Human capital and smart tourism's development: primary evidence

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Abstract: This paper provides a structured literature review (SLR) on human capital development for sustainable smart tourism, showing the need for specialised human resources and their role to develop and improve a tourist destination. Using Scopus to find documents published from 2000 to 2020, containing selected search terms, a longitudinal study was developed. The main findings show how human capital should be developed and improved to develop sustainable smart tourism, with a positive impact on the overall economic growth of a country or a destination. Additionally, this paper is based on a critical perspective to examine the current literature and explore future research agendas.

Keywords: human capital; tourism; technology; sustainability; development.

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1 Introduction

Information and communication technologies (ICT) have radically changed the tourism industry, improving its potential for cooperation and interactivity (Romão and Nijkamp, 2019). The tourism industry has proactively adopted new technologies (OECD, 2005) that allow a better understanding of tourists' needs and motivations, fostering the reach of specific targets (Neuts et al., 2013). Thus, new technologies and ICT can be regarded as a strong driving force for changes (Sevrani and Elmazi, 2008; Lombardi et al., 2020a, 2020b).

> "Inevitably smart environments transform industry structures, processes and practices, having disruptive impacts for service innovation, strategy, management, marketing and competitiveness of everybody involved." (Buhalis, 2019)

These innovative tourism ecosystems are characterised by value co-creation between tourists and firms (Prahalad and Ramaswamy, 2004; Buhalis, 2019), gaining a relevant competitive advantage (Nam et al., 2011). Additionally, trust, relationship commitment and social interaction ties are regarded as three essential value drivers for hospitality firms (Cohen et al., 2014; Kallmuenzer et al., 2020).

In the current scenario also sustainability is a new source of competitiveness and contributes to the increase in business performances (Hall and Wagner, 2012). Tourism

development following sustainability rules leads to long-term success and, in 2015, the World Economic Forum highlighted the relevance of sustainability in tourism, particularly for the development and competitiveness of a destination (Crotti and Misrahi, 2015; Iunius et al., 2015). Additionally, a successful destination should provide a high quality offer and improve all stakeholders' conditions, including those of the local community (Iunius et al., 2015).

Thus, the tourism sector is characterised by smartness and sustainability and its development and innovation are fostered by human capital (De Clercq and Dakhli, 2003). The use of new technologies and the offer of new services based on tourists' needs are implemented only through specialised employees (Rastrollo-Horrillo and Rivero Díaz, 2019). Countries should improve their human resources through education and training to get as many benefits as possible from tourism (Chingarande and Saayman, 2018).

The purpose of this paper is to review the impact of human capital development on sustainable smart tourism. We developed a structured literature review (SLR) (Tranfield et al., 2003; Kraus et al., 2020), using Scopus as the leading source to find documents, analysed through the 'article title, abstract, keywords' containing selected search terms. Particularly, we developed a longitudinal study, analysing existing literature from 2000 to 2020.

Our review emphasises the essential role of human capital in sustainable smart tourism development. This statement is strengthened by a cluster analysis where human capital, innovation and tourism development are strictly connected. Thus, our key findings aim to shed light on existing literature, providing an interesting and critical overview of the current state of the art. Results of this paper can be used by the academic community, policy-makers and practitioners as theoretical and practical advances supporting the development of both human capital and sustainable smart tourism.

The remainder of the paper is structured as follows: Section 2 introduces the theoretical background, Section 3 provides the research methodology and Section 4 presents results. Lastly, Section 5 outlines the discussion, conclusions and future research agenda.

2 Theoretical background

The hospitality industry is characterised by a relevant presence of small and medium-sized enterprises (SMEs) (Peters et al., 2019) and family firms (Getz and Carlsen, 2005). Firms' growth has historically relied on satisfaction with financial endowment, sound political/economic conditions, familial embeddedness and own health (Weiermair and Peters, 2012; Peters and Schuckert, 2014; Peters et al., 2019). Additionally, according to Peters et al. (2019), hospitality entrepreneurs' quality of life (HE-QoL) is based on the following six dimensions:

1 physical wellbeing

2 material wellbeing

3 social wellbeing

4 mental wellbeing

5 regional wellbeing

6 civilian wellbeing.

