



Decoding digital nomad destination decisions through user-generated content

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ABSTRACT

Digital nomads are engaged in a complex quest to select their next destination. In this context, user-generated content (UGC) on social media is a pivotal source to glean insights into digital nomads' destination choices. Accordingly, this study investigates the principal topics that influence digital nomad's destination choice. To this end, data-mining techniques are applied to analyze user-generated content (UGC) from the social platform X (former Twitter). Based on the results, we identify a total of 11 topics associated with digital nomads' location preferences that can be grouped into 3 clusters (positive, negative, and neutral). Specifically, we find six positive topics (employment, retirement, gastronomy, co-working, work motivation, culture), one neutral topic (customer service), and four negative topics (connectivity, work hours, visa issues, loneliness). The results suggest that job flexibility, the attraction of travel, and cultural immersion emerge as positive factors influencing destination choice. By contrast, connectivity concerns, visa management, feelings of isolation, and emotional adjustments stand out as considerable impediments for digital nomads. We spotlight the long-term pursuit of quality of life and technological connectivity as the main drivers of digital nomads in their destination choice. The paper concludes with a formulation of 33 research questions related to digital nomad destination decisions to be addressed in further research.

1. Introduction

The COVID-19 pandemic resulted in a significant surge in remote work (Bhatia et al., 2022), propelling the broader adoption of digitization (Bürge et al., 2023) and requiring a shift from traditional work models to digital ecosystems (Kraus et al., 2023). Accordingly, as argued by Hannonen (2020), telecommuting morphed into a new way of life for numerous international workers. In years to come, this trend is anticipated to persist, thus creating a new interconnected societal paradigm in the short- to mid-term.

In the context of this emergent pattern, an increasing number of individuals are gravitating towards adopting the lifestyle referred to as “digital nomadism” (Makimoto and Manners, 1997). Digital nomads are individuals who harness digital technologies to work remotely; this group of workers is characterized by a profound quest for freedom in choosing their physical workspace and their aspiration to consolidate work experiences while journeying (Cook, 2023). Concurrently, digital nomads exploit technology to remain connected and sustain productivity while on the move (Keum and Lee, 2019). As noted by Chevtaeva

and Denizci-Guillet (2021), digital nomads possess the aptitude to work while traversing; accordingly, the selection of an appropriate destination is pivotal in catering to digital nomads' professional and personal demands (Ehn et al., 2022).

In today's growingly interconnected ecosystem, user-generated content (UGC) on social media has emerged as an invaluable information source for digital nomads in terms of gaining deeper insights into their potential destinations, thereby aiding these workers in making informed decisions on their temporary resettlement (Burgess et al., 2009). Overall, analysis of UGC to evaluate tourist destinations is not a recent phenomenon (Mariani et al., 2023). However, echoing the insights of Zhang et al. (2021) and De Ascaniis and Morasso (2011) in the context of digital nomads, the information sought transcends mere tourism, encompassing facets linked to lifestyle, Internet connectivity quality, work ambiance, and social ties.

As noted by Hannonen (2020), in recent decades, digital technologies have made the workforce capable of transcending the borders of one's homeland and destination country, as well as blurred the boundaries between work and leisure. This new environment has fostered the

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emergence of a novel discourse surrounding definitions and constructs associated with community, family, work, leisure, and tourism in the life of a digital nomad within a newly interconnected social paradigm (Mariani et al., 2023).

In this context, the present study focuses on the analysis of destination choices made by digital nomads. We also explore the role of social media as a potentially pivotal tool to discern the needs, motivations, and destination features influencing digital nomads' decision making. Considering the lack of previous research on this topic, the overarching aim of this study is to rank the attributes of a destination based on the perspectives of digital nomads, referencing the UGC from a database extracted from the social platform X. Accordingly, the main research question (RQ) addressed in this study is as follows: *What are the primary indicators determining digital nomads' destination choices according to the UGC in the social platform X?*

The originality of this research is linked to the novelty of the topic, which has not been thoroughly investigated in previous studies. We also use a novel methodological approach that synthesizes previous data-mining strategies proposed by Hiremath and Patil (2022), Ozcan et al. (2021), and Saura et al. (2021). To analyze the data, the initial sentiment analysis approach with the TextBlob algorithm is used, coupled with conducting experiments to enhance the accuracy of results through technologies like Support Vector Classifier (SVC), Multinomial Naïve Bayes (MNB), Logistic Regression (LR), and Random Forest Classifier (RFC). Using this methodological approach, the large-scale sample of 162,258 tweets is classified into three sub-groups depending on users' sentiment (positive, negative, or neutral). Subsequently, the Latent Dirichlet Allocation Model (LDA) algorithm is used for thematic modeling by sentiment. Finally, drawing upon the theoretical frameworks of the Computer-Aided Text Analysis System (CATA) (León, 2009) and Natural Language Processing (NLP) (Hirschberg and Manning, 2015), we use Python to facilitate textual analysis.

The remainder of this paper is structured as follows. In the next section, we review pertinent literature on digital nomads and UGC. This is followed by a description of the methodology used and an outline of the findings. The paper concludes with a discussion of theoretical and practical implications of the findings, as well as the limitations of the present study.

2. Literature review

2.1. The concept of the digital nomad

Digital nomads are an embodiment of two pivotal trends from the era of globalization: mobility and the digital age (Mancinelli, 2020). The emergence of digital nomads has given rise to a transformed perception of travelers who are conceived of through their routes, rather than roots (D'Andrea, 2006). The very term "digital nomad" was first introduced by Makimoto and Manners (1997) who characterized such workers as professionals who harness digital technology and necessitate high-quality Internet connectivity to maintain both professional and social lives online/offline while traveling (Kong et al., 2019; Li et al., 2021; Chevtaeva and Denizci-Guillet, 2021).

Subsequently, Meyrowitz (2008) forecasted that, with the advent of communication technologies, resource mobility, and portable technologies (Nash et al., 2018), society would revert to a form of primitive nomadism. In previous literature on digital nomads, attempts have been made to profile such workers as university-educated millennials who are single and individualistic (Schlagwein, 2018; Kong, 2019; Thompson, 2019) and who desire flexibility and autonomy in work conditions and thus gravitate towards enjoyable and creative projects (Schlagwein, 2018; Hall et al., 2019; Mancinelli, 2020). Consequently, digital nomads have come to be perceived as travelers with profound expertise in their discipline, thereby earning the moniker "knowmads" (Moravec, 2013; Wang et al., 2020).

Digital nomads embrace full autonomy over their lives (Von

Zumbusch and Lalicic, 2020), undertaking the responsibility of managing their retirement, healthcare, and even their children's education (Mancinelli, 2020). They also possess a heightened level of self-discipline, which is essential to demarcate personal from professional time, thus attaining their aspirational productivity levels (Cook, 2020). According to Wang et al. (2020), digital nomads are typically individuals from developed nations who travel to destinations with a lower cost of living, which allows them to have a comfortable economic existence, facilitates entrepreneurial risks, and socially enables them to redirect incomes generated in stronger economies towards daily expenditures in weaker economies (Cook, 2020). In general, digital nomads choose locales characterized by amiable climate, accessibility, convenient time zones, personal ties (family or friends), a diverse array of leisure activities, or adequate work opportunities. Digital nomads predominantly opt for rental apartments, hostels, or hotels, and typically travel light (Hall et al., 2019; Mancinelli, 2020).

As articulated by Cook (2020), in the professional realm, digital nomads eschew traditional, rigid structures and norms, such as fixed schedules, permanent physical workspaces, daily commutes, and hierarchical oversight. Instead, they leverage digital technologies such as software and phone applications, cloud services, social media, online communities, and thus associate work predominantly with laptops and social life with mobiles or tablets.

Moreover, in academic circles, digital nomadism is perceived as an intersection between tourism and migration, evolving within the context of "lifestyle mobility" (Cohen et al., 2015). For digital nomads, the primary driver is their personal self-realization achieved through the pursuit of destinations known for their leisure, cultural experiences, and an alternative lifestyle (frequently termed as the "good life") (Thompson, 2018; Mancinelli, 2020; Castilla-Polo et al., 2023).

Therefore, digital nomads are not merely captivated by the destination per se, but invest in the life they can experience and how such a life can interlock with their overarching projects. This lifestyle seamlessly integrates travel into digital nomads' routine, rather than views travel as variation. This results in the establishment of multiple bases to which digital nomads can return, instead of being tethered to a fixed point. Owing to these factors, digital nomads renounce the "tourist" tag in favor of embracing the "traveler" label (Thompson, 2019).

2.2. The challenge of a destination choice for digital nomads

In recent years, as more and more individuals have started to seek freedom and flexibility to work from anywhere in the world (de Almeida et al., 2021), the lifestyle of digital nomads has gained popularity. Such individuals are defined by their preferences in choosing their workspace and their desire to intertwine work experiences while traveling. Digital nomads, therefore, strive for efficiency and productivity as they travel and cultivate their online professional careers (Cook, 2023). This lifestyle presents an opportunity to immerse in new cultures, acquire new languages, and experience life in a unique way (Thompson, 2019). However, pinpointing a suitable destination that feeds to their needs remains an intricate challenge for digital nomads (Chevtaeva and Denizci-Guillet, 2021).

