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# TOPIC PROMINENCE OF TOURISM AND HOSPITALITY SCIENTIFIC RESEARCH: THE CASE OF SWITZERLAND

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## ABSTRACT

Topic prominence is regarded as a recent indicator that reveals the present momentum of a certain topic by considering the citations, views, and CiteScore thresholds. Topic prominence has been examined in prior research within different contexts, however, there is no known study exploring this trend within tourism and hospitality literature. Therefore, this study aims to analyse and map the topic prominence of Tourism, Leisure and Hospitality Management (TLHM) research by focusing on Switzerland as a case study. The collected data included 337 articles published in 46 journals indexed in Scopus under the subject category of TLHM. The findings concluded that topic prominence is an important indicator for measuring scientific research productivity, including peer-reviewed articles. More particularly, it is revealed that the investigation of topic prominence provides an overall clearer picture of Swiss TLHM research. This study contributes to tourism studies by discussing the usage of the topic prominence metric for tourism and hospitality publications. It also presents practical implications for tourism research managers and researchers by providing solid insights into funded research, scholars' and institutions' performance, and momentum of topics associated with the Swiss TLHM articles.

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## INTRODUCTION

In the last decades, investigating and evaluating scientific research outputs have been crucial activities for many concerned stakeholders in all areas, leading to a broad range of approaches being developed, reviewed, analysed, and utilised for the description and comparison of research outputs (Pechlaner et al., 2004). According to Hall (2011), developing quality assessments and criteria concerning scientific research has explicit indications and contributions for economic, human resource management, and studies practice, as well as it impacts the decision as to where researchers publish and thus the thorough development of tourism and hospitality research as a scholarly domain. On the other hand, Airey (2016) suggests that the current challenge for tourism researchers is to ensure that tourism and hospitality scientific research remains relevant in this post-industrial world.

Consequently, substantial endeavours have been made in recent years to evaluate the quality of scholarly publications, institutions' performance, and research portfolio (Pechlaner et al., 2004). One of the most common approaches of these attempts consists of bibliometric studies that have characterised and mapped the research performance of nations, institutions, authors, research topics, etc. (Airey, 2016; Hanssen et al., 2018; Pirnar, 2014; Ye et al., 2012). In addition, science mapping was employed as a process for analysing research activities, topics, science impact and other metrics (Boyack, 2004; Chen, 2017; Leydesdorff, 1987).

Furthermore, according to Elsevier Publisher ([EP], 2020), topic prominence is considered one of the recent pointers that explicate the prevailing momentum of a topic in a certain context by studying somewhat up-to-date citations, views, and CiteScore values. As a result, topic prominence was recently used to map and analyse the scientific production on a specific subject in a certain field or area of research, namely by Boyack (2017) or Guo et al. (2011), who combined different indicators in order to identify emerging research areas (e.g. the number of unique papers, author keywords and topic words analysis, and authors who have studied the topic). From the above, it is clear that there are several indicators or variables that can be used to identify the prominence topic; however, it is clear that, as stated by Wang and Shapira (2015), high impact articles are associated with acknowledged funding compared with low impact articles (i.e. articles positioned in 90$^{th}$ and 95$^{th}$ percentiles).

Based on the aforementioned discussion, topic prominence is a promising metric that can be employed for mapping the big data research

within the tourism and hospitality context. In this regard, there are many bibliometric studies that have reviewed, mapped, and analysed the previous literature of the Tourism, Leisure and Hospitality Management (TLHM) area, including systematic review, meta-analysis, content analysis, text mining, network analysis, country research analysis, citation analysis, etc. (Koseoglu et al., 2016; Merigó et al., 2020). However, to the best of the authors' knowledge, no known work has evaluated the topic prominence within TLHM scientific research in general. In addition, as far as we know, no research has investigated the link between "SciVal Topic Prominence" and authors' titles, abstracts, and keywords of articles published in journals ranked as Q1 and Q2, according to their SJR2018, among the TLHM category. Moreover, the mapping SciVal Topic Prominence of TLHM research related to Switzerland has not been performed yet.

As a result, the purpose of this study is to analyse and map the topic prominence of TLHM research in Switzerland. The current study focuses on Switzerland as one of the most dynamic nations around the world in terms of scientific research activity in general (Chen et al., 2019; Vieregge et al., 2013). Moreover, Switzerland is shown as one of the leading nations worldwide having a rich research profile associated with the TLHM area over the last decades. According to the latest SCImago Journal & Country Rank ([SJR], 2019), Switzerland comes in the 16$^{th}$ place in international rankings, with 764,195 documents in all subject areas. The country also comes in the 27$^{th}$ place worldwide, with 558 documents among the TLHM subject category (SJR, 2020).

Addressing the current research gap and objectives, the research questions driving this study are: (1) What is the relationship between "SciVal Topic Prominence" and authors' titles, abstracts, and keywords of TLHM research in Switzerland?; and (2) How to map SciVal Topic Prominence of TLHM research in Switzerland?

Taken all together, the present article has several theoretical and practical contributions. First, this study is considered the first attempt to analyse and map the Scival topic prominence of peer-reviewed articles published in Scopus-indexed journals within the tourism and hospitality setting, especially in Switzerland. Second, this paper adds to the existing literature of bibliometric studies in the tourism and hospitality field by highlighting and presenting topic prominence as a new trend and metric utilized to map the big data of TLHM. Third, the findings of this paper present practical and managerial implications for tourism and hospitality research managers as well as concerned scholars in all countries around the

world by providing solid insights into funded research projects, researchers' performance, higher education institutions' performance, and momentum of topics associated with Swiss TLHM articles published in the Scopus database.

## LITERATURE REVIEW

### Switzerland tourism and hospitality research

Swiss higher education in Tourism and Hospitality is recognised globally for its excellence (Chen et al., 2019; Vieregge et al., 2013) and the country is a worldwide pioneer in this area (Schön, 2016). The worlds' 41st oldest hotel school and first hospitality school, the École Hôtelière de Lausanne (EHL), is in Switzerland. Originally established as a private school in 1898, the EHL became a member of the public sector of the University of Applied Sciences Western Switzerland (HES-SO) in 1998, being the first Swiss Hotel School to be recognised as a University by the Swiss government (Chen et al., 2019). Concerning publications on the tourism topic, Schön (2016) points out that two professors at the University of Bern – Walter Hunziker and Kurt Krapf, authors of the "General Theory of Tourism" in 1942 – created a "kind of general doctrine of tourism" (p. 2). Also, Airey (2016) highlights a long tradition in tourism and hospitality research in Switzerland, which dates back to the 1940s. According to Schön (2016), the University of Berne created the first academic course in tourism in 1941, and in 1943 the "Hochschule für Wirtschaft und Verkehrswirtschaft Sankt Gallen", Graduate School of Economics, followed in its footsteps. The first Swiss publications records in T&H date back exactly 47 years ago, that is 5 decades. The first two records are from IUOTO (1973, 1974), published in the Annals of Tourism Research journal. The International Union of Official Travel Organisations (IUOTO) is a world institution that marks the history of Tourism around the world. It was established in 1934, and in its 1970 General Assembly, the World Tourism Organization (WTO) was set up (Schipper et al., 2018). These first documents were published in Geneva, Switzerland. The third record is from AIEST (1977). It was recorded in February of 1977 and submitted by AIEST (International Association of Scientific Experts in Tourism [AIEST], 1977) to the Annals of Tourism Research journal. AIEST was created in 1951 and still exists today under the same name with its base in St. Gallen, Switzerland[2]. Moreover, the concept of integrating education, training, and practice in the hotel industry, now adopted all over the world, was created in Switzerland. During the 20th

[2] https://www.aiest.org/home/

century, Swiss Schools included compulsory industrial training as part of their students' academic education (Fournier & Ineson, 2010).