Smart technologies have been radically changing the tourism industry, opening a new era for this sector (Koo et al., 2015; Herdin and Egger, 2018; Lombardi et al., 2020a, 2020b; Schimperna et al., 2020). "The concept of "smartness" refers to the integration of network of organizations and smart features that engage in interoperable and interconnect systems to simplify and automate daily activities and do add value throughout the ecosystem for all stakeholders" (Buhalis and Amaranggana, 2015; Leonidis et al., 2013; Buhalis and Leung, 2018). Interconnectivity and interoperability of integrated technologies are key factors of smartness and data and processes reengineering allows the production of innovative services, goods and procedures, leading to stakeholder value maximisation (Buhalis, 2019).

Big data, open data, sensors, new ways of connectivity and exchange of information, as Internet of Things (IoT), fuel the smart dimension of the tourism industry, fostering technological, economic and social development (Gretzel et al., 2015). Particularly, among these technologies, big data are useful for "predicting tourist demand, enabling better decision making, managing knowledge flows and interaction with customers, and providing the best service in a more efficient and effective way" (Ardito et al., 2019). Thus, managing big data and other smart technologies brigs positive effects, as the improvement of the decision-making process, production, efficiency and customer satisfaction, the development of personalised marketing offerings and the creation of a smart tourism ecosystem (Buhalis and Amaranggana, 2015; Del Vecchio et al., 2018; Ardito et al., 2019). Additionally, the emerging concept of 'ambient intelligence (AmI) tourism' will be driven by a wide range of additional disruptive technologies: analytical capabilities supported by artificial intelligence (AI) and machine learning (ML), pervasive computing, the internet of everything, radio frequency identification (RFID), fifth-generation mobile network (5G), wearable smartphones, mobile devices, Blockchain, sensor and beacon networks, 3D printing, apps and gamification (Tussyadiah et al., 2018; Buhalis, 2019; Buhalis et al., 2019).

In the current dynamic context, companies and operators involved in the tourism industry are helped in understanding stakeholders' needs, achieving a relevant source of competitive advantage for the tourism destination (Shams and Lombardi, 2016). According to Del Vecchio et al. (2018), a smart tourism destination should "enhance tourism experience maximizing both destination competitiveness and consumers' satisfaction with attention to sustainability over an extended period". Particularly, sustainability has recently become a key element for tourism development and it refers to "the environmental, economic, and socio-cultural aspects of tourism development and a suitable balance must be established between these three dimensions to guarantee its long-term sustainability" (UNWTO, 2005).

In this scenario, a new kind of tourism emerged, characterised by smartness and sustainability – sustainable smart tourism – and human capital is an essential tool for its development. Several studies described human capital, as well as external (relational) capital and internal (structural) capital, as a component of intellectual capital (IC) (Stewart, 1997; Roos et al., 1997; Sveiby, 1997; Edvinsson and Malone, 1997; Petty and Guthrie, 2000; Cuozzo et al., 2017). Particularly, IC is a current and potential source for wealth creation of a Nation, including the hidden values of individuals, communities, regions, institutions and enterprises (Edvinsson and Stenfelt, 1999).

Guthrie and Petty (2000) analysed human capital, finding the following employee competencies:

1 know-how

2 education

3 vocational qualification

4 work-related knowledge

5 work-related competencies

6 entrepreneurial spirit

7 innovativeness, proactive and reactive abilities

8 changeability.

Internet of things, big data, artificial intelligence, cloud technology, mobile technologies and robotics are creating a new disruptive business that needs specific competencies (Sousa and Rocha, 2019). In order to manage these new technologies, human resources have to developed and improve the following skills:

1 innovation skills

2 leadership skills

3 management skills (Sousa and Rocha, 2019).

Starting from this theoretical background, our research question is the following:

- RQ: How is human capital in sustainable smart tourism literature developed in the field of business, management and accounting?

3 Research method

This SLR investigates how human capital development affects sustainable smart tourism. First, we fixed our research protocol and criteria for the development of the SLR (Tranfield et al., 2003; Petticrew and Roberts, 2006; Kraus et al., 2020). Then we followed the summary by Secundo et al. (2020) to determine the analytical framework of the analysis. Particularly, we considered the following items:

a publications' timing

b geographical distribution of articles

c articles' citations and connected journals

d emerging keywords and topics.

Lastly, we identified possible future researches.

The first step to create strong theoretical support was the analysis of several documents. In this SLR we provided a longitudinal study of documents from 2000 to 2020 and the query was based on the following keywords: ((‘human capital’ or ‘intangible capital’ or ‘intangible asset*’) and (‘tourism’) and (‘technolog*’ or ‘smart’ or

'digital')). Additionally, we paid attention to avoid the highest number of false positives and negatives (Petticrew and Roberts, 2006).

