than complicated, vague or misleading (Figure 1).

Conscious of the importance of preserving natural resources, responsible tourism promotes sustainability at destinations. For instance, Ekonomou and Halkos (2024) evidenced that tourism growth can drive environmental improvements in the Euro zone economic space. Responsible tourism advances enjoyable experiences by deeply understanding environmental, social, and economic issues. Nowadays, there is an imperative need to thoroughly communicate the benefits and impacts of such endeavours to add value to our efforts to reboot the economy and combat financial crises starting from local communities and regional levels.

Therefore, we attach great importance to establishing synergies between marine conservation policies and tourism entrepreneurship supported by technical initiatives and innovations (Table 1). Innovations in technology allow for scientific interdisciplinary reflection. Its relation with different users' abilities and its impacts on society makes it a valuable space for attaining learning and educating goals, understanding and analyzing, and creating and transmitting environmental messages, alerts, and/or tips. For instance, mobile learning stimulates visitors' interest in actively participating in 'green' or 'blue' ventures and being consistent with natural laws and sustainable practices that safeguard their enjoyment and unique tourism experience in a safe and clean environment.

This is an issue that responsible tourism so loudly brings to our agenda. In addition, mobile learning gives users volition and willingness to learn without being forced to do so. Such a form of learning helps foster a status of intrinsic motivation, which in turn explains a unique disposition to pro-environmental behavior and ecological attitude. Understandingly, individuals (e.g., visitors) demonstrated

behavior and attitudes at destinations widely depend on values, beliefs, conclusions, and assumptions that visitors carry or draw throughout their life cycle. This is where the issue of mental models interrelates to behavior and an individual’s decision-making process (e.g., travel behavior, visitors’ attitude at destinations). Why and where do people travel? What motivates people to visit a destination? What do people prefer to do at their destinations?

Table 1: Environmental, economic, and social impacts derived from the smart use of technology in the tourism system.

‘Smart’ Technology		
<i>Anticipated impacts (outcomes) through its integration and enhancement as learning and usable tool in promoting, advertising, communicating, and marketing eco-friendly tourism programs</i>		
Environmental	Economic	Social
Through the diffusion of scientific knowledge <ul style="list-style-type: none"> • Biodiversity conservation - habitats • Wise use of natural resources (integrity & resilience) • Preservation and good ecological status, including beaches, shoreline, and relevant geodiversity 	Through motivation for active participation and involvement <ul style="list-style-type: none"> • Stronger local economy • Investment opportunities • Indirect profits to related business 	Through direct or indirect effects in host/local/regional communities <ul style="list-style-type: none"> • Reduced unemployment • Additional source of income • Alleviate poverty • Conservation issues (local/regional heritage, culture, traditions)

Senge (2005) asserts that mental models shape the way we act and defines them from a cognitive point of view as the semi-permanent tacit “maps” of the world that people hold in their long-term memory and the short-term perceptions that people build up as part of their everyday reasoning processes. Then, if we wish to integrate

technology and innovations in learning (e.g., environmental learning at destinations through smart machines or mobile applications given, acting in enjoyable but responsible manners), we should pay serious attention to understanding how an individual builds their mental model (e.g. based on reflections and inquiries) and try to transmit messages or provide inputs about changing a bad attitude and/or promoting a new responsible behavior. If people build creative mental models, they can make intelligent decisions powered by consistent reasoning and effective thinking. They help us think properly and appropriately and guide our perceptions and, behavior, thoughts, and actions.

Developing a systems model that incorporates and reflects the different mental models of stakeholders will not only develop a shared understanding of the system but also assist in defining the root causes of complex problems rather than merely treating the symptoms (Van Mai & Maani, 2011). Moreover, the roles of motivations in the tourism industry and the type of destination characteristics that catch visitors' interest are fundamental. Beerli and Martin (2004) clearly state that motivations mirror the needs that drive an individual to act in a certain way to achieve the desired satisfaction. It is the driving force behind all this behaviour and occurs when an individual wishes to satisfy his/her own needs (Goossens, 2000; Fodness, 1994).

Furthermore, it would be beneficial to reveal the features that affect the visitors' preferences and decode the respective patterns and/or interrelations into applicable modern practices that match and allow for tourism accomplishments (Figure 2). Yet, this concern does not seem to reflect significant progress in terms of sustainability and efficient resource allocation to achieve the most wanted equilibrium within the socio-economic system, technology advances, and nature dynamics.

The issue here lies in decoding all inputs gathered from visitors' mental model analyses and relevant research and translating them into useful insights for advancing responsible tourism by using 'smart' and intelligent convincing ways to form pro-environmental behaviour at destinations. 'Smart' technologies can facilitate interactions among ecosystem players, increase access to visitors/users, and thoroughly incorporate environmental aspects. They provide a convenient digital space for environmental learning and a delivery method for obtainable data.