One of the paramount challenges for digital nomads is identifying a destination that would provide a conducive work environment, stable Internet connectivity, affordable accommodation, and a community of like-minded individuals (Thompson, 2019). To overcome this challenge, digital nomads heavily rely on social media and UGC to independently explore potential destinations, experiences, and motivations. As noted by Li and Liang (2018), social media platforms like Instagram and Facebook have become pivotal sources of travel inspiration and information for digital nomads. Furthermore, as argued by Holleran (2022), digital media platforms such as online forums, e.g., Reddit, and video platforms like YouTube and TikTok, have also become crucial information sources for digital nomads. These platforms facilitate connections among fellow travelers, allowing them to share their experiences,

tips, and destination recommendations. According to Keum and Lee (2019), digital nomads value authenticity and seek to connect with local communities and cultures.

However, despite the plethora of information available online, locating an appropriate destination that would meet all requirements of digital nomads remains an important challenge (Mouratidis, 2018). The ability to choose workspaces with positive attributes has led to the inclusion of new destinations, such as tourist coastal spaces, low-density coastal areas, mid-sized cities with high living standards, natural spaces, and rural areas that compete in the market to attract international digital nomads (Shawkat et al., 2021).

As observed by Orel (2021), digital nomads tend to settle down outside of major cities, as in rural or natural areas. The potential for remote work and the quest for a serene, relaxed environment have made these places ideal destinations for digital nomads. These societal shifts have been additionally promoted by recent experiences related to health risks, such as the COVID-19 pandemic, the overcrowding and air pollution in urban areas, and the high population density in major urban centers (Situmorang and Karthana, 2021).

While in cultural and economic terms, digital nomads do not provide a permanent solution to a region (Tomaz et al., 2022), this group of travelers can generate a steady flow of both domestic and international visitors in urban spaces. These visitors might choose to promote their experiences within their communities, revisit frequently, or even establish permanent residence (Li et al., 2023). Due to the rapid growth of the digital nomad population, various destinations have realigned their tourism marketing strategies, positioning themselves as “digital nomad-friendly” places offering ideal conditions for living and working (Hannonen, 2020). Furthermore, some destinations are crafting specific marketing campaigns to attract this target audience, highlighting their unique features and services (Chevtaeva and Denizci-Guillet, 2021; Cobo-Gómez, 2023; Nyagadza et al., 2023).

Several previous studies also emphasized the concept of “Co-Living” experiences among digital nomads (e.g., Pacheco and Azevedo, 2022). This body of research focused on the actions of digital nomads that challenge the traditional concept of “home” and define the co-living trend. Similarly, in their investigation of various lifestyles of digital nomads, Chevtaeva and Denizci-Guillet (2021) highlighted the connection between the perceived value of co-working spaces during digital nomads' travels and its implications for tourism and hotel research.

In this context, emphasizing the significance of workspaces in digital nomads' searches, Nash et al. (2021) examined the relationship between workspaces, work practices, and technologies employed by digital nomads. In another study on digital nomadism, Hannonen (2020) portrayed digital nomads as individuals seeking an emergent lifestyle without fixed residence or as individuals concurrently working and traveling. This new paradigm has been driven by recent social, technological, and employment shifts promoting flexibility. Furthermore, in a study on the phenomenon of digital nomadism viewed from the lens of mobility and individualization theories, Mancinelli (2020) analyzed the varying responsibilities, structural constraints, and economic strategies perceived by different digital nomads based on their cultural backgrounds and attitudes.

In another relevant study focused on the notion of freedom among digital nomads, Cook (2020) outlined the challenges of this concept in its practical application, emphasizing that freedom demands high levels of discipline and self-control from digital nomads. Additionally, Thompson (2019) reviewed key concepts surrounding the lifestyle of digital nomads and their chosen destinations. The authors defined digital nomads' ability to work remotely and leverage office freedom to travel the globe. Furthermore, the authors also analyzed the areas of privilege, inequality, leisure, work, and community associated with digital nomads.

Using a similar approach, Nash et al. (2018) scrutinized how digital nomads can reshape conventional work contexts. Underscoring the lack

of in-depth empirical investigation about digital nomads and their implications for the future of work and technology, Nash et al. (2018) depicted digital nomads as a community merging the following four components—digital work, commissioned work, nomadic work, and global travels. Finally, using the concept of information infrastructure to describe the emerging configuration of digital platforms leveraged by digital nomads as a community of remote and location-independent workers, irrespective of their chosen destination, Sutherland and Jarrahi (2017) presented the decentralized contexts where digital nomads cultivate new work practices at their destinations.

2.3. User-generated content and digital nomads

When choosing their ideal travel destination, digital nomads encounter certain constraints (Mathew and Soliman, 2021). Despite the abundance of information on the Internet, social media, and UGC, selecting a destination remains a challenge for digital nomads (Cox et al., 2009). The abundance of choices or the absence of detailed information about the desired lifestyle in some places can influence digital nomads' decision making (Hensellek and Puchala, 2021; Zhang et al., 2021; Tagscherer and Carbon, 2023). Considering that digital nomads seek destinations that would meet both their professional and personal needs, selection of a destination becomes a particularly salient concern (Cook, 2020). Destination choice can influence a digital nomad's productivity, as some places might be more conducive to work than others, which can have an impact on digital nomads' professional performance (Zhang et al., 2021; Ata et al., 2022).

In an increasingly interconnected ecosystem, tourism agencies and destinations employ various strategies to promote locations worldwide. One of the effective tactics to promote tourist destinations and capture the attention of digital nomads is producing branded content (Horrigan, 2009). Branded content is a promotional mode where stories are told, and the destination's philosophy is shared through video clips (Jacobson et al., 2022). This approach effectively engages potential digital nomads in digital settings. Such content is driven by the UGC and frequently becomes viral (Borges-Tiago et al., 2019), thereby substantially increasing its visibility on social networks.

Considering that, in today's digital age, social media play a pivotal role in content dissemination and the interaction between brands and their target audience (Gretzel, 2017), UGC is of a particular importance, as it offers genuine reviews and experiences from fellow travelers, allowing digital nomads a more authentic and trustworthy perspective of the destinations they wish to visit. This information is particularly pertinent for frequent travelers who seek unique experiences at every destination (Zhang et al., 2021; Khan and Mujtaba, 2023).

Along with UGC, another important source of information for digital nomads is paid online campaigns (e.g., paid search, programmatic advertising, and social media marketing). Travel brands can leverage such campaigns to endorse specific destinations and highlight areas most pertinent to digital nomads. By targeting a particular audience via sponsored ads on social media, brands can enhance their destination's visibility, motivate digital travelers' interest, and showcase experiences through viral UGC examples (Kaur, 2017; Chamboko-Mpotaringa and Tichaawa, 2021). In this relation, Dylko and McCluskey (2012) and Cheregi (2018) discussed how UGC and the current connected ecosystem of social networks jointly drive a social change among younger generations. Given that younger individuals spend more hours online, UGC about their habits and behaviors has instigated so profound changes that, in the short to medium term, significant alterations in the ways how younger people interact with each other, use technology, or behave in society are to be expected (Stahl and Literat, 2023; Ogunrinde, 2022).

In the digital nomad's ecosystem specifically, UGC and paid social media campaigns have become indispensable tools for digital nomads in terms of information and data collection. Through UGC, digital nomads access genuine opinions and experiences from other travelers, which in

turn enables them to evaluate and choose destinations best aligned with their needs and preferences (Thompson, 2018). Additionally, sponsored content provides digital nomads with pertinent information and specific promotions about destinations, aiding decision-making and enhancing their travel experience (Kushwaha, 2020; Manap and Adzharudin, 2013; Magano and Cunha, 2020; Cobo-Gómez, 2023).

In this respect, in a study on the shift from traditional journalism rooted in expert knowledge towards travel blogs, which are more personal and experiential in their focus, Cocking and Cocking (2020) highlighted the significance of emerging “hybrid” content forms where the audience is concurrently consumer and producer. Similarly, Gretzel and Hardy (2019) delved into UGC revolving around #vanlife, an emergent phenomenon that promotes a mobile lifestyle linked with digital nomadism. Through the analysis of 200 UGC pieces on Instagram, the authors discussed the relationship between materiality and mobility, offering insights into the literature on digital nomadism and online user tribes.

In another relevant study on the concept of social media and its differences from related concepts of Web 2.0 and UGC, Kaplan and Haenlein (2010) proposed a classification of social media into specific categories like collaborative projects, blogs, content communities, social networks, virtual gaming worlds, and virtual social worlds. The authors also discussed the concept of a digital nomad as a connected user informed via consulting UGC across various social media platforms. Finally, in a study that analyzed the work of British travel bloggers from a digital nomad perspective, Willment (2020) explored how authenticity and public image management in UGC are tied to the representation of digital nomads, thereby facilitating the exploration and reinterpretation of travel bloggers' professional performances through UGC in the digital environment and the linkage to digital nomads.