We used Scopus to find the documents and we analysed them through the 'article title, abstract, keywords' containing selected search terms and adopting as connection 'AND' or 'OR' as connections. From the first stream of search 65 documents emerged. Then we limited the investigation field to the business, management and accounting area and we selected only research articles, strengthening our SLR by avoiding the so-called 'grey analysis' (Kraus et al., 2020). Lastly, we cut off no English-language documents.

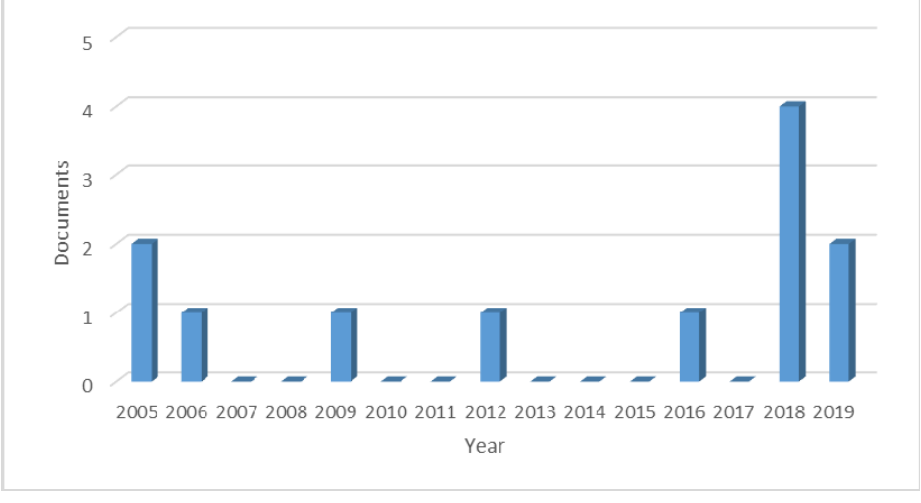
Thus, we obtained 25 research articles. Then, we verified the connection between these documents and our research aim through the screening of titles and abstracts. The final result is based on the 12 research articles mainly focused on the aim of this SLR. Appendix shows the full list of these research articles.

A low number of documents (12 articles) suggests the presence of an immature field (Kraus et al., 2020). This SLR provides background about smart tourism and its connection with human capital, analysing the state of the art and interesting insights (Kraus et al. 2020). We also developed the bibliometric analysis, based on content analysis and keywords (Secundo et al., 2020). Particularly, we provided bibliometric measures through VOSviewer software (Van Eck and Waltman, 2017).

4 Results

Our first stream of analysis is based on the distribution of our dataset during the time and among countries. Particularly, we analysed the number of published research articles from 2000 to 2020. The year of publication trend is very irregular, because there is a constant alternation of years with and without publications. Thanks to its four articles, 2018 is the year that most contributed to this SLR. Figure 1 shows this publishing trend.

Figure 1 Publishing trend (see online version for colours)



Source: Our elaboration on Scopus data

Focusing on documents by country, Spain has the highest number of research articles (3), followed by Australia and the UK (2). Analysing citations per country in the timeline analysed, we found that the previous three countries are again the most important (Table 1). In this scenario, research articles from Spain got 186 citations, research articles from the UK 122 and research articles from Australia 36.

Table 1 Top three countries (citation)

Country	*No. of papers*	*No. of citations*
Spain	3	186
United Kingdom	2	122
Australia	2	36

Source: Our elaboration

According to previous evidence, Spain, the UK and Australia are the leading countries for this SLR. Additionally, the number of citations per journal (top three) is distributed as follows:

1 *Tourism Management* (217 citations; 2 articles)

2 *International Journal of Tourism Cities* (97 citations; 1 article)

3 *International Journal of Human Resource Management* (25 citations; 1 article).

Even if Business, Management and Accounting is the main journal sector, we found the co-presence of the following sectors:

1 *Social Sciences*

2 *Environmental Science*

3 *Computer Science*

4 *Energy*.

Other interesting measures are the citation index (CI) and the citations per year (CPY), shown by Table 2, highlighting the top six cited articles.