The general public and visitors, in particular, are often influenced by innovative technologies that may serve as an incentive to join and learn from targeted tourism activities. They support awareness and maximize opportunities for participating in joint and integrated efforts. They help visitors build creative mental models. Not to mention the interconnectedness of mental models to overall user interface experience and user interface design when developing smart applications and relevant innovations. System designers aim to develop an interface that allows visitors to form reasonable ways of acting and thinking about what the user (visitor) believes about the system.

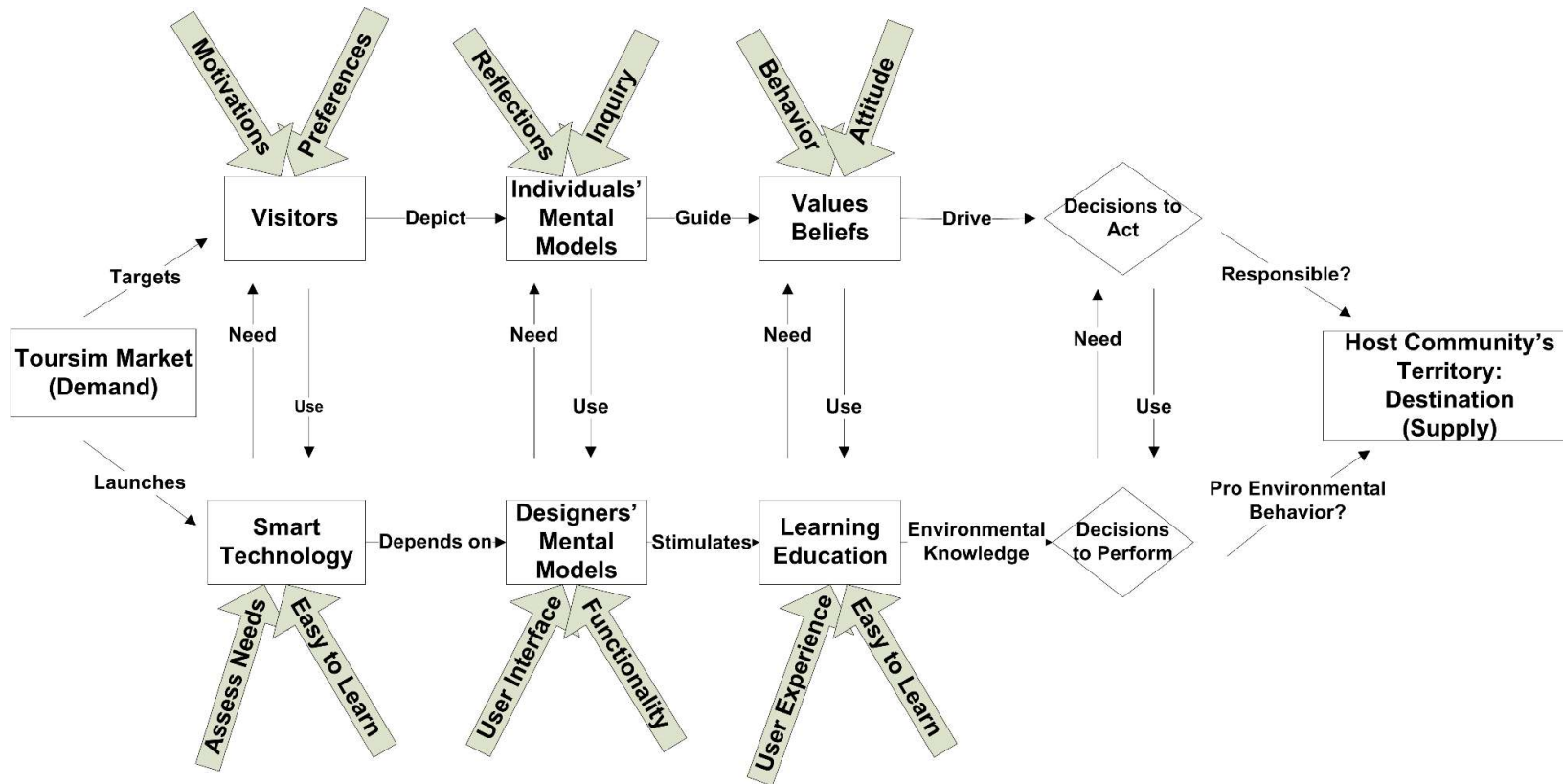
Hence, there are challenges to keeping up our competitive edge with trending and innovative issues and embedding the dynamic growth of 'smart' technologies in research and development processes, and gaining even more from extending its applicability because of achieving the everlasting goal of sustainable development within responsible tourism systems.

5. Conclusion

We are witnessing changes in our natural environment. Also, there is a debate on addressing environmental problems, decreasing environmental pressures, mitigating environmental risks, identifying barriers to impeding progress and business investment, and decoding environmental limits that restrict growth.