3. Methodology

With regard to the methodology, we first conducted sentiment analysis using Textblob, upon several experiments with SVC, MNB, LR, and RFC to obtain the most accurate results. Subsequently, the LDA technique was employed to divide the database into different topics categorized based on the expressed sentiment: negative, positive, or neutral. Finally, textual and content analysis using Python (Bhavsar and Manglani, 2019) was carried out to extract pertinent insights and conclusions from the analyzed sample. In terms of the conceptual framework, we relied on CATA, a robust framework that complements and enhances the effectiveness of these methods (León, 2009). CATA provides a systematic approach to analyze large volumes of textual data, ensuring that intricate patterns and subtle nuances are not overlooked. Integrating CATA with sentiment analysis and LDA allowed us to delve deeper into the underlying themes and sentiments within the UGC, thereby achieving a nuanced and multifaceted understanding of digital nomads' preferences and behaviors (Short et al., 2018). This synergy of methodologies enabled us to conduct a thorough exploration of the data, ensuring that the findings were not only comprehensive, but also deeply insightful in understanding the complex dynamics of digital nomadism.

3.1. Data sampling

During the data collection stage, a selection of 162,258 tweets was gathered using the Twitter API. The Twitter queries (hashtags) employed for data retrieval were as follows: #DigitalNomad AND #DigitalNomads. Data collection spanned the period from June 2022 to October 2022. The time of data extraction did not witness any significant events related to the tourism industry, UGC, or digital nomads, ensuring that the sample remained unaffected. A non-probabilistic sampling approach (Lehdonvirta et al., 2021) was used for sample selection. Non-probabilistic sampling, also referred to as judgment sampling, follows the criteria outlined by Lehdonvirta et al. (2021) and hinges on the knowledge of the study object to develop the selection

process, considering non-probabilistic variables. This non-probabilistic sampling approach has been widely employed in previous research on user-generated communication on social media platforms (Saura et al., 2023).

We then filtered the database using Python libraries based on the following criteria. Firstly, duplicate tweets were removed to obtain as many original tweets as possible. Retweets were also considered as duplicate content, representing information previously posted on the social media platform. URLs were removed, and the focus was solely on text analysis using NLP techniques. All tweets included in the dataset had a minimum of 80 characters (Kim et al., 2018). Images and videos attached to the tweets were not analyzed as they were not pertinent to the aims of our study (Palguna et al., 2015). After completing the filtering steps, a total of $n = 125,678$ tweets were included in the final dataset.

3.2. Textblob sentiment analysis

In general, sentiment analysis algorithms are employed to categorize databases into distinct categories or classifications (Saura et al., 2023). Numerous algorithms can be trained using machine learning processes to enhance the accuracy of the obtained results. While the databases used for sentiment analysis can vary widely in their nature, UGC data can serve as a valid source for the use and application of this data mining technique (Sibona et al., 2020). Such UGC can emerge from various sources, offering valuable information for further analysis using sentiment analysis algorithms (Hasan et al., 2018).

In this study, we used 1243 tweets to train the algorithm and, using Textblob, classified the data into three sentiment types: positive, negative, and neutral. During training, sentiments expressed through emoticons, images, or videos were not considered (Zafar et al., 2017). This process was performed manually, dividing the dataset into equal parts and classifying without comparing outcomes, attributing values of 1 for positive tweets, 0 for neutral, and -1 for negative ones (Hiremath and Patil, 2022). Upon classification of the tweets, the accuracy of the algorithm applied in sentiment analysis through Textblob was evaluated. To this end, polarity scores were measured and classified based on their level of polarity or subjectivity. The polarity scale ranged from -1 to 1 , whereas subjectivity spanned from 0.0 to 1.0 , where 0.0 indicated a high degree of objectivity, while 1.0 denoted strong subjectivity. This precision measure has previously been widely used in classifying results from models involved in sentiment analysis (Hung and Alias, 2023).

Textblob, a renowned Python library first developed and released by Loria (2013) and subsequently applied in academic research (e.g., Rukavina et al., 2014; Vijayarani and Janani, 2016), is widely used for various text processing operations. One of the challenges of algorithms working with sentiment analysis is their inability to recognize irony, sarcasm, and connotations. This limitation was previously considered during the algorithm training process to enhance the quality of the results (Hasan et al., 2018). In the present study, we selected Textblob for its renowned simplicity and efficiency, particularly in the realm of soft computing. As a well-established Python library, Textblob leverages the capabilities of NLTK and Pattern libraries, offering a user-friendly interface that simplifies complex text processing operations. Previously, Manuaba (2023) and Saura et al. (2023) highlighted the advantages of using Textblob versus similar libraries such as the enhanced quality of results obtained and validated through rigorous cross-validation methods. Finally, to validate the findings from our sentiment analysis, we followed Hiremath and Patil (2022) to compute four cross-validations. Precision, recall, f1-score, and support variables were considered, with outcomes framed in terms of macro-average and weighted average. Consequently, for pattern classification in the analyzed database, the following technologies were used: SVC (Dake and Gyimah, 2023), MNB (Zulfikar et al., 2023), LG (Raheja and Asthana, 2023), and RFC (Patel et al., 2023).

3.3. Latent Dirichlet Allocation (LDA) model

To categorize the database into distinct topics, we used the mathematical algorithm known as LDA (Blei et al., 2003; Girolami and Kabán, 2005; Hoffman et al., 2010). We chose to use LDA for its flexibility and adaptability in the analysis of databases comprising tweets (Sann and Lai, 2023). Another reason was that LDA prioritizes thematic structures over specific topics of analysis. Following Jelodar et al. (2019), the LDA algorithm was implemented in Python LDA 1.0.5, using Gibbs sampling in its version for MAC.

Based on the sentiment analysis results, the primary database was subdivided into three distinct databases, each containing tweets expressing different sentiments. These databases were subjected to the LDA algorithm to uncover the probability of hidden distributions (clusters of words) in the input data for each topic. Broadly speaking, the LDA algorithm enables the identification of common topics structured as documents formed by tweets. However, in the present study, we worked with UGC-type data sources. By applying LDA to the databases subdivided by sentiments, topics associated with these three sentiment types were successfully identified (Resnik et al., 2015).

Consequently, LDA was established as a topic modeling technique within the field of data mining, and the various words present in the databases were explored. In this manner, the model was used to identify the most recurrent words and assign names to those topics (Zhao et al., 2011). Subsequently, a probabilistic assumption developed in LDA was used to initially identify the distribution of topics present in the analyzed database. This was followed by automatic grouping of the words constituting those topics, which were later labeled using the most frequent words present in the data (Tajbakhsh and Bagherzadeh, 2019). After acquiring these data, analyses were conducted on the groups of words extracted from the studied databases to select topics relevant to the destination choices of digital nomads.

3.4. Textual and content analysis

Upon obtaining the results from the sentiment analysis and the LDA, we proceeded with textual and content analysis using NLP-based approaches (e.g., Fairclough, 2003; Burrows, 2004). In these approaches, variables such as weighted percentages, count, and keyword frequency are calculated to extract relevant insights from the UGC pieces (Klein et al., 2021). Broadly speaking, textual analysis provides an understanding of the relevance of each word in the database, thereby facilitating the identification of meaningful patterns in the data. This multidisciplinary approach, with its roots in both linguistic and computational theories, enables the construction of ideas and the discovery of key factors elucidating the research subject matter (Linville et al., 2012). In the present study, textual analysis was fundamentally grounded in the theories of content analysis within text and developed in Python (Krippendorff, 2018). We chose Python instead of similar methods for textual analysis such as R Language or Java for its extensive range of specialized libraries like NLTK. This approach builds upon the established methodologies of examining and interpreting textual data, where the focus is on identifying patterns, themes, and meanings embedded within written content. Applying these principles makes textual analysis a powerful tool for delving into the intricacies of language use, symbolism, and thematic expressions, thus offering invaluable insights into the analyzed data (Saura et al., 2022a).

Furthermore, textual analysis can also involve identifying topics or categories in the data, potentially categorizing keywords based on the recurring content. This approach offers an overarching view of the tone and topics in the data that, in turn, can provide valuable insights into users' interests, concerns, or opinions (Ribeiro-Navarrete et al., 2021). Additionally, analyzing word frequency can also yield intriguing insights. Specifically, words that appear more frequently in the data might indicate subjects that are of utmost concern to users or are particularly relevant to them (Saura et al., 2022). However, it is crucial to recognize

that not all frequent words are necessarily pertinent; some common words may lack significant meaning in the data context and may need to be eliminated or overlooked during analysis by establishing stop word lists and filters (Munková et al., 2014). In the present study, this consideration was accounted for in the filtering and development of the textual analysis approaches (cf. Saura et al., 2023).

4. Results

4.1. Sentiment analysis results

The results of our sentiment analysis using four standard classifier methods (RFC, SVC, MNB, and LR) were evaluated based on the level of achieved accuracy. Overall, accuracy is a crucial metric that measures the percentage of correct predictions in the results of a trained model. In the context of machine learning, accuracy stands as one of the most pertinent metrics to consider (Dhaoui et al., 2017). Among the five cross-validation experiments conducted (SL No from 0 to 4), those achieving the highest accuracy were Linear VPC SL No #4 (0.970905) and #2 (0.969157). The remaining classifier methods yielded accuracies for SL No #1 of 0.640421 in RFC, SL No #2 of 0.804915 in MNB, and, finally, SL No #2 of 0.924774 in LR.

In sentiment analysis methodology, it is common to use multi-scale validations as part of standard classification development processes. These scales aim to enhance the accuracy of the applied models, thereby ensuring more robust and reliable results (Li and Liu, 2014). Table 1 shows the 19 results of the conducted experiments where a value from 0 to 4 was assigned on the classification scale for each of the used models, along with the corresponding accuracy achieved. Similarly, to identify the highest accuracy values, Table 1 shows the peak accuracy results for each of the used classification models. The maximum accuracies recorded were 0.970905 for SVC, 0.924774 for LR, 0.804915 for MNB, and 0.640421 for RFC. Furthermore, Table 2 showcases the top results with LinearSVC (0.970905), LogisticRegression (0.924774), MultinomialNB (0.804915), and RandomForestClassifier (0.640421).