Table 2 Top six cited articles

Authors	*Title*	*Citations*	*CPY*	*Source*	*Country*
Orfila-Sintes et al. (2005)	Innovation activity in the hotel industry: Evidence from Balearic Islands	184	11, 5	*Tourism Management*, Vol. 26, No. 6, pp.851–865	Spain
Boes et al. (2016).	Smart tourism destinations: ecosystems for tourism destination competitiveness	97	19, 4	*International Journal of Tourism Cities*, Vol. 2, No. 2, pp.108–124	UK
Divisekera and Nguyen (2018b)	Determinants of innovation in tourism evidence from Australia	33	11	*Tourism Management*, Vol. 67, pp.157–167	Australia

Source: Our elaboration

Table 2 Top six cited articles

Authors	*Title*	*Citations*	*CPY*	*Source*	*Country*
Georgiadis and Pitelis (2012)	Human resources and SME performance in services: Empirical evidence from the UK	25	2, 78	*The International Journal of Human Resource Management*, Vol. 23, No. 4, pp.808–825	UK
Adam and Urquhart (2009)	No man is an island: Social and human capital in IT capacity building in the Maldives	24	2	*Information and Organization* Vol. 19, No. 1, pp.1–21	New Zealand
Weiermair (2006)	Prospects for innovation in tourism: Analyzing the innovation potential throughout the tourism value chain	24	1, 6	*Journal of Quality Assurance in Hospitality & Tourism*, Vol. 6, Nos. 3–4, pp.59–72	Austria

Source: Our elaboration

Thus, the most cited research article is by Orfila-Sintes et al. (184 citations), while the work by Boes et al. has the highest CPY value (19, 4). These six articles come from different countries and only two from the same (UK). Additionally, as shown by Figure 1, during the years the overall number of publications has been growing up, thus starting from 2006 there has been a consequent increase in citations, as shown by Table 3, except for 2017 and 2020 (year not ended at the time of the drafting).

Table 3 Citations per years

Year	*Number of research articles cited*	*Citations*
2006	1	2
2007	1	6
2008	2	9
2009	1	12
2010	2	12
2011	2	14
2012	3	16
2013	3	19
2014	4	23
2015	4	22
2016	5	36
2017	5	28
2018	8	60
2019	10	112
2020	9	37
Total	60	408

Source: Our elaboration

To identify the most relevant keywords in the 12 research articles analyzed, we carried out the occurrence analysis. We put the most relevant all keywords (with two as the minimum number of occurrences) in Table 4. However, human capital, tourism and innovation are essential words for the aim of this SLR.

Table 4 All keywords' occurrence

Keywords	*Occurrence*
Human capital	4
Tourism	4
Innovation	3
Tourism economics	2
Tourism development	2
Tourist destination	2
Intellectual capital	2
Social capital	2
Europe	2
Australia	2

Source: Our elaboration

Focusing on the authors' keywords analysis through the occurrence, we found three main clusters: cluster 1 is composed of human capital and social capital; cluster 2 is composed of intellectual capital and tourism; cluster 3 is composed of innovation (Figure 2).

Figure 2 Authors' keywords occurrence (see online version for colours)

Source: VOSviewer

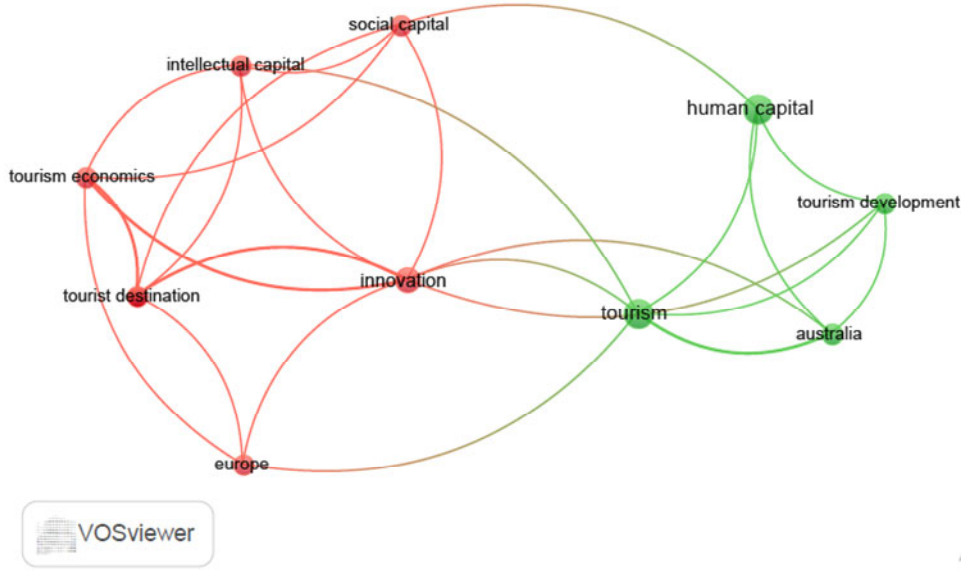
We also provided an analysis of all keywords clusters through the co-occurrence, choosing the full counting method and selecting 2 as the minimum number of occurrences of a keyword. Then we deleted useless keywords. The result is shown by Figure 3.