With the rise of the Bologna Process, which Switzerland has been implementing since 2006, the Swiss education system has been transformed. With Bologna came accreditation in higher education, the evaluation of study programs, and the Agency for Quality Assurance and Accreditation in Higher Education (ADIP), through MODIP (Quality Assurance Unit) in the Eurydice network, to which the Swiss higher education system belongs. Quality indicators in higher education are grouped into four sets of criteria: (i) quality of teaching; (ii) quality of study programs; (iii) quality of services; and finally (iv) quality of research (European Commission [EC], 2020). The quality of research indicator is characterised by the performance of publications in a particular scientific area, namely the impact that these publications have in the world. In Swiss tourism and hospitality research, there is a lack of research characterising this scientific area. Reflecting exactly about research production in Swiss Hotel Schools, Chen et al. (2019) argue about the difficulty of formulating the performance of this research, in general, and of the Swiss case of the École Hôtelière de Lausanne, in particular, taking into account the specificity of the Swiss Tourism and Hospitality Education System.

**Research performance**

Research performance is a concept associated with many programs and departments of institutions that are recognised as possessing high-quality research output (Severt et al., 2009) and depends on metrics that measure certain variables to define academic excellence. The research performance is a topic studied through bibliometric studies and it is used to analyse the productivity of research and publication outputs, including topics sought, methods conducted, and samples utilised (Soares et al., 2016; Ye et al., 2012), by employing essential or advanced evaluative and/or relational measures to the data obtained from online databases (e.g. Fahimnia et al., 2015; Koseoglu et al., 2016; McBurney & Novak, 2002).

In the context of tourism and hospitality, the research performance of a country is defined by the productivity of institutions, which in turn depends on researchers' productivity, and is frequently exhibited by rankings. Researchers' performance is characterised by several variables, depending on the purpose of the study, such as number of papers published in academic journals, average number of authors per article (Park et al., 2011), and authors' publication by affiliation (Waltman, 2016; Ye et al.,

2012). Hanssen et al. (2018), in their model of the relation between quality of research, researchers' experience, and their academic environment, among others, used the number of citations per article, author rank by number of publications, the number of publication years, and the number of journals. Howey et al. (1999) applied their study to tourism and hospitality journals, but in this case, they used citation analysis. Frechtling (2004) targeted journals as a form of knowledge transfer, while Harris and Brander Brown (1998) characterised tourism and hospitality performance qualitatively. Huang and Hsu (2008) conducted a content analysis of articles published in Tourism Tribune and used statistical calculations of frequency counts in the authorship, articles, regional distribution, and institutional contributions variables.

More recently, research productivity is significantly associated with the breadth and depth of research collaboration between authors in different disciplines, as well as between institutions (Ye et al., 2012). In this case, the focus is on the type of cooperation and network analysis. These studies value research collaboration as a way of creation, acquisition, and dissemination of knowledge; all vital in research performance (Chen et al., 2019). Bibliometric analysis now includes networking analysis, but the variables at its base remain, such as those used by Loureiro et al. (2020), namely top 10 articles ordered by citation rank, top 10 papers cited under peer-reviewed journals, number of papers published in top-tier journals with newly emerged variables, such as reference network analysis and co-authorship analysis.

**Topic Prominence**

Another line of authors seeks to identify research topics, trying to capture emerging subjects/topics in a specific area (Xiao & Smith, 2006), where network analysis is valuable in identifying the most prominent papers and discovering key clusters of research (Fahimnia et al., 2015). This kind of bibliometric research is generally applied to assess the degree of relevance of papers in a given area, the degree of relevance of authors (e.g. citations), the growth or decline of an area or topic of knowledge, the dispersion of paper production by journals, etc. (Domingo-Carrillo et al., 2019; Mudarra-Fernández et al., 2019). Concerning science mapping, we also find qualitative studies to map research topics (Weiermair & Bieger, 2005; Wilson et al., 2019), usually analysing the best quartile of journals' topics, titles, abstracts and keywords. Also, to measure text similarity, Takano and Kajikawa (2018) used keywords analysis. However, outside the area of tourism, bibliometric studies identifying emerging topics in science (i.e.

prominence research topics) (Pham et al., 2018; Small et al., 2014) and technological areas have recently appeared. In research publications, topic prominence is found in all scientific areas published by the Scopus database, but outputs of topic prominence can only be analysed on the SciVal platform (belonging to the Elsevier group) (EP, 2020). SciVal prominence combines three metrics to indicate the momentum of the topic: (1) Citation count in year n to papers published in n and n-1; (2) Scopus views count in year n to papers published in n and n-1; and (3) Average CiteScore for year n.

Klavans and Boyack (2017) analysed the consistency, transparency and relevance of the topic prominence indicator. They argue that this indicator is useful to ascertain whether a research topic is growing or declining, and it is normally used to support research funding. In their study of research portfolio, to accomplish their goal of identifying the most prominent topics, the authors used citations, number of views and cite score of the topics (same variables used by SciVal). Topic prominence is a collection of documents with a common interest, and in this context, prominence means momentum and visibility, and, as opposed to importance, an article's prominence topic can be prominent but not important and vice versa. This indicator can predict if a topic will grow or decline in the future and also indicates emerging topics of research (Pham et al., 2018; Small et al., 2014). In traditional bibliometrics, when using citation analysis to assess the impact of an article, for example in terms of author or university performance, the main indicator used is the average number of citations per publication, while topic prominence employs a percentile-based indicator (Klavans & Boyack, 2017; Waltman & Schreiber, 2013). To assess the percentile indicator of the most prominent topics, Bornmann et al. (2013) applied the assessment of prominence percentiles by percentile rank classes (e.g. clustering topics) and Boyack (2004) used the mean of percentile citations. Boyack (2017) investigated the limitations of using sets of documents based on journals to identify the structure of scientific fields and clustering topic prominence by topic field and by regions. Guo et al. (2011) used a mixed model that combined different indicators to describe and predict the main structural and dynamic characteristics of emerging research areas (e.g. number of unique papers, author keywords, topic words analysis and authors who studied the topic).

## METHODOLOGY

### Data collection

Figure 1 shows the steps of data collection procedures regarding Swiss articles published in Scopus-indexed journals among the subject category of TLHM. Thus, tourism and hospitality-related publications by Swiss researchers in journals of other areas and/or categories were not included in the present study. Moreover, only journals ranked as Q1 and Q2 according to SJR2018 were considered in this study for two reasons. First, these two quartiles are more stable over longer periods, considering that there is virtually no fluctuation between them. Second, the highest impact journals are positioned in these quartiles. These journals are considered as the most appropriate to characterise scientific performance and can be accepted as certified knowledge (Koseoglu et al., 2016; Mardanov et al., 2017). Based on the defined search criteria, 51 journals were identified in the initial search.