Similarly, in the analysis processes that employ sentiment analysis, it is a standard procedure to represent variables concerning accuracy, recall, F1 score, and support in relation to different sentiments (in our study, positive, negative, and neutral). Here, accuracy plays a pivotal role as an indicator of the quality of the machine learning model in performing the assigned tasks. On the other hand, the recall variable provides an insight into the machine learning model's capability to appropriately identify data in each database. A key metric, known as the

Table 1
Model category details.

SL No	Model_name	Fold_idx	Accuracy - Textblob
0	RandomForestClassifier	0	0.055015
1	RandomForestClassifier	1	0.640421
2	RandomForestClassifier	2	0.602808
3	RandomForestClassifier	3	0.570604
4	RandomForestClassifier	4	0.617005
5	LinearSVC	0	0.956871
6	LinearSVC	1	0.909729
7	LinearSVC	2	0.969157
8	LinearSVC	3	0.940557
9	LinearSVC	4	0.970905
10	MultinomialNB	0	0.780843
11	MultinomialNB	1	0.799147
12	MultinomialNB	2	0.804915
13	MultinomialNB	3	0.801354
14	MultinomialNB	4	0.082468
15	LogisticRegression	0	0.914243
16	LogisticRegression	1	0.882397
17	LogisticRegression	2	0.924774
18	LogisticRegression	3	0.908452
19	LogisticRegression	4	0.900223

Source: the authors.

Table 2
Sentiment analysis classification report.

Sl. N.	Sentiment Analysis	precision	recall	f1-score	support
1	Negative	0.42	0.43	0.65	252
2	Neutral	0.42	0.3	0.34	447
2	Positive	0.55	0.89	0.66	390
4	Accuracy	–	–	0.52	989
5	Macro average	0.39	0.47	0.4	989
6	Weighted average	0.44	0.52	0.45	989

Source: The authors.

F1 score, amalgamates both accuracy and recall into a single indicator that is useful to compare performance in terms of accuracy and comprehensive analysis across various solutions (Saura et al., 2021). Finally, the support variable evaluates the extent of machine learning support used to make model predictions—or, said differently, how much support has been used to produce the prediction for which the accuracy is measured.

Table 2 summarizes the values for accuracy, recall, F1 score, and support for each category. These steps involve using sentiment analysis to divide the dataset into three categories: positive, negative, and neutral. In addition, the percentage breakdown of sentiment analysis for the evaluated tweets was as follows: 45.79 % for positive sentiment, 20.28 % for negative sentiment, and 33.92 % for neutral sentiment.

4.2. Topic modeling results

The topic descriptions were generated by identifying key concepts and associated words, considering the context and objectives of the research. The manually performed selection followed a standardized process in topic modeling techniques, such as the LDA approach (Jelodar et al., 2019). To select topics by sentiment, the tweet database was divided into three subgroups based on the three types of sentiments (positive, negative, and neutral). The LDA algorithm was then executed on these three sentiment-divided databases.

Next, in order to establish the relevance of the different identified topics, the keyness (K) value was calculated. This variable measures the strength of the relationship between the topics. Statistically speaking, the K variable determines the log-likelihood score (Rayson and Garside, 2000). The K variable also evaluates frequency differences and is used to study the corpus of words composing the topics in terms of weight percentage. These processes were also used in previous studies that used mutual information and discourse analysis (Guizzo, 2019), where word frequencies within each topic were compared to the total sample size. Furthermore, following Gabrielatos (2017), in order to measure the relevance of each topic in mutual information and discourse analysis, a p -value exceeding 3.8 was considered statistically to be significant when $p < 0.05$. Although the results were not statistically significant, they can be used to understand the relevance of each topic by analyzing the results of the p and K value variables (Pojanapunya and Todd, 2018) as compared to the rest of the dataset.

Based on the procedures outlined above, a total of 11 topics were identified. The first topic was *Employment*, with a positive sentiment. This topic describes the high demand for online work. The second topic was *Online connectivity*, with a negative sentiment, pinpointing geographic areas where mobile data connectivity is adversely affected, which can cause issues when browsing the Internet. The third topic was *Working hours*, with a negative sentiment that encompassed work schedules and an increase in effective working hours.

The fourth topic was *Visa*, with a negative sentiment. This topic included the challenges faced by digital nomads when traveling internationally, specifically obtaining visas through national procedures. The fifth topic was *Loneliness*, also with a negative sentiment, which referred to the digital nomads' feelings of not being accompanied by family or close acquaintances. By contrast, the sixth topic was positive and

concerned *Retirement*, which as associated with the sense of freedom and flexibility offered by the digital nomad lifestyle, with the long-term goal of enjoying retirement with this life philosophy.

The seventh topic, *Customer support*, was neutral. This topic concerned the increased accessibility to provide services to clients from different parts of the world, which may enhance client satisfaction, as well as an increase in online meetings. Two next topics—*Gastronomy* and *Co-working*—were both positive and concerned the opportunity to experience various national and international culinary cultures and the ability to use workspaces that foster collaborative and dynamic work environments, respectively. The tenth topic was *Labor motivation*, with a positive sentiment, elaborated on the boost in work motivation due to worker freedom and flexibility, which results in enhanced job performance. Finally, the eleventh topic was *Culture*, with a positive sentiment, which referred to the firsthand experience of national or international cultures. A summary of the identified topics and indicators of sentiment, K-value, and p -value can be provided in Annex 1.

Fig. 1 visually represents the identified topics in relation to their relevance in terms of keyness in the analyzed database and their p -value. The figure also shows a map of the topics and their grouping by relevance into three clusters. Based on the “grounded theory” approach (Nayal and Pandey, 2022), Fig. 1 was designed with the aim of applying inductive reasoning to construct scientific evidence from the collected UGC data (Velichety and Shrivastava, 2022). On the Y-axis, the p -values range from a minimum of 0 to a maximum of 0.05. The X-axis shows the number of topics from 0 to 12. The first cluster (C1) consisted of the topics *Online Connectivity* ($p = 0.038$), *Working hours* ($p = 0.034$), and *Visa* ($p = 0.032$). The second cluster (C2) includes *Loneliness* ($p = 0.029$) and *Retirement* ($p = 0.026$). The third cluster (C3) is made up of *Customer support* ($p = 0.022$), *Gastronomy* ($p = 0.020$), *Co-working* ($p = 0.019$), and *Labor motivation* ($p = 0.017$). The topic of *Employment* ($p = 0.043$), which closely approached statistical significance of 0.05, and the topic of *Culture* ($p = 0.014$) were not grouped into any of the three clusters (for further detail on the relationship between clusters 1–3, see the Discussion section).

Fig. 2 shows the results obtained for K. The Y-axis of Fig. 2 shows the topic identification, while the X-axis represents the K-value, ranging from a minimum of 100.00 to a maximum of 900.00. The values align in terms of relevance with the previously presented p -values. Consequently, the highest K-value was for the topic *Employment* (843.76), followed by *Online connectivity* (753.67). These topics were followed, in order of relevance, by *Working hours* (556.76), *Visa* (534.9), *Loneliness* (498.62), *Retirement* (412.32), *Customer support* (387.65), *Gastronomy* (332.12), *Co-working* (296.65), and *Labor motivation* (244.76). The topic with the least relevance is *Culture* with a score of 148.98 in the entire database.

4.3. Textual analysis results

Next, we evaluated the number of times that the keywords were repeated in the databases, both in terms of frequency and weighted percentage (WP) in relation to the total of the database (Loughran and McDonald, 2016). In general, WP is an indicator that displays the weight of a node (set of words) in terms of percentage relative to the total number of words in the database. To compute this value, similar keywords were grouped into nodes or word clusters, and their weight was calculated. This value can be identified using Python or software applications like NVivo (Hirschberg and Manning, 2015). In the present study, standard approaches in NLP and CATA were employed, following guidelines by Krippendorff (2018). For data filtering and analysis, Pandas GroupBy in Python was used. The frequency was determined via grouped text nodes containing the total number of words within those nodes. Therefore, even if an idea was articulated with different words, its analysis was categorized within the node of a specific topic, which enabled amplifying the word's presence in the databases in relation to the topic represented by that node (Krippendorff, 2018).