We identify two clusters, among which cluster 1 is composed of six words and it is shown by the red colour, while cluster 2 is composed of 4 words and it is shown by the green colour. Particularly, cluster 1 includes the following words: innovation, intellectual capital, social capital, tourism economics, tourist destination and Europe; cluster 2:

human capital, tourism, tourism development and Australia. Table 5 summarises these findings.

Interestingly, through each cluster emerged the strong connection between intellectual capital (or human capital, one of its components) and tourism, especially in terms of innovation or development.

Figure 3 All keywords' occurrence (see online version for colours)



Source: VOSviewer

Table 5 Groups of keywords occurrence

	Keywords	*Occurrences*
Cluster 1	Innovation	3
	Intellectual capital	2
	Social capital	2
	Tourism economics	2
	Tourist destination	2
	Europe	2
Cluster 2	Human capital	4
	Tourism	4
	Tourism development	2
	Australia	2

Source: Our elaboration

Tourism development positively affects the overall economic growth and development of a country, increasing production, employment and income (Chingarande and Saayman, 2018). In the current scenario, sustainable tourism has gained considerable attention. Sustainable tourism refers to travelling with respect for the social, artistic and natural

environment and its development allows meeting the needs of host regions and tourists (Viola et al., 2018). Many factors lead to tourism development, among which technological development, human resources, trade openness, protection of the environment, financial sector development and the safety and security of tourists are regarded as critical success factors (Chingarande and Saayman, 2018).

Innovation leads to investments (Weiermair, 2006) and, focusing on Australia, Divisekera and Nguyen (2018a) highlight how several factors affect innovation in the tourism sector and how it is possible to group them in innovation inputs and institutional factors. Among innovation inputs, collaboration, human capital, information technology and funding are the most important, while, among institutional factors, foreign ownership, environment, firm size and market competition are the most relevant (Divisekera and Nguyen, 2018b). Particularly, technological changes and ICT have fostered the development of smartness. This term refers to interoperable systems' capability to integrate functions useful to manage big data and generate value for all stakeholders (Boes et al., 2016).

ICT implementation and, consequently, smartness have deeply changed and innovated tourism destinations. In this scenario, smart tourism destinations are complex ecosystems, in which several stakeholders interact, collaborate and create value for each actor of these ecosystems (Boes et al., 2016). At the same time, smartness improves the tourist experience and the residents' quality of life. Even if technology plays a critical role in tourism innovation and development, it is the connection with human capital that is essential to create value (Boes et al., 2016).

Tourism is increasingly becoming a knowledge-based sector, despite it is certainly a place-based one (Romão and Nijkamp, 2019). Several reasons allow asserting that human capital positively affects tourism innovation and development. Human knowledge and skills foster IT development (Adam and Urquhart, 2009). Thus, new technologies can be introduced only through specialised employees, allowing the offer of new services and tourists' needs satisfaction. To reach this objectives the need for employees able to identify new customer tendencies and to support tourist initiatives is evident (Rastrollo-Horrillo and Rivero Díaz, 2019).

The tourism sector is characterised by several SMEs, among which restaurants, companies located in 'beach and sun' destinations (Rastrollo-Horrillo and Rivero Díaz, 2019) and hotels (Orfila-Sintes et al., 2005). To date, the most innovative tourism enterprises develop human and organisational-technological capital (Rodriguez Antón et al., 2005; Rastrollo-Horrillo and Rivero Díaz, 2019). Focusing on hotels, innovation brought new tourist accommodation services combined with the adjustment and the updating of the human capital skills and abilities (Orfila-Sintes et al., 2005). Additionally, analysing UK Tourism Hospitality and Leisure sector, Georgiadis and Pitelis (2012) reveal how more experienced entrepreneurs manage high-performing SMEs in this sector.

