

USER FLOWS AND WALKING MOTIVATIONS ALONG THE VIA FRANCIGENA CULTURAL ROUTE: A MIXED-METHODS STUDY

Gianluca BAMBI ^{1*}, Martina ELMi ¹

¹ University of Florence, Department of Agriculture, Food, Environment and Forestry, Florence, Italy; gianluca.bambi@unifi.it (G.B.); martina.elmi@unifi.it (M.E.)

Citation: Bambi, G., & Elmi, M. (2025). User flows and walking motivations along the Via Francigena cultural route: A mixed-methods study. *GeoJournal of Tourism and Geosites*, 62(4), 2107–2118. <https://doi.org/10.30892/gtg.62410-1576>

Abstract: Over the past two decades, walking pilgrimages have undergone a profound transformation, evolving beyond their strictly religious origins into complex experiences shaped by contemporary cultural, psychological, and environmental values. Today, long-distance routes such as the Via Francigena attract individuals motivated not only by spiritual renewal but also by physical well-being, mental health, introspection, a desire for contact with nature, and a slower pace of life. These changes reflect a broader redefinition of pilgrimage as a hybrid and plural phenomenon in which the sacred and the secular often intersect. Understanding this evolution is essential to interpreting the meaning of modern pilgrimage and developing sustainable policies for the management of historical walking routes. This study focuses on the Tuscan section of the Via Francigena, one of the most symbolically and scenically rich segments of the route, with the dual aim of exploring the motivations and lived experiences of contemporary walkers and testing a complementary system for monitoring user flows. To achieve this, a mixed-methods approach was adopted that integrates qualitative and quantitative data. The research combined two primary methods. First, self-administered paper questionnaires were voluntarily completed by walkers encountered along the route during their journey. This approach ensured both immediacy of response and authenticity of experience. Second, a pilot monitoring system based on fixed-position video cameras was deployed at selected locations to anonymously register the frequency and direction of pedestrian traffic. The system was designed in full compliance with ethical standards, avoiding the collection of personal data or identifiable images. The results confirm a clear predominance of non-religious motivations among participants. The most commonly cited reasons for walking included immersion in natural landscapes, physical and psychological well-being, the appeal of solitude or social interaction, and the intrinsic pleasure of walking. Less frequently mentioned but still relevant were motivations related to cultural exploration, spiritual reflection, transitional life moments, and the need to disconnect from everyday routines. By combining direct user feedback with anonymous observational data, this study provides a comprehensive understanding of contemporary pilgrimage practices and contributes to the ongoing redefinition of the relationship between faith, heritage, and mobility in 21st-century Europe.

Keywords: sustainable tourism, cultural routes, flow monitoring, tourist motivations, Via Francigena

* * * * *

INTRODUCTION

Over the past two decades, pilgrimage has undergone a significant transformation, evolving beyond its strictly religious roots into a multifaceted cultural and personal phenomenon. This change is particularly evident in the growing popularity of walking pilgrimages, which are increasingly embraced by individuals seeking not only spiritual renewal but also physical well-being, inner reflection, connection with nature, and a slower pace of life (Collins-Kreiner, 2010; Eade & Sallnow, 1991; Digance, 2006). Among the most emblematic of these routes is the Via Francigena, a historic path stretching from Canterbury to Rome, which traverses the Tuscan countryside in one of its most scenic and spiritually resonant segments. While originally conceived as a medieval pilgrimage route to the tombs of the apostles, the Via Francigena has been rediscovered in recent years by a new wave of “modern pilgrims,” whose motivations often reflect the broader secularization and individualization of spiritual experience in contemporary society (Lopez, 2020; Turner & Turner, 1978).

Understanding the motivations, perceptions, and behaviors of these walkers is critical for interpreting the evolving identity of pilgrimage and for informing the sustainable development of these routes. Previous studies have highlighted the complexity of pilgrim motivations, which frequently combine religious, cultural, recreational, and existential dimensions (Collins-Kreiner, 2010; Amarok et al., 2018). However, there is still a need for integrated methodological approaches that combine qualitative and quantitative data to better capture the diversity and dynamics of pilgrimage use in real time.