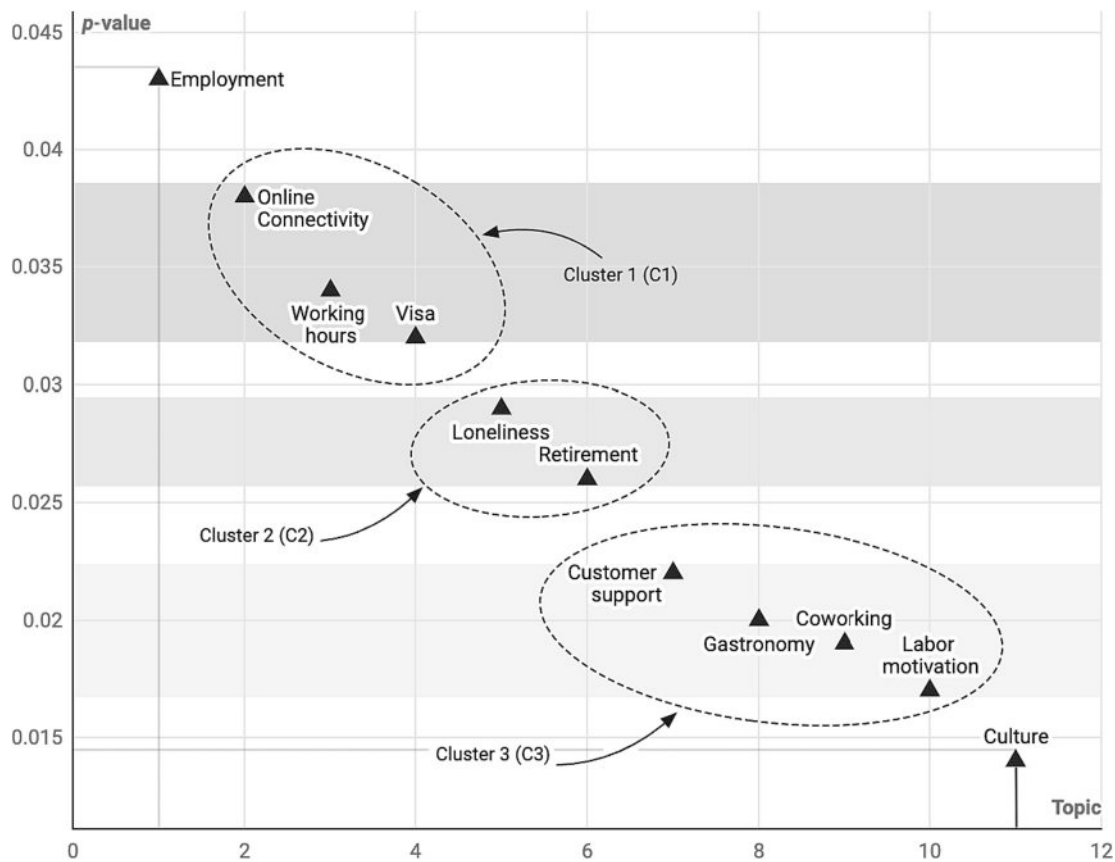


Fig. 1. Clustering of the identified topic by relevance in the dataset.

Source: The authors.

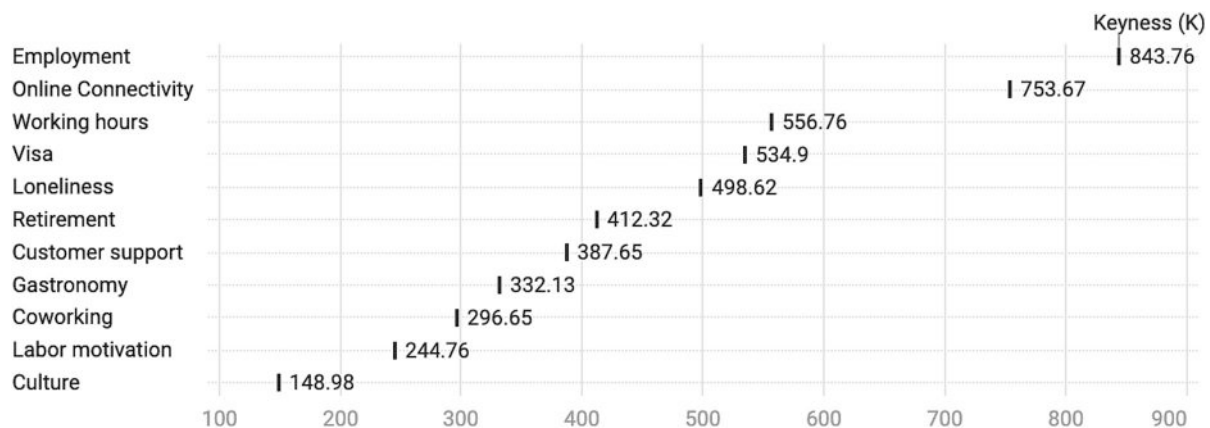


Fig. 2. Identified topic classified by K.

Source: the authors.

Consequently, the 11 previously identified topics were grouped into the following nodes of similar words, composed of frequency and total WP within the database: (i) *Employment*: job, work, career, vocation, profession, livelihood, position, etc.; (ii) *Online connectivity*: connection, network, accessibility, internet access, wireless connection, broadband, networking, etc.; (iii) *Working hours*: work schedule, business hours, office hours, working time, workday, shift, duty hours, etc.; (iv) *Visa*: visa, permit, authorization, entry clearance, travel document, residence permit, etc.; (v) *Loneliness*: loneliness, isolation, seclusion, solitariness, aloneness, longing for, etc.

The next six nodes and the corresponding words within them were as follows: (vi) *Retirement*: pension, superannuation, retirement age, old

age, retirement savings, etc.; (vii) *Customer support*: client support, customer care, customer assistance, customer relations, customer support, client service, client care, etc.; (viii) *Gastronomy*: cuisine, cooking, local food, food culture, food, etc.; (ix) *Co-working*: shared workspace, collaborative workspace, flexible office space, co-working space, co-working facility, cooperative workspace, etc.; (x) *Labor motivation*: work motivation, job motivation, employee motivation, workplace motivation, professional motivation, career motivation, job satisfaction, etc.; and (xi) *Culture*: society, heritage, traditions, customs, way of life, ethos, values, beliefs, etc.

Fig. 3 shows the graph based on the WP percentage obtained from the groupings. The X-axis is set by WP values from 0 to 15.32, the latter

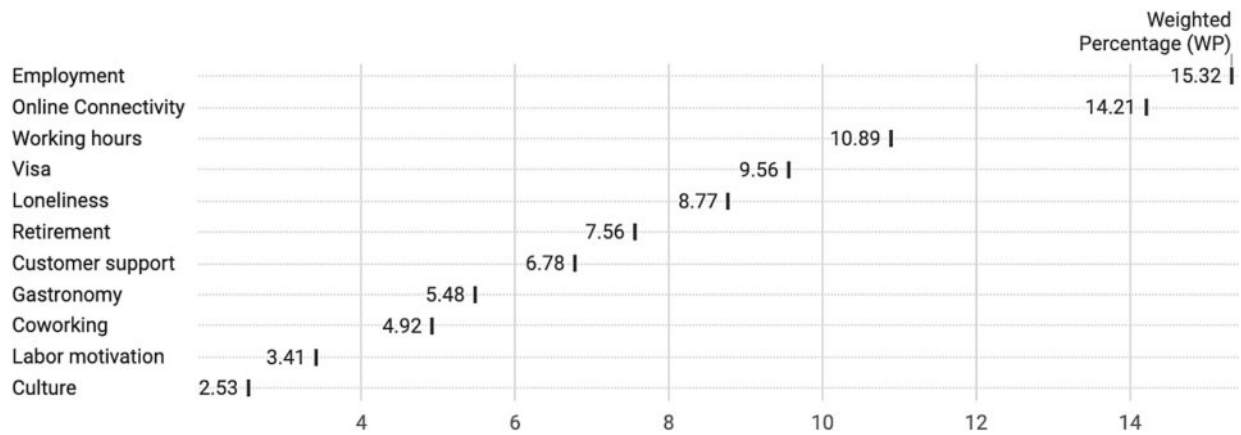


Fig. 3. Results of the groupings nodes according to WP.
Source: The authors.

being obtained by the *Employment* topic. On the Y-axis, the identified topics are ordered by WP relevance. In terms of WP, *Employment* and *Online connectivity* notably surpassed other topics, positioning themselves as the primary topics in UGC related to digital nomads and their destinations. Next, *Visa*, *Loneliness*, and *Retirement* ranged between 8 and 11 WP, suggesting that these topics are important drivers for digital nomads. Subsequently, there were two ranges, 4–8 WP comprising *Retirement*, *Customer Support*, *Gastronomy*, and *Co-working*, which turned out to be less representative in the analyzed database. Finally, falling below the 4 WP range were *Labor Motivation* and *Culture* (see Fig. 3).

Fig. 4 illustrates the Fq values of the nodes established with the keywords in the database. In Fig. 4, the X-axis displays the Fq of synonymous or similar words grouped within nodes, ranging from 0 to 27,826, with 0 being the lowest value and 27,826 the highest. This maximum value corresponded to the node constituted by *Employment*, which highlights the significance of this topic for digital nomads. Subsequently, *Online connectivity* stood out with a total word Fq of 25,579, thus underscoring its relevance. In the subsequent range of the Fq values, from 14,000 to 18,000, there were three further topics—namely *Working Hours*, *Visa*, and *Loneliness*. This was followed by topics with the Fq values in the range of 10,000 to 14,000: *Retirement*, *Customer Support*, *Gastronomy*, and *Coworking*. Finally, the topics of *Labor Motivation* and *Culture* had the Fq values below 10,000 (see Fig. 4).