This study provided a theoretical perspective of how technology can help achieve balance among tourism stakeholders, environmental systems, and society at destinations in ‘smart’ and responsible modes. It is a great challenge to integrate the multifaceted character of technologies and innovation in the role of the technological agent to form pro-environmental behavior and bring positive impacts to all relevant beneficiaries. The future will undoubtedly see a growing role for technologies that make eco-friendly tourism activities seem more responsible, accessible, attractive, and visible.

Interestingly, the concept of responsible tourism and ‘smart’ destinations find a place for further development through integrated and holistic approaches and enhancement of special forms of tourism.



**Integrating 'smartness' for establishing
responsibility at destinations**

Figure 1: Interrelations and sequence of events for balancing tourism and resource consumption responsibly via 'smart' technology.

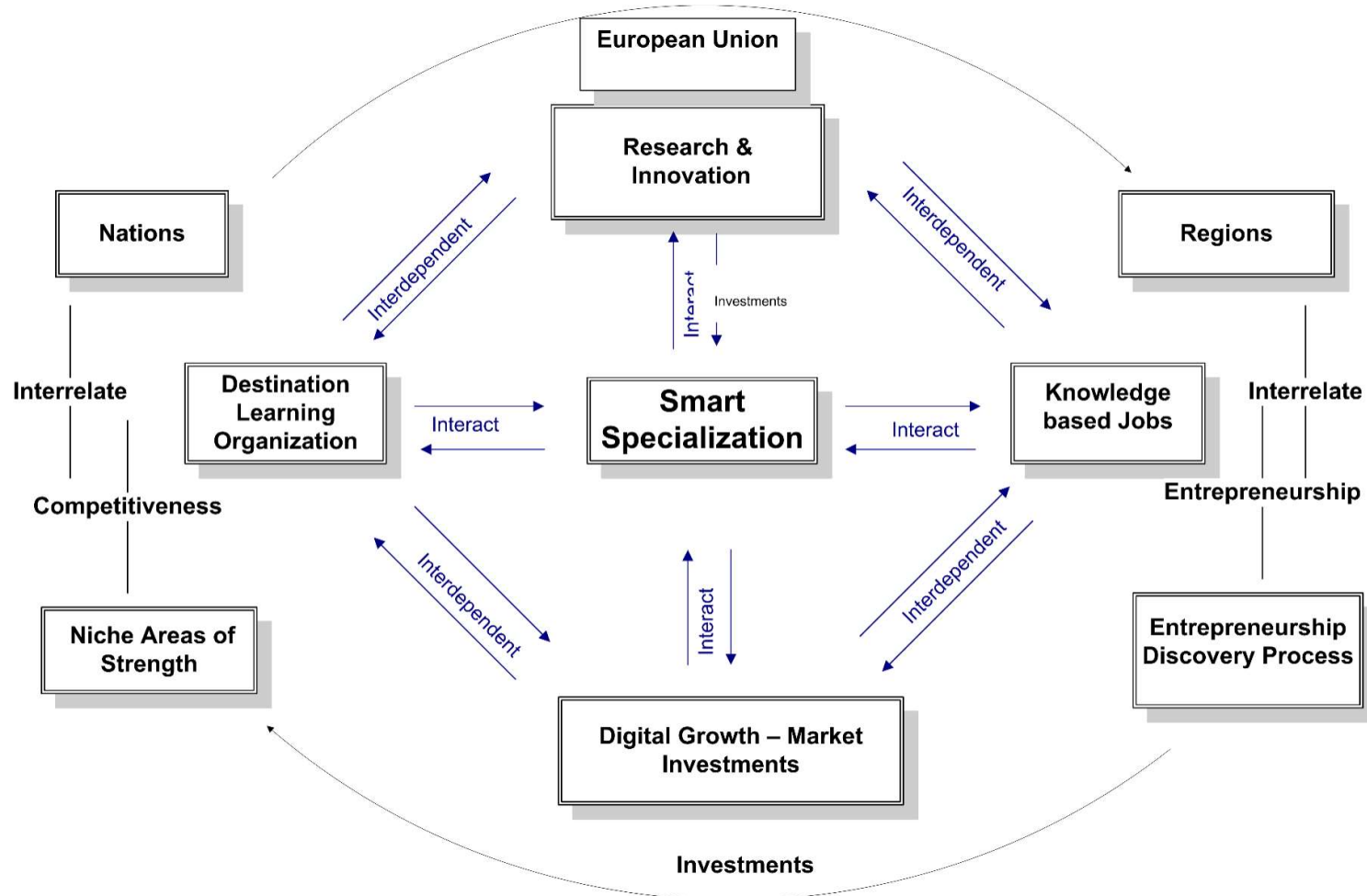


Figure 2: Graphical representation of steps and components to embed “smartness” and specialization in the tourism system.

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