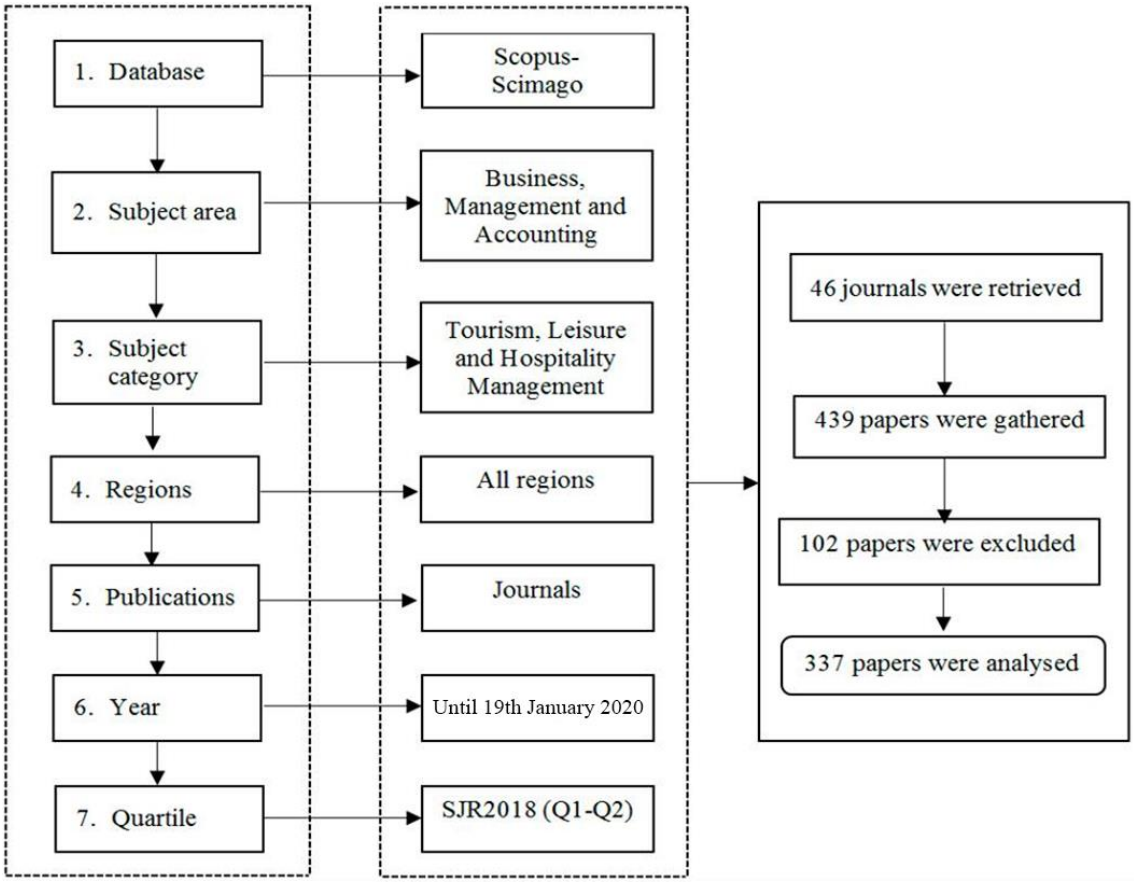


Figure 1. *The steps of data collection*

Data collection was carried out on 19th January 2020, on Elsevier's Scopus database, one of the largest and most renowned online peer-reviewed literature collections (Domingo-Carrillo et al., 2019; Mudarra-Fernández et al., 2019). The articles were checked in each of the 51 selected journals based on the following search criteria: country/territory (Switzerland) and document type (article). As a result, a total of 439 papers were retrieved from 46 journals. Using DB Gnosis software, all articles relevant to TLHM were further filtered, removing 102 papers (papers not relevant to the area and documents that were classified as editorials or conference reports). In the end, a total of 337 articles were determined to be relevant and were included in the analysis.

Figure 2 reveals a summary of the features related to the collected data that were analysed and mapped in the current study.

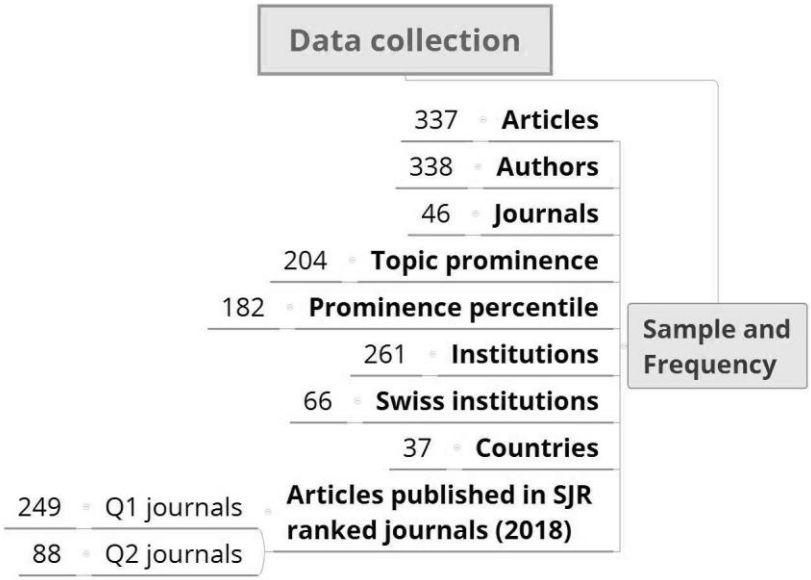


Figure 2. *A summary of the collected data*

Finally, homogeneous groups were searched within the analysed sample to check if there were any similarities of behaviour between the articles, regarding the variables title, abstract, keywords, and topic prominence. For this, a cluster analysis was carried out (conglomerate of k means), obtaining two different groups (Table 1):

1= the group that does not use the words of topic prominence in the title, author keywords or abstract. In total, it comprises 185 articles (54.9% of the sample).

2= the group that uses the words of topic prominence, on average, one word in the title, three words in the abstract and one word in the author keywords. In total, it comprises 98 articles (29% of the sample).

The remaining 54 articles do not fit in either of the two groups.

Table 1. *Cluster analysis*

| | Conglomerate | |
|---|---|---|
| | 1 | 2 |
| Title | 0 | 1 |
| Abstract | 0 | 3 |
| Keywords | 0 | 1 |
| Topic prominence | 2 | 2 |
| Total articles | 185 | 98 |

## Analysis methods and procedures

The specific type of content analysis employed in the present work was categorical content analysis, which consists of dismembering the texts into units, or categories, according to pre-established criteria (Bardin, 2000). The data analysis process involves some procedures and steps, as presented in Figure 3.

## Correlation analysis

For this study, the variables of title, abstract, author keywords and topic prominence have been quantified to carry out the content analysis. The topic prominence metric is made up of three terms: the "title" variable was quantified on a scale of 0 to 3 (0 = absent words; 1 = one word present; 2 = two words present; 3 = three words present). The same procedure was used for "author keywords". This variable was quantified depending on the presence of topic prominence in the keywords (from 0 to 3). The "abstract" variable was quantified on a scale of 0 to 5 (0 = absent words; 1 = one word present; 2 = two words present; 3 = three words present; 4 = one-word repetition; 5 = repetition of more than one word). This quantification is justified by the fact that the abstract has more words and some of the topics prominence have more than three words (e.g. Hotels | Revenue Management | Hotel Revenue). Finally, the "topic prominence" variable was quantified from 0 to 3 (0 = if the three words of the topic are different; 1 = if one word is repeated (e.g. Festival | festivals | music Festival); 2 = if more than one word is repeated; 3 = if more than two words are repeated).