5. Discussion

In recent years, the number of digital nomads—which serves as a joint representation of freedom, work, and flexibility in a connected era—has dramatically increased (Thompson, 2019). However, as

Hensellek and Puchala (2021) and Zhang et al. (2021) pointed out, the multitude of options or the absence of precise and official information complicates decision-making related to digital nomads' choices of destination. Several previous studies examined the digital nomads within the context of an emerging lifestyle (Hannonen, 2020). This perspective posits that societal shifts and labor flexibility encourage digital nomadism. This new way of life was analyzed in the literature by determining the value of digital nomads against their daily needs (e.g., Mancinelli, 2020; Chevtaeva and Denizci-Guillet, 2021).

Considerable scholarly attention was paid to digital nomads' experience that challenges the traditional concept of home (Pacheco and Azevedo, 2022) or the conventional notion of tourism (Thompson, 2019). As a result, the freedom epitomized by this figure promotes the development of a personality anchored in high levels of discipline and self-control (Cook, 2020). For digital nomads, community spaces become crucial (Von Zumbusch and Lalacic, 2020; Nash et al., 2021). Accordingly, destination choice is becoming increasingly important for digital nomads. One tool to provide this group of workers with precise information is through digital means, be it communicated by official destination channels, organic content generation by users on online platforms, or through digital advertisements (Mathew and Soliman, 2021; Zhang et al., 2021; Kushwaha, 2020; Magano and Cunha, 2020).

The current shift towards cultural immersion among digital nomads mirrors a broader change in global perspectives (D'Andrea, 2006). This trend highlights a societal shift from material accumulation to valuing enriching intercultural experiences. In their quest for diverse cultural engagements, digital nomads exemplify the evolving priorities in a globalized world where adaptability and cross-cultural experiences come to be increasingly valued. This reflects a significant societal

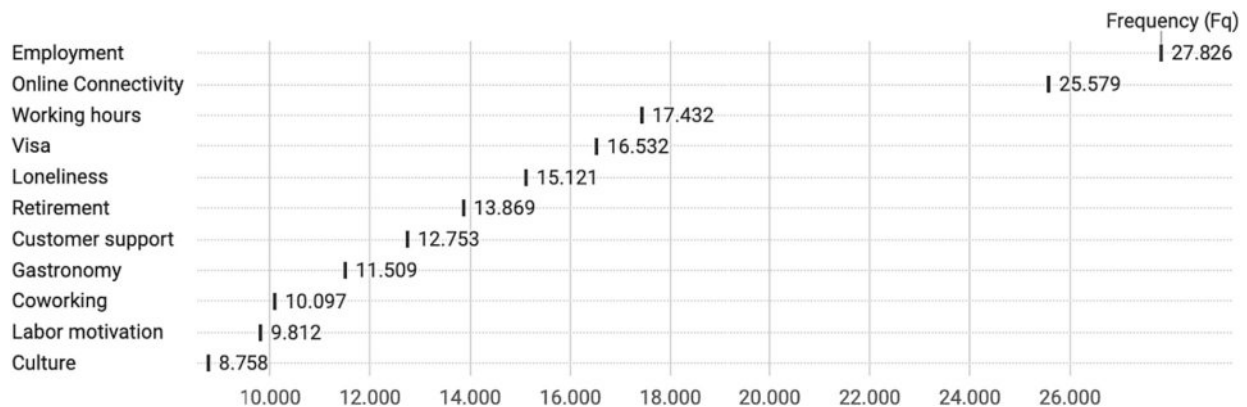


Fig. 4. Results of the groupings nodes according to Fq. Source: The authors.

transformation towards valuing flexibility, adaptability, and intercultural understanding in a progressively connected world (Kaplan and Haenlein, 2010).

Yet, concerns about connectivity and visa management among digital nomads highlight critical aspects of globalization and the need for adaptive international policies. These challenges underscore the urgency for flexible policies that accommodate remote work and international mobility (Mouratidis, 2018). Particularly, visa issues reveal gaps in current policies, pointing to a need for a better alignment with the realities of a globally mobile workforce. These challenges are at the forefront of broader discussions on global digital infrastructure, international mobility, and evolving work policies, marking a pivotal moment in shaping an emerging social change (Andino-Frydman, 2023).

Furthermore, the intersection of digital nomadism with global socioeconomic trends offers important insights into the interplay between technology, work, and lifestyle choices in the ever-changing society. The digital nomad lifestyle is both a response to and a catalyst for shifts in global work dynamics and lifestyle preferences. By navigating various cultural landscapes, digital nomads embody the fusion of work and leisure in an international context, thereby contributing to a deeper understanding of cultural exchange and international relations in an era of accelerated globalization (Šimová, 2023).

In the present study, the results allowed us to rank different attributes mentioned by users in the UGC of social network X based on their opinions and experiences tied to digital nomads. The results revealed that the prominent positive value of the *Employment* topic ($K = 843.76$; $p = 0.043$). Today, remote work has become a firmly established option in society. This positively identified topic directly relates to the post-COVID-19 health context (Wang et al., 2020), where digital nomadism has evolved into a high demand for remote employment. This shift has enabled digital nomads to select new destinations and move around the world. The *Employment* topic turned out to be the most significant as identified in the UGC of social network X, underscoring, along with the *Online connectivity* topic, that digital nomads undertake projects aiming to obtain work that would allow them to balance their experiences and desires while traveling and earning.

Directly related to this topic, the negative topic of *Online connectivity* emerged. This finding is consistent with the results previously reported by Zhang et al. (2021) and De Ascaniis and Morasso (2011). In the examined data, the concept of online connectivity had a negative connotation ($K = 753.67$; $p = 0.038$). This topic highlights that there is still room for improvement in terms of high-speed Internet connectivity worldwide, positioning 5G and other emerging connectivity technologies as non-differentiators at present. Accordingly, digital nomads may choose destinations based on local cultures, predispositions to remote lifestyles, and most crucially, Internet connectivity. While Zhang et al. (2021) argued that securing remote work is a priority for digital natives, the availability of reliable Internet connectivity is pivotal for digital nomads looking to access rural, remote, and less populated destinations.

Moreover, in places where Internet connectivity is stable, digital nomads might face additional challenges. As suggested by the negative topic *Working hours* ($K = 556.76$; $p = 0.034$), the number of hours worked remotely frequently exceeds the amounts stipulated in employment contracts. Working in the remote mode implies greater accessibility and communication between companies and their employees. This dynamics could even be linked to emerging concepts such as technostress (Saura et al., 2022a) and the ongoing investment in acquiring new technological knowledge (Felstead and Henseke, 2017). Among other topics tied to negative sentiments, the identified *Visa* topic ($K = 534.90$; $p = 0.032$) highlights the challenges some digital nomads face when obtaining visas due to bureaucratic and slow national procedures. This topic accentuates the difficulties in securing visas when continuously traveling, which could hamper work efficiency and social time due to the administrative processes involved.

As noted by Schlagwein (2018), Kong (2019), and Thompson (2019), digital nomads tend to have an individualistic profile. In line with this

conclusion, in this study, we identified *Loneliness* as a negative topic ($K = 498.62$; $p = 0.029$). This topic concerns digital nomads' feelings of not being accompanied by family or close acquaintances. Thus, when accessing a new destination, digital nomads must build their social identities and discover new circles and social friendships in their destinations. This sentiment is a discernible need evident in the analyzed UGC data.

Yet, the data analysis also revealed the positively evaluated *Co-working* topic ($K = 296.65$; $p = 0.019$) that may help digital nomads to combat potential loneliness in their destinations. According to the analyzed UGC data, the importance of communal spaces for digital nomads can hardly be overestimated. Such spaces not only drive digital natives to develop personal projects, but also connect them with new social circles and ties. Similarly, Zumbusch and Lalicic (2020) and Nash et al. (2021) also emphasized the pivotal role co-working spaces play for digital nomads.

Another positive topic that emerged in the analysis was *Retirement* ($K = 412.32$; $p = 0.026$), which was tied to improving the quality of life in a new location. This finding suggests that this aspect remains relevant for digital nomads, which is fully in line with previous studies (e.g., Mancinelli, 2020). In the analyzed data, retirement emerged as a positive value oriented towards the idea of freedom, self-decision, and work-life balance.

The only neutral topic that emerged in the results was *Customer support* ($K = 387.65$; $p = 0.022$). On one hand, this topic stood out positively due to the ease and accessibility of establishing online meetings or offering enhanced services to clients across various geographically dispersed locations. Yet the negative aspects associated with this topic are excessive meetings or long time spent getting support, which can be draining for employees who spend extensive hours online (Borges-Tiago et al., 2019).

In addressing the risk of an increase in regularly worked hours, digital nomads can offset this trend with their strong work motivation, hence the positively evaluated topic of *Labor motivation* ($K = 244.76$; $p = 0.017$) emerged in the data. Digital nomads' motivation in their professional tasks was previously reported to relate to both their business projects, which are frequently centered on some technology usage like startups, and to personal projects that are advanced remotely as digital nomads travel to various destinations (Hannonen, 2020).

From a more touristic perspective, digital nomads fully leverage the sociocultural and environmental opportunities of a destination (e.g., Keum and Lee, 2019; Thompson, 2019). Accordingly, the results of the present study suggested the existence of the positive topic of *Gastronomy* ($K = 332.13$; $p = 0.020$), as the local culture highlighted by digital natives, culinary experiences, and activities associated with this industry while exploring a destination. Moreover, the topic of *Culture* ($K = 148.98$; $p = 0.014$) was also identified, highlighting digital nomads' eagerness to immerse in national or international cultures firsthand. Although this topic holds less weight in the analyzed database, it was implicitly portrayed by digital nomads' actions and behaviors in globally identified topics. This is because the lifestyle and culture sought by digital nomads manifest themselves in their daily actions and experiences, but are not direct discussion topics or comments in the UGC of social network X.