The tourism industry has to face skill shortage, high employee turnover intention and the need to fill vacancies attracting suitable employees (Marchante et al., 2006; Ladkin and Buhalis, 2016). Technologies affected all areas of employment, providing valuable ways to enhance recruitment practices (Gregory et al., 2013). Through new online platforms and social networking sites (SNSs) on the one side employees can build their profiles and search for information on a company. On the other side, companies can advertise vacancies and analyse prospective employees' professional and personal attributes.

Additionally, tourism and hospitality organisations should focus on factors shown by online employee reviews, in order to increase job satisfaction and reduce employee turnover (Stamolampros et al., 2019). Happy employees provide better performances and services to customers (Salanova et al., 2005; Stamolampros et al., 2020). Thus, attracting the right employee fosters better customer satisfaction and cost efficiency (Bharwani and Butt, 2012), crucial aspects to achieve higher financial performance (Stamolampros et al., 2019).

5 Discussion, primary conclusions and future research agenda

This paper presents an SLR where the role of human capital in sustainable smart tourism is discussed. We intended to answer the research question by providing results supporting both theoretical and practical contributions to the literature. Following our research criteria, we found 12 research articles strictly connected with the aim of this SLR. Thus, human capital in sustainable smart tourism literature seems poorly developed from a business, management and accounting point of view. Additionally, from the keywords' occurrence and the cluster analysis, it emerged how current literature is mainly focused on the strong connection between human capital, innovation and tourism development.

Technologies have deeply changed and innovated tourism destinations, allowing the improvement of tourist experiences and the residents' quality of life (Boes et al., 2016). Smartness development and management foster the creation of an ecosystem where all members are dynamically interconnected (Buhalis and Leung, 2018), co-creating value (Kallmuenzer et al., 2020). Improving value creation, the connection between human capital and technologies used by the tourism sector is relevant (Boes et al., 2016). Only specialised human resources can introduce these technologies, allowing the offer of new services and tourists' needs satisfaction (Rastrollo-Horrillo and Rivero Díaz, 2019). Thus, human resources should be recruited, developed and improved, for example through education and training, in order to develop sustainable smart tourism that leads to overall economic growth for a country or a destination (Chingarande and Saayman, 2018).

The limitations of the paper derive from the analysis of a low number of papers, using specific keywords. Additionally, we analysed only the business, management and accounting field. Thus, our future research is directed to oversee such limitations proposing the following investigations by scholars:

- which are specific actions for tourism development assuming the human resources perspective
- what is the relationship between tourism development, human resources and innovation
- how innovative tourism enterprises develop human and organisational-technological capital.

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Appendix

Research articles full list

NR.	*Authors*	*Title*	*Year*	*Journal*
1	Rastrollo-Horrillo and Rivero Díaz	Destination social capital and innovation in SMEs tourism firms: an empirical analysis in an adverse socio-economic context	2019	*Journal of Sustainable Tourism*
2	Romão and Nijkamp	Impacts of innovation, productivity and specialization on tourism competitiveness – a spatial econometric analysis on European regions	2019	*Current Issues in Tourism*
3	Divisekera and Nguyen	Drivers of innovation in tourism: An econometric study	2018	*Tourism Economics*
4	Chingarande and Saayman	Critical success factors for tourism-led growth	2018	*International Journal of Tourism Research*
5	Divisekera and Nguyen	Determinants of innovation in tourism evidence from Australia	2018	*Tourism Management*
6	Viola et al.	Sustainable jobs and tourism	2018	*Rivista di Studi sulla Sostenibilità*
7	Boes et al.	Smart tourism destinations: ecosystems for tourism destination competitiveness	2016	*International Journal of Tourism Cities*
8	Georgiadis and Pitelis	Human resources and SME performance in services: empirical evidence from the UK	2012	*International Journal of Human Resource Management*
9	Adam and Urquhart	No man is an island: Social and human capital in IT capacity building in the Maldives	2009	*Information and Organization*
10	Weiermair	Prospects for innovation in tourism: Analyzing the innovation potential throughout the tourism value chain	2006	*Journal of Quality Assurance in Hospitality and Tourism*
11	Orfila-Sintes et al.	Innovation activity in the hotel industry: Evidence from Balearic Islands	2005	*Tourism Management*
12	Rodriguez Antón et al.	Proposal of an intellectual capital model for the Spanish hospitality sector	2005	*International Journal of Learning and Intellectual Capital*