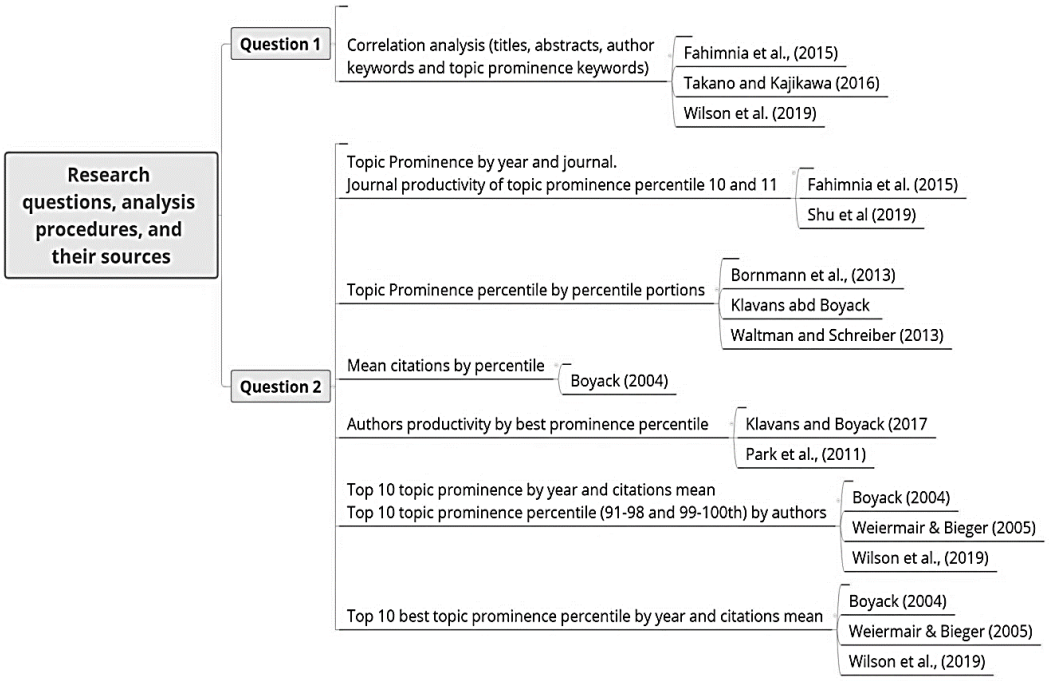


Figure 3. *Research questions, analysis procedures, and their sources*

### Topic prominence cluster by percentile portions

The SciVal topic prominence was distributed in 11 portions or percentiles (frequency was the main criterion of distribution). In this distribution, 6% of articles were excluded from the total sample. The reason for this exclusion was the absence of topic prominence and prominence percentile classification from Scopus (papers from the 70s and 80s). Topic prominence distribution has several advantages over frequently used standard bibliometrics, that is, the higher the percentile, the greater the impact of the article.

### Topic prominence cluster and prominence best percentile

To analyse topic prominence cluster and prominence best percentile, a count rank by frequency was done by calculating the average of citations (on papers in each cluster of topic prominence and prominence percentile), followed by the content search by year. All procedures were done in DB Gnosis software.

### Mind mapping

The qualitative analysis was done in mind map clustering, which was performed using BizAgi Process Modeler (BizAgi is a Business Process

Model and Notation (BPMN) tool) and X-Mind software. In this regard, mind mapping, as a visual resource, was proposed by Buzan in the 1970s, and currently has gained popularity as a data analysis technique, especially in the fields of computer science, communication science, psychology, and marketing (Eppler, 2006). Visually, a mind map is an "image-centred and radial diagram that represents semantic or other connections between portions of learned material hierarchically" (Eppler, 2006, p. 2013). Applied to qualitative research, it is a powerful tool to analyse, interpret and link ideas and, ultimately, to present the data (Almeida, 2018; Jirásek & Hurych, 2019; Wheeldon, 2011).

## RESULTS

### Topic prominence relationship with titles, abstracts and author keywords

Regarding the presence of words from the topics prominence in the title, Table 2 shows that the most common is only one word present (52.8%) and very rarely two (7.2%), with the average at which this event is confirmed being 0.54 (Table 3). In the case of author keywords, identical results are achieved: the most common is only one word of topics prominence present (36.1%) and the average occurrence of this event is 0.50.

Table 2. *Relative frequency presence of topic prominence words*

| Item | 0 | 1 | 2 | 3 |
|---|---|---|---|---|
| **Title** | 39.9% | 52.8% | 7.2% | 0% |
| **Author Keywords** | 57.1% | 36.1% | 6.2% | 0.3% |
| **Abstract** | 41.9% | 24.8% | 16.2% | 9.2% |

As for the presence of words from the topics prominence in the abstract, the average value is 1.17, that is, in 28.8% of the cases at least one term appears (28.8%) and in 9.2% of the cases the three words of the topics prominence appear in the abstract.

Table 3. *Presence of topic prominence items*

| | N | Minimum | Maximum | Average | Standard deviation |
|---|---|---|---|---|---|
| **Title** | 337 | 0 | 2 | 0.54 | 0.628 |
| **Abstract** | 337 | 0 | 5 | 1.17 | 1.298 |
| **Author Keywords** | 337 | 0 | 3 | 0.50 | 0.630 |
| **Topic-prominence** | 337 | 0 | 2 | 1.18 | 0.729 |

Applying Pearson's correlation statistics, we obtained positive correlations between the titles and abstracts (0.619), that is, the greater the

use of words from the topics prominence in the title, the greater the use of words in the abstract; and between the abstract and the author keywords (0. 405), that is, if words from the topics prominence appear in the abstract, they do so as well in the keywords. There is also a positive correlation between author keywords and titles (0.368) and between topics prominence words and abstracts (0.155), that is, if the words from the topics prominence are themselves related (words are repeated), the use of the words in the abstract is greater. However, the correlation between topics prominence words and title, and topics prominence words and author keywords is practically non-existent as the value of the statistic is close to 0 in both cases (Table 4).

Table 4. *Title, abstract, keywords and topic prominence correlations*

| | | Title | Abstract | Author keywords | Topic prominence words |
|---|---|---|---|---|---|
| Title | Pearson's correlation | 1 | **.619** | .368 | .060 |
| | Sig. (bilateral) | | .000 | .000 | .285 |
| | N | 318 | 303 | 289 | 318 |
| Abstract | Pearson's correlation | .619 | 1 | **.405** | .155 |
| | Sig. (bilateral) | .000 | | .000 | .007 |
| | N | 303 | 303 | 283 | 303 |
| Author keywords | Pearson's correlation | .368 | .405 | 1 | .078 |
| | Sig. (bilateral) | .000 | .000 | | .188 |
| | N | 289 | 283 | 289 | 289 |
| Topic prominence | Pearson's correlation | .060 | .155 | .078 | 1 |
| | Sig. (bilateral) | .285 | .007 | .188 | |
| | N | 318 | 303 | 289 | 318 |

## Topic prominence in Swiss TLHM research

### *Distribution of topic prominence by year and journal*

The distribution of topic prominence by year and journal (Figure 4) reveals that, in the period 1980-1999, topic prominence was mostly distributed among one or two journals. From the years 2000 onwards, the number of publications increases, as well as the number of journals. In 2019, the number of different topics prominence reached its peak, with a total of 34 different topics prominences published in 24 different journals. The top 10 journals in 2019 show that the Tourism Review journal leads with 18.6% of different topics prominence, followed by Annals of Tourism Research, Cornell Hospitality Quarterly, and Tourism Management, with 9.3% each.