With regard to the three clusters of topics in terms of relevance (see Fig. 1), C1 displays the linkage between the topics *Online Connectivity*, *Working hours*, and *Visa*. Online connectivity and the amount of time digital nomads spend online are significant. Accordingly, the connection should be robust for real-time meetings; more importantly perhaps, workdays should be solidified in terms of connectivity and accessibility for communication between the employee and the company, or between the entrepreneur and their primary suppliers.

This crucial role of connectivity in the workplace is related to (sometimes complicated) visa processing and management. While many destinations do not require visas for short-term tourist stays, for digital nomads intending to work for months in a destination while having a

fiscal residence elsewhere, visas can pose certain challenges. Visa management is thus deemed one of the challenges digital nomads face in the medium to long term at their new destinations. C1 highlights that once digital nomads secure such flexible, global employment, they engage with the negative sentiments stemming from issues maintaining stable Internet connection and the long hours they must be connected. Furthermore, the intricacies of visa processing and management during their location changes emerge as significant logistical concerns. Similarly, C2 reveals the connection between the feelings of loneliness and retirement. Both terms illuminate the psychological and emotional reactions of digital nomads to circumstances that can influence their wellbeing. The emotion of being away from family and lacking a stable local friend network can intensify the feelings of loneliness. Yet, these negative sentiments might be overshadowed by securing stable employment that offers freedom, flexibility, and perpetual travel. Retirement, in this context, emerges as a positive sentiment, as digital nomads aim not only for temporary residencies in visited countries, but also for the option of winding down professionally, working remotely, and touring various countries without a fixed abode.

Finally, C3 highlights—with comparable relevance—the association among four topics in this cluster. First, the customer experience offers digital nomads a gratifying setting to execute their professional activities since communication with companies and suppliers can be seamlessly facilitated online. This is concurrently linked with the *Co-working* topic because, in collaborative workspaces, direct interactions with any on-site users can be initiated, thereby fostering social or professional friendships and hence increasing work motivation. Moreover, work motivation in this cluster is evident when considering customer experience and the collaborative work environment, all of which are elements that inspire digital nomads in their professional atmosphere. The fourth topic in C3 is *Gastronomy*. When digital nomads engage in social gatherings and excursions in their chosen destinations, the initiation of culinary experiences and the forging of new social ties might very well start in these collaborative work settings. In essence, digital nomads interact, share experiences, and subsequently engage in activities tied to local gastronomy and culture, living a lifestyle well aligned with their aspirations and being receptive to forging new friendships as they work and journey across their selected destinations.

5.1. A digital nomad destination decisions research agenda

Based on the identified results and their associated sentiments, as well as taking into consideration previous literature on the topic of digital nomads, a total of 33 future research questions pertaining to the 11 themes identified in this study can be proposed (see Table 3). Future research would benefit from addressing these questions to further explore destination choices of digital nomads through UGC.

6. Conclusions

In this study, we used data-mining techniques such as sentiment analysis, topic modeling, and textual analysis to identify and classify destination attributes associated with the hashtags #digitalnomad and #digitalnomads in the social network X. Based on the results, we identified a total of 11 topics: six positive (*Employment*, *Retirement*, *Gastronomy*, *Co-working*, *Job motivation*, *Culture*), one neutral (*Customer support*), and four negative (*Connectivity*, *Working hours*, *Visa*, *Loneliness*). Furthermore, based on the findings, we formulated 33 research questions to be addressed in further research. This structured approach was designed to enrich and guide subsequent investigations in the domain of digital nomadism.

The results revealed that the significant positive factors influencing digital nomads' destination choices are job flexibility, travel opportunities, and cultural integration. By contrast, significant challenges include connectivity, visa management, loneliness, and emotional adaptation. Together, the results showed that, despite the

Table 3
Future research questions for digital nomads' destination decisions.

Research area	Future research questions
Employment	- How do international employment policies influence digital nomads' destination choices? - In what ways can remote employment contribute to social change in host communities for digital nomads? - Which employment factors are the most decisive for digital nomads when choosing a destination?
Retirement	- How does the digital nomadic lifestyle influence retirement planning strategies? - To what extent does the pursuit of retirement influence long-term destination selection among digital nomads? - What is the perception of retirement among digital nomads, and how does it relate to their geographical mobility?
Gastronomy	- How do gastronomic experiences influence digital nomads' destination choices? - How does local gastronomy contribute to the perceived social change among digital nomads? - What impact does gastronomy have on digital nomads' cultural integration in new destinations?
Co-working	- How do co-working space experiences influence the destination choices of digital nomads? - To what extent does the availability of co-working facilities affect the destination decision of digital nomads? - What are digital nomads' perceptions of the importance of co-working in their destination selection?
Work motivation	- How is work motivation related to personal and professional satisfaction among digital nomads? - What factors drive work motivation in the context of digital nomadism? - How can digital nomadism foster social change through enhanced work motivation of digital nomads?
Culture	- How does cultural immersion affect digital nomads' life and work experience? - How do digital nomads contribute to cultural change in the communities they visit? - What role does culture play in digital nomads' destination choices?
Customer service	- How do customer service expectations impact digital nomads' destination choices? - How does customer service in different cultures affect digital nomads' experiences? - What is the relationship between customer service quality and destination loyalty in digital nomadism?
Connectivity	- How does connectivity infrastructure affect digital nomads' choice of destination? - In what ways does digital connectivity influence social and economic change in host communities? - What are the main connectivity barriers faced by digital nomads, and how can they be overcome?
Work hours	- How do digital nomads manage work-life balance across different destinations? - How do work hours impact digital nomads' health and well-being? - What is the effect of flexible working hours on digital nomads' productivity and satisfaction?
Visa issues	- How do visa policies affect digital nomads' mobility and destination choice? - In what ways do visa restrictions impact digital nomads' long-term planning? - What are the most effective strategies for digital nomads to overcome visa challenges?
Loneliness	- How does digital nomads' loneliness affect their mental health and well-being? - In what ways can digital nomads mitigate loneliness during their travels? - What is the impact of digital nomadism on social dynamics and community formation?

Source: The authors.

aforementioned challenges, digital nomads tend to find a balance in their lifestyle and thus experience an overall satisfaction and a high quality of life.

The central topic associated with remote work was that of *Employment*, which turned into a particularly salient concern during and after the COVID-19 health crisis. Thus, the opportunity to maintain employment while exploring the world appears to be a pivotal incentive in the decision-making of digital nomads. However, issues of online connectivity, visa procurement, and working conditions (such as excessive working hours and technostress) emerged as negative factors. In particular, the *Online connectivity* topic highlights the crucial role of a robust and stable Internet connection for remote work, pointing to the need for further improvements in global digital infrastructure. In addition, bureaucratic challenges associated with visa procurement and work condition-related challenges underscore the need for regulatory and organizational changes to facilitate the digital nomadic lifestyle.

On the other hand, the results of our data analysis also highlighted the importance of aspects related to well-being and socialization in the destination choice of digital nomads. Accordingly, among the critical elements that digital nomads consider when selecting a destination are the topics like *Retirement*, which alludes to the pursuit of better quality of life and freedom, *Co-working*, which emphasizes the importance of shared workspaces to foster social contact, and *Loneliness*, which highlights the challenges of isolation.

Finally, the cultural and gastronomic aspects of the destination, as evidenced by the emergence of topics such as *Gastronomy* and *Culture*, are also significant factors that affect digital nomads' choices of their destination. These findings reinforce the idea that, besides employment opportunities and logistical challenges, digital nomads seek for experiences that would be enriching them on both personal and cultural levels. Therefore, this study underscores the need for a holistic perspective on digital nomadism that would take into account remoter workers' work-related, personal, and cultural aspects.

6.1. Theoretical implications

From the theoretical perspective, the results of the present study contribute to the expansion of the academic paradigm related to digital nomads and their destination choices. Theoretical implications of the present findings can be summarized as follows. First, the positive connotation of the "Employment" topic supports the hypothesis that access to online employment is a crucial determinant in the choice of a digital nomad lifestyle. This finding strengthens existing theories about the persuasion of job flexibility, enhancing our understanding of how the digital revolution is reshaping the traditional work environment.

However, the negative connotations associated with the topics of *Online connectivity*, *Working hours*, and *Visa* highlight the challenges related to the digital nomad lifestyle. This discovery encourages other researchers to develop a theoretical review that would challenge the idealized image of remote work by incorporating realistic accounts of possible obstacles stemming from connectivity, work-life balance, and international mobility. These elements could be integrated with existing theories on remote work and labor globalization, thereby offering a more holistic and realistic analysis. In addition, these topics could be employed as variables in future research to extend extant empirical models theorizing such challenges and thereby ascertain their relationships.

Furthermore, as suggested by the mixed connotations of the *Loneliness* and *Retirement* topics, the psychodynamics (behavior) of digital nomadism is an important aspect to account for. The presence of loneliness among digital nomads contests the sweepingly positive perception of remote work, emphasizing instead the importance of social connections for individual well-being. Simultaneously, the positive outlook associated with "Retirement" underscores remote workers' aspirations for autonomy and freedom—dimensions that might be incorporated into current theories about job motivation, job satisfaction, and personal fulfillment. These topics are directly linked to the emotional stages of digital nomads and warrant further academic research.