Concerning productivity of the two best percentiles (91-98 and 99-100), Tourism Review leads in both percentiles with 32 articles (Table 5). In

SJR 2018, Table 5 shows that, in the two best percentiles, the top 10 journals are led by Q1 journals. Considering SCImago - SJR 2018, the journal's score is not very relevant for positioning in the percentile.

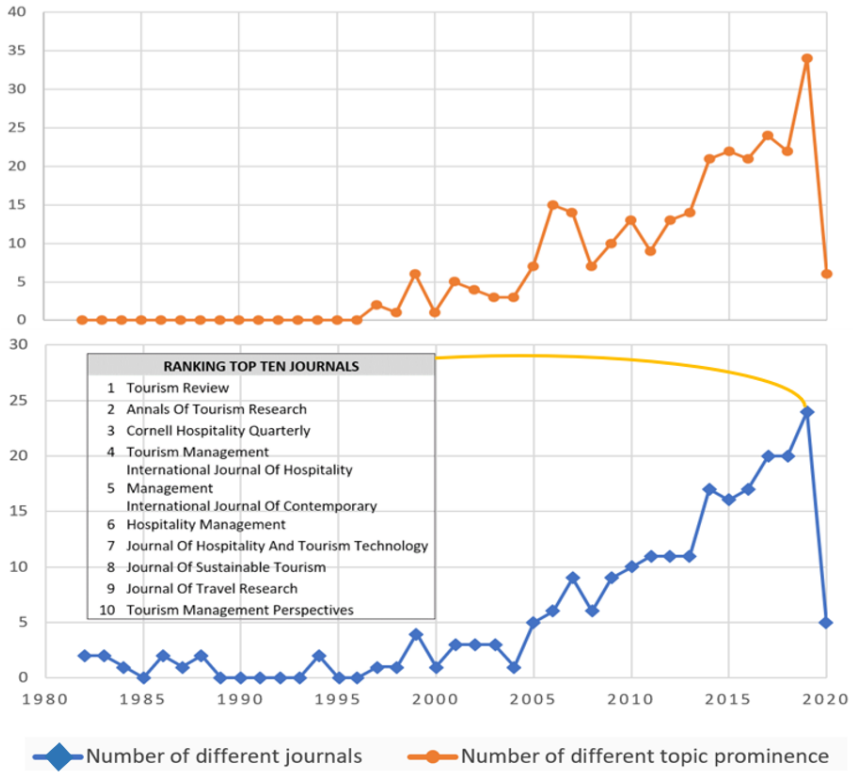


Figure 4. *Swiss TLHM topic prominence by year and journal*

Table 5. *Journal productivity of Topic Prominence Percentiles 10 and 11*

| Sample size= 132 | Journal Rank Topic Prominence Percentile 10 | | | | |
|---|---|---|---|---|---|
| Ranking | Variable Name | Absolute Frequency | Relative Frequency | SJR 2018 | SCImago - SJR 2018 |
| 1 | Tourism Review | 24 | 0.18 | Q2 | 0.62 |
| 2 | International Journal of Hospitality Management | 12 | 0.09 | Q1 | 2 |
| 3 | Journal of Travel Research | 10 | 0.07 | Q1 | 3.18 |
| 4 | Tourism Management | 10 | 0.07 | Q1 | 2.92 |
| 5 | International Journal of Contemporary Hospitality Management | 6 | 0.04 | Q1 | 1.85 |
| 6 | Leisure Studies | 5 | 0.03 | Q1 | 0.74 |
| 7 | Applied Geography | 4 | 0.03 | Q1 | 1.25 |
| 8 | International Journal of Retail and Distribution Management | 4 | 0.03 | Q1 | 0.77 |
| 9 | Journal of Quality Assurance in Hospitality and Tourism | 4 | 0.03 | Q2 | 0.54 |
| 10 | Journal of Sustainable Tourism | 4 | 0.03 | Q1 | 1.37 |

| Sample size=43 | Journal Rank Topic Prominence Percentile 11 | | | | |
|---|---|---|---|---|---|
| Ranking | Variable Name | Absolute Frequency | Relative Frequency | | |
| 1 | Tourism Review | 8 | 0.18 | Q2 | 0.62 |
| 2 | Annals of Tourism Research | 4 | 0.09 | Q1 | 2.18 |
| 3 | Cornell Hospitality Quarterly | 4 | 0.09 | Q1 | 1.16 |
| 4 | Tourism Management | 4 | 0.09 | Q1 | 2.92 |
| 5 | International Journal of Hospitality Management | 3 | 0.06 | Q1 | 2 |
| 6 | International Journal of Contemporary Hospitality Management | 2 | 0.04 | Q1 | 1.85 |
| 7 | Journal of Hospitality and Tourism Technology | 2 | 0.04 | Q1 | 0.79 |
| 8 | Journal of Sustainable Tourism | 2 | 0.04 | Q1 | 1.37 |
| 9 | Journal of Travel Research | 2 | 0.04 | Q1 | 3.18 |
| 10 | Tourism Management Perspectives | 2 | 0.04 | Q1 | 0.97 |

## Topic prominence percentile by percentile portions

Figure 5 reveals that 85% of the Swiss topic prominence percentiles in TLHM research are above the 50th percentile. Furthermore, 41% of topics are in 90th percentile, that is, in the 10% best in the world in momentum and visibility, while 13% of the topics are in 99th prominence percentile.

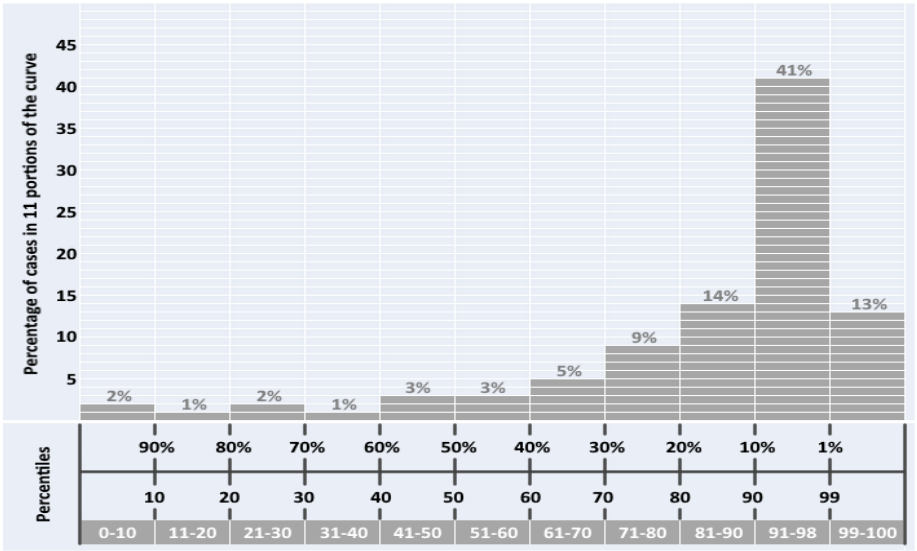


Figure 5. *Swiss topic prominence percentiles in TLHM research*

## Mean citations by percentile

Figure 6 shows that the 99th topic prominence percentile of Swiss TLHM topics includes those with the highest average citations (28.8), followed by those of the 10th percentile, with 22.8.

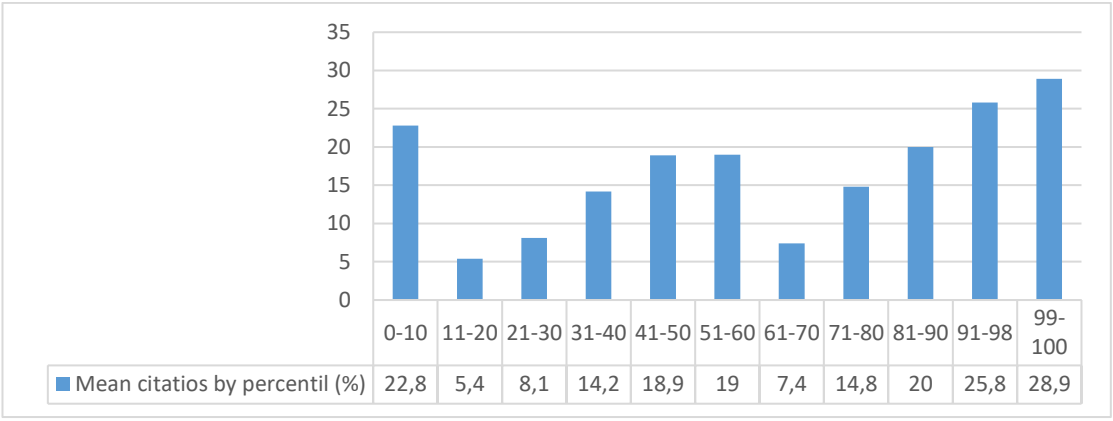


Figure 6. *Mean citations of Swiss TLHM research*

## Authors' productivity by best prominence percentile

Authors' productivity in the two best percentiles, as shown in Table 6, reveals that two authors stand out in both percentiles in terms of the number of published topics and of the number of quotations: Laesser C. and Beritelli P., both from University of St. Gallen.

Table 6. *Top 10 authors' productivity by 91-98th and 99-100th topic prominence percentile*

| Sample size=425 | | Authors Quarter 91-98 | | |
|---|---|---|---|---|
| Rank: | Variable Name: | Absolute Frequency: | Relative Frequency: | Citations |
| 1 | Laesser C. | 15 | 0.045 | 436 |
| 2 | Beritelli P. | 7 | 0.02 | 58 |
| 3 | Müller H. | 7 | 0.02 | 11 |
| 4 | Bieger T. | 5 | 0.01 | 338 |
| 5 | Chen Y. | 5 | 0.01 | 58 |
| 6 | Heo C.y. | 5 | 0.01 | 82 |
| 7 | Dolnicar S. | 4 | 0.01 | 59 |
| 8 | Eeckels B. | 4 | 0.01 | 73 |
| 9 | Filis G. | 4 | 0.01 | 73 |
| 10 | Murphy H. C. | 4 | 0.01 | 78 |
| Sample size= 147 | | Authors Quarter 99-100 | | |
| Rank: | Variable Name: | Absolute Frequency: | Relative Frequency: | |
| 1 | Beritelli P. | 8 | 0.07 | 444 |
| 2 | Heo C. V. | 4 | 0.03 | 105 |
| 3 | Reinhold S. | 4 | 0.03 | 21 |
| 4 | Blal I. | 3 | 0.02 | 23 |
| 5 | Laesser C. | 3 | 0.02 | 231 |
| 6 | Adukaite A. | 2 | 0.01 | 11 |
| 7 | Bieger T. | 2 | 0.01 | 190 |
| 8 | Cantoni L. | 2 | 0.01 | 14 |
| 9 | Chen Y. | 2 | 0.01 | 1 |
| 10 | Krizaj D. | 2 | 0.01 | 15 |

### Top 10 topic prominence by year and citations mean

Figure 7 shows the mind map of the top 10 topics prominence (number of articles by year and mean citations). All the years presented mean meanings with the highest average in topic 1 (54.75) and the lowest average in topic 5 (12.66).

However, topic 5 emerged in 2002, before topic 1 (2006). When we group the averages presented in Figure 7, three clusters appear: a first cluster with higher averages (54.75 - 39) in topics 1, 2, and 10; a second cluster with lower averages (12.166 / 13.20 / 15.6) concentrated in topics 5, 6, and 9; and a third median cluster with the other topics prominence (3, 4, 7, and 8). This scenario shows that the topics vary over the years and that perhaps other external factors may influence greater adherence to one or another topics prominence.

### Top 10 Topic Prominence Percentile (91-98$^{th}$ and 99-100$^{th}$) by author

Table 7 shows that, in both percentiles (91-98$^{th}$ and 99-100$^{th}$), three topics prominence stand out in terms of number of publications. These are Tourism | Tourism Development | Community-based Tourism, Tourists | Travel | Online Travel, Sports | event | mega Events. Additionally, one author leads in all three topics, Beritelli P.

Table 7. *Top 10 most researched Topic Prominence Percentile (91-98$^{th}$ and 99-100$^{th}$) and Top 3 authors*

| Rank: | Variable Name | Absolute Frequency | Relative Frequency | Top 3 authors |
|---|---|---|---|---|
| 1 | Tourism \| Tourism Development \| Community-based Tourism | 9 | 0.05 | Beritelli P., Laesser C., Adukaite A. |
| 2 | Tourists \| Travel \| Online Travel | 9 | 0.05 | Laesser C., Beritelli P., Bieger T. |
| 3 | Sports \| event \| mega Events | 8 | 0.04 | Müller H., Beritelli P., Bieger T. |
| 4 | Tourism \| Economic Growth \| Tourism-led Growth | 8 | 0.04 | Eeckels B., Filis G., Antonakakis N. |
| 5 | Festival \| festivals \| music Festival | 7 | 0.04 | Laesser C., Ammann P.A., Bieger T. |
| 6 | Hotels \| Revenue Management \| Hotel Revenue | 7 | 0.04 | Heo C.Y., Beritelli P., Chen Y. |
| 7 | Tourism \| climate Change \| low-carbon Tourism | 7 | 0.04 | Abegg B., Anderwald P.Falk M. |
| 8 | Economy \| Industry \| Sharing Economy | 6 | 0.03 | Heo C.Y., Blal I., Blengini I. |
| 9 | Tourism \| tourism Development \| community-based Tourism | 6 | 0.03 | Beritelli P.; Bieger T., Buffa F. |
| 10 | Destination Image \| destination \| destination Images | 4 | 0.02 | Feighery W., Manyara G., Marchiori E. |