On the other hand, the positive associations of the topics of

Gastronomy, *Co-working*, *Labor motivation*, and *Culture* enrich extant theories about motivation and job satisfaction. Digital nomads' willingness to explore new culinary cultures and experience diverse societies reinforces the theory that remote work can offer a deeper personal satisfaction. Additionally, the emergence of co-working and the enhancement of job motivation suggest that collaboration opportunities and workplace environments can be vital factors in the productivity and engagement of remote workers. Therefore, these topics can be used as variables in further qualitative or quantitative research on the relationships between these concepts.

Finally, the neutral connotations of the topic of *Customer support* capture a complex dimension of remote work—namely, that of the interaction with customers. This topic underscores remote workers' ability to serve clients from various geographies, which may have important implications for theories about managing customer relationships in digital and globalized settings. While this topic requires further research, it also highlights the need for more sophisticated and context-sensitive theories of customer service in the digital (international and decentralized) era.

6.2. Practical implications

The results of this study offer meaningful practical implications for various entities and organizations, such as marketing and tourism agencies, public institutions, as well as for digital nomads themselves. Based on the developed topic modeling, tangible and strategic policies aimed at enhancing the selection of certain destinations and improving the overall experience of digital nomads can be elaborated. For instance, in the case of marketing agencies and tourism bodies, the concerning the high demand for online employment and the surge in work motivation can aid in generating compelling proposals and effectively promoting destinations with robust connectivity (e.g., fiber optic and 5G connections) and job opportunities. Such agencies can recalibrate their strategies, with a particular emphasis on the promotion of co-working spaces and on the inherent cultural and culinary richness of each destination.

Furthermore, governmental or public institutions could capitalize on the present results by implementing policies to facilitate international mobility and enhance connectivity infrastructure. Another practical implication for social and public entities is the development of social inclusion programs and community-driven activities intended to counteract the feelings of loneliness experienced by some digital nomads.

In addition, considering the findings regarding the increase in working hours, industries could structure their work policies to prevent burnout and to promote a better balance between work and personal life. Furthermore, the results of this study could serve as a starting point to refine customer support services that would serve to better accommodate diverse time zones and cultural sensitivities of their clients and digital nomads.

Finally, the results of this study provide interesting insights for digital nomads and can serve as a roadmap leading to a deeper understanding of the benefits and challenges intrinsic to their lifestyle. Using the present findings, digital nomads can more efficiently plan their ventures, in full consideration of key factors like connectivity, employment opportunities, visa policies, and social and cultural prospects. Similarly, the positive perspective associated with retirement might also be construed as an incentive to maintain the digital nomad lifestyle.

6.3. Limitations

The present study has several limitations. First, since the UGC data analyzed in this study were extracted exclusively from the social network X, the results might not be generalizable to the entire population of digital nomads or to users of other social platforms. Second, the analyzed data included only the content produced in English, which could potentially limit the representativeness of the results. Accordingly, to gain a more comprehensive and accurate view of digital nomads'

opinions, future research would benefit from including multiple data sources in different languages other than English and from various platforms.

CRedit authorship contribution statement

Francisco Javier S. Lacárcel: Writing – review & editing, Writing – original draft, Software, Methodology, Data curation. **Raquel Huete:** Writing – review & editing, Writing – original draft, Supervision, Investigation. **Konstantina Zerva:** Resources, Investigation, Formal analysis.

Declaration of competing interest

None.

Annex 1. Summary or identified topics and main indicators

Topic name	Topic description	Sentiment	K	p-value
Employment	High demand for online work employment	Positive	843.76	0.043
Online connectivity	Geographical points where connectivity through mobile data is affected, leading problems with Internet surfing	Negative	753.67	0.038
Working hours	Increase in working hours exceeding a certain average established by the contract	Negative	556.76	0.034
Visa	Difficulty when traveling internationally having to obtain the visa through national procedures	Negative	534.90	0.032
Loneliness	Feeling for not being accompanied by relatives or acquaintances	Negative	498.62	0.029
Retirement	Idea of freedom and flexibility offered by the lifestyle of the digital nomad, with the long-term goal of enjoying retirement with this philosophy of life	Positive	412.32	0.026
Customer support	Greater accessibility to provide services to clients from different parts of the world, which can improve client satisfaction and increase online meetings	Neutral	387.65	0.022
Gastronomy	Possibility to try different national and international gastronomic cultures	Positive	332.13	0.020
Co-working	Ability to use workspaces in collaborative and dynamic work environments	Positive	296.65	0.019
Labor motivation	Increased work motivation due to worker freedom that generates a higher work performance	Positive	244.76	0.017
Culture	Getting to know national or international cultures	Positive	148.98	0.014

Source: The authors.

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Francisco Javier S. Lacárcel: Francisco Javier S. Lacárcel embarked on his academic journey at the Catholic University of Murcia, where he pursued a B.A. Advertising and Public Relations. His innate curiosity about the evolving digital landscape in the tourism sector led him to pursue a M.Sc. in Digital Marketing and Social Media at the UDIMA. Ultimately, combining his passion for tourism with his interest in data, he attained a PhD in Tourism Research, specializing in the extraction and application of internet-derived data for the tourism industry. Throughout his career, Dr. Lacárcel has primarily focused on the nexus between technology and tourism. His groundbreaking studies have dived deep into the realm of technologies applied to data extracted from the internet. He has explored how the vast amounts of online data, from reviews to booking patterns, can be harnessed to understand traveler behavior, preferences, and trends, providing invaluable insights for the tourism and hospitality industry. Dr. Lacárcel's commitment to knowledge dissemination is evident from his extensive participation in academic congregations. He has graced numerous national and international conferences as a keynote speaker, sharing his expertise on utilizing online data in tourism research. Notably, his presentations are often awaited highlights at the annual meetings of the International Association for Tourism Research. Furthermore, he has organized and led several seminars and workshops focusing on research methodologies, specifically emphasizing the tools and techniques to handle and interpret web-derived data. Currently anchored at the University Institute for Tourism Research at the University of Alicante, Dr. Lacárcel's research initiatives continue to pave the way for innovative strategies in the tourism sector. His workshops on data extraction methodologies and tools are an integral part of the curriculum, empowering the next generation of researchers with the skills to navigate the digital age of tourism. With a career marked by a blend of academic rigor and forward-thinking innovations, Dr. Lacárcel stands as a beacon in the dynamic intersection of tourism and technology.

Raquel Huete: Associate Professor at the University Alicante in the Department of Sociology I. She is a researcher at the University Institute for Tourism Research at the University of Alicante (UA) and directs the Research Group on Sustainable Tourism Management and Planning at UA. Prior to joining the university, she worked in various companies related to the tourism sector (travel agencies and tour operators), foundations dedicated to higher education management, and social research enterprises. She has been the director of the Rafael Altamira Summer University, coordinator of the Master's in Tourism Management and Planning, and Director of the UA's Continuing Education Center. She also held the position of Director General of Tourism in the Valencian Government. She has been a part of research teams led by different professors from Spanish and foreign universities, participating in numerous competitive R&D projects, European projects, and research contracts. She has been the principal investigator in several research projects and contracts, all related to tourism and migrations. She has published dozens of articles in indexed scientific journals and chapters in collective books. She has also co-edited three books and authored a research monograph: 'Tourists who come to stay. A sociological explanation of residential mobility.' This activity is complemented by around a hundred presentations at national and international conferences. Additionally, she has participated in numerous conferences related to tourism, several times as an invited expert in

international organizations such as the World Tourism Organization, the OECD, and the European Parliament.

Konstantina Zerva: Dr. Konstantina Zerva has been an associate professor in the Faculty of Tourism of the University of Girona (UdG) since 2009, and is currently the Director of the Master Degree in Cultural Tourism of the UdG and Co-coordinator of UNIMED's Mediterranean Tourism SubNetwork. Currently, she is a member of the consolidated research group recognized by the Generalitat de Catalunya, Multidisciplinary Laboratory for Research in Tourism (LMRT). She has participated as a member in the competitive national research project named *Gestión de la experiencia turística en espacios urbanos congestionados a través del uso de drones (GESTURDRON)* (2016–2019), as well as the Project *Actividades en el Medio Natural, motor de desarrollo sostenible en los territorios transfronterizos pirenaicos de montaña (NATTUR)*, financed by the European Commission

(2018–2021). Currently she is member of the competitive national research project named *CICONIA, Social processes of lifestyle migration (LSM) in Spain*. Tourism dynamics, urban processes and gender perspective (2021–2025). Her main lines of research are related to consumer behavior towards products or contexts of social conflicts. Working at the Faculty of Tourism, Dr. Zerva has directed her interest in social conflict between the tourism market and its relationship with the local community within urban spaces, such as Los Angeles, Amsterdam and Barcelona. The qualitative study of phenomena such as dark tourism (which represents the desire to visit places related to death), the tourist offer of drugs and prostitution, and 'tourism-phobia' in the city of Barcelona have resulted in the publications in JCR and SJR journals, such as *Tourism Management*, *Tourism Management Perspectives*, *Tourism Geographies*, *Bulletin of the Association of Spanish Geographers*, and *Journal of Tourism and Cultural Change*.