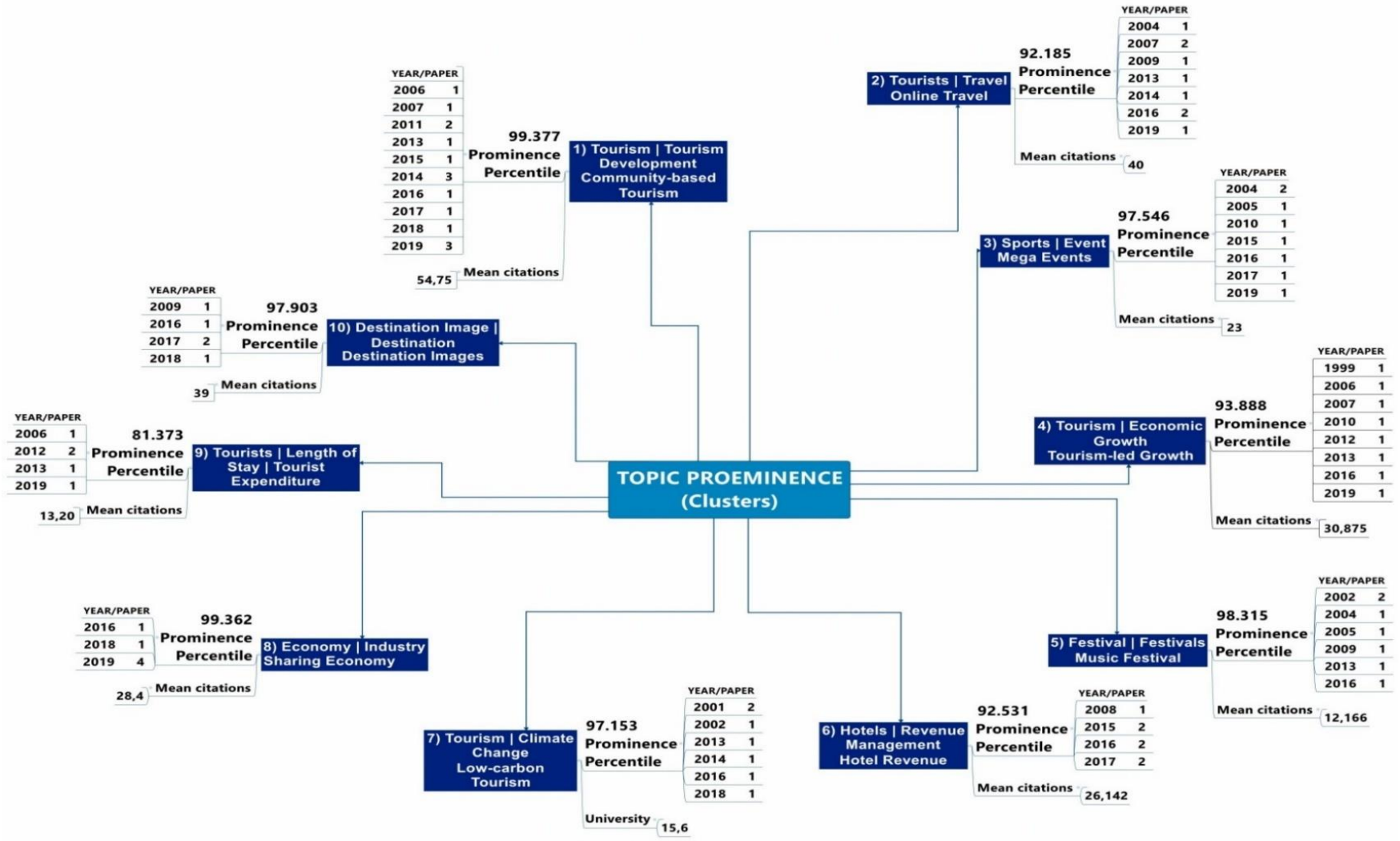


Figure 7. *Mind map of the top 10 topics prominence (number of articles by year and mean citations)*

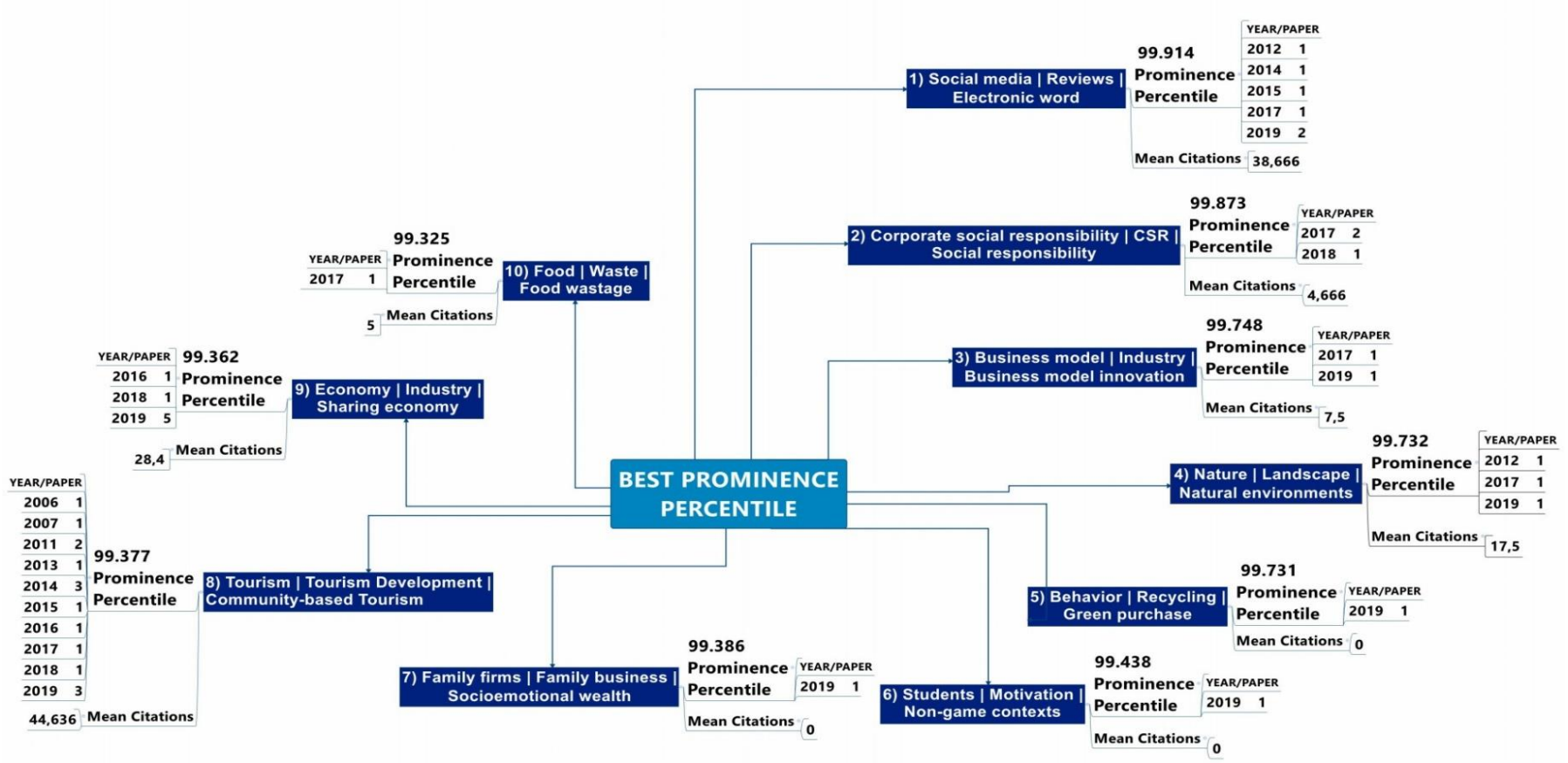


Figure 8. *Top 10 Topics prominence in 99-100th percentile by year and citations*

Figure 8 shows that all topics prominence in the 99-100th percentile that emerged after 2006 are relatively recent and have been investigated in the last decade. The Social Media | Reviews | Electronic Word topics prominence, which leads the 99-100th percentile not only in the number of published papers but also in citations mean (38.666), emerged in Swiss tourism and hospitality research in 2012 and grew until 2019. The topics 5, 6, and 7 are uncited, which is understandable, first because only one paper of each topic was published, and second because these are topics that emerged in 2019 (i.e. relatively recent).

## CONCLUSIONS

The current study aims to assess and map the topic prominence of tourism and hospitality literature, showing that, in practice, the Swiss published articles in both Q1 and Q2 Scopus-indexed journals within the TLHM category.

### Discussion of Findings

The results of the top 10 Swiss Topic Prominence articles by journal of the two best percentiles (91-98th and 99-100th) show that both percentiles are led by the "Tourism Review" journal. In addition, the papers of the two best percentiles are in majority published in Q1 journals, and the SCImago - SJR 2018 score is not relevant for the positioning in these percentiles (i.e. this event occurs both in journals with a score of 0.62, 0.74 or 2.92, 3.18). This study reveals that the presence of the topics prominence words in titles and authors keywords is very low. In most cases, only one word is present (39.9% in titles and 36.6% in author keywords). Another evidence verified by the results is that, in the case of the presence of the topics prominence words in the abstract, the most common is for only one word to appear (28.8%). The results show that 54.9% of Swiss articles in tourism, leisure and hospitality do not have any words from the topics prominence in title, author keywords or abstract. However, the percentage of those that have any word of the topics prominence present in title (average 1), abstract (average 3) and author keywords (average 1) is relatively high (29% of the sample).

The objective to analyse and map the topic prominence of TLHM research by focusing on Switzerland was fully achieved. The second objective of the study was also accomplished through the mind mapping technique. This technique has proven effective in this research and other

scientific discussions (Almeida, 2018; Eppler, 2006; Jirásek & Hurych, 2019; Wheeldon, 2011). The application of mind maps in this study was relevant and enhanced the proposed analyses and, ultimately, contributed strongly to the study's conclusions. Thus, in addition to the top 10 topic prominence, the two mind maps visually show other important data, such as prominence percentile, mean citations and year/papers. The analysis of this mapping presents the discussions and articulations of the Swiss scientific literature on TLHM. It can also show not only the strengths of the literature but also the gaps. Finally, relationship of SciVal topic prominence with titles, abstract and authors' keywords in Swiss TLHM literature was found in the current study.

The topic prominence identifies research topics and subjects in a specific area. That is why it has a very strong strategic value as long as authors know how to use it. The research revealed that all the hot topics in 99-100$^{th}$ percentile came up after 2006, in the same year when the education system in Switzerland started Bologna Process implementation. It also shows that there is a specificity of the Swiss education and tourism system (Chen et al., 2019). Citation mean metrics constitute a key tool in scientometrics and play an increasingly important role in the evaluation of researcher's and, consequently, countries' productivity. The results show that the papers with a topic prominence positioned in the 99$^{th}$ topic prominence percentile are the ones that get the highest average citation (28.8), followed by those that are positioned in the 90$^{th}$ percentile, with an average of 22.8. Future lines of research should confirm whether these results remain in samples from other countries on the same topic (e.g. tourism, leisure, and hospitality).

All top 10 topics of the 99-100$^{th}$ percentile of Swiss TLHM research emerged after 2006, and those with the highest score have emerged after 2010, so they have a decade of investigation. Considering that the higher the prominence percentile, the greater the topic's momentum and visibility, therefore, the more attractive it is to attract funding. The results reveal that 85% of Swiss scientific articles in TLHM are positioned in the 50$^{th}$ percentile. Furthermore, 41% of the topic prominence is in 90$^{th}$ prominence percentile, which means it is within the 10% percentile of the best momentum and visibility for these topics in the world. It should also be highlighted that 13% of the topics are in 99$^{th}$ percentile, within the 1% percentile of the best momentum and visibility for these topics in the world, which is a great achievement.

## Implications

Over the last decades, there have been many discussions and arguments about research performance indicators, highlighting the importance of considering these indicators for scientific evaluation. In this regard, the current paper employed a solid approach to analyse the topic prominence within the tourism setting, a novel metric used for mapping big data research in various domains. In this context, this paper is considered one of the first attempts to map the topic prominence of Swiss articles in the tourism and hospitality field. In addition, the study adds to the body of knowledge regarding bibliometric studies on tourism and hospitality by analysing the SciVal topic prominence of Swiss TLHM articles. Moreover, this study presents a new bibliometric metric through the analysis procedures to measure the performance of the scientific production of authors, institutions, and countries. For bibliometric researchers, the study brings a new technique of analysis crossing qualitative and quantitative analysis through the use of mind maps applied to SciVal topic prominence. For TLHM authors, the study reveals gaps in research and reveals emerging research areas by identifying research topics that are growing or declining, making it possible to identify future lines of research. Moreover, the authors will be able to identify where they are on the science map, how they can identify new collaborations and what research topics does a journal cover. Moreover, this article has practical and managerial implications for tourism research managers and researchers by providing valuable insights into funded research, performance of authors and institutions, as well as the momentum of topics on the Swiss TLHM articles. In other words, mapping topic prominence of TLHM research in Switzerland provides unparalleled insights into distinguishing novel, emerging research approaches for tourism and hospitality scholars. Moreover, topic prominence provides many advantages for both research managers and scholars. For research managers, this indicator could present valuable information on the pockets of well-funded research, the most prolific scholars, and forthcoming talents active in certain research topics, the research portfolio and performance of institutions, and the momentum topics. For scholars, topic prominence could give clear insights into their research performance and into levels of activity of specific topics (Elsevier, 2020). With respect to Swiss tourism and hospitality institutions, this research presents a clear overview and understanding of the impact of TLHM research in Switzerland. Finally, for destination managers, this research identifies the main trends and dynamics in TLHM and areas with the greatest financing potential (the emerging topics and those positioned in the best percentiles).

## Limitations and future research

Like any other study, this research has some limitations to be addressed in further research avenues. First, the data were gathered from the Scopus database. Future studies could collect and analyse data from other databases (e.g. Web of Sciences). Second, this paper focused on Swiss articles among the category of TLHM. Further studies are recommended to search for articles published in other subject areas and/or categories. Third, this paper focused on journals only. Thus, other types of publications (e.g. book series, conferences, and proceedings, etc.) could be studied in future research. Fourth, this study analysed the Q1 and Q2 Scopus journals based on SJR2018 ranking. Therefore, other quartiles (Q3 and Q4) could be analysed in future research. The SJR2019 ranking should be considered as well. Fifth, this paper focused on Switzerland as a case study. Further studies should analyse the TLHM scientific productions in other countries. For future research, there is also an opportunity for institutions, journals and tourism researchers to ensure that scientific research in tourism and hospitality remains relevant in the post-industrial world (Airey, 2016; Hanssen et al., 2018; Park et al., 2011; Pirnar, 2014; Ye et al., 2012).

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