This study addresses that gap by proposing a mixed-methods approach to investigating user flows along the Tuscan stretch of the Via Francigena. Specifically, the research combines self-administered questionnaires completed by walkers on the route with automated camera monitoring systems that anonymously track user frequency and flow patterns. This dual approach allows for a more nuanced analysis of both the subjective experiences of pilgrims and the objective usage data of the path, offering valuable insights into the current landscape of religious and quasi-religious walking in Italy. Pilgrimage, long considered a primarily religious practice, has increasingly become a hybrid phenomenon encompassing spiritual, cultural,

* Corresponding author

recreational, and therapeutic elements. Scholars such as Collins-Kreiner (2016) and Digance (2006) have emphasized the fluidity of the concept, noting that modern pilgrims often pursue deeply personal goals that do not necessarily align with institutional religious frameworks. This shift reflects broader trends in individualized spirituality and the growing appeal of meaningful journeys as tools for introspection and life recalibration (Margry, 2008; Nilsson & Tesfahuney, 2016). Over time, however, the meaning of pilgrimage as a form of travel has profoundly changed. In the past, pilgrimage was exclusively considered a manifestation of faith, bringing people together to seek the divine and to be in its presence. Today, the meaning of pilgrimage has expanded by combining with other spiritual, historical, archaeological, and naturalistic motivations (Cerutti & Dioli, 2013; Fernandes et al., 2012; Carvache Franco et al., 2020), to the point that it seems difficult to distinguish between the religious and the secular dimensions (Lucarno, 2016; Carullo et al., 2014). While the motives of pilgrims in the Middle Ages were overwhelmingly religious, research on contemporary pilgrimage shows that motives, experiences, and symbolic meanings incorporate pleasure as well as worldly renunciation (Jensen, 2015; Kato, 2017; Oviedo et al., 2014).

As a result, the experience of hiking over long distances along a pilgrim route is considered more important than reaching the holy site at the end of the route (Amarok et al., 2018; Devereux & Carnegie, 2006). This transformation reflects the idea that tourism and pilgrimage are two social phenomena with related dynamics; indeed, modern tourism is considered a metamorphosis of pilgrimage. According to some experts, pilgrimage and tourism are converging phenomena, even if there is a gap between the two poles of pilgrimage (the Sacred) vs. tourism (the Secular). Both are influenced by the social involvement of tourism and pilgrimage links them to the change in human and cultural activity (Bambi et al., 2023). Therefore, they underline that behaviours and practices depend on the times in which people live (Lopez, 2014).

In parallel with this evolution, during recent decades, there has been a noticeable increase in the reinvention of pilgrim routes in Europe and other parts of the world. In Europe alone, there are many routes leading to holy places. Nevertheless, many visitors, despite being disconnected from any specific religion, still experience deeply spiritual interactions with significantly sacred places, buildings, and landscapes (Rotherham, 2023). In this context, the original meaning of faith in The Way has diversified in recent times. The “space of religious faith” became a “live heritage space,” resulting from the interaction of different actors. Their material and immaterial actions concern a post-contemporary process of heritagization, which fits new motivational and spatial transformations within the post-secular pilgrimage. The relationship between faith and heritage, considered an element of the route, characterizes the proper space of the Way (Lois González et al., 2020).

The Via Francigena: heritage and pathways

The Via Francigena, one of the most developed and studied pilgrimage routes in Europe, is a historic 1,180-mile itinerary that connects Canterbury, England, to Rome, Italy (Aparicio, 2024). Its route, as recorded in the diary of Archbishop Sigeric in the 10th century, consists of eighty stages that traverse north-western Europe, crossing the Alps into Italy through the regions of Valle d’Aosta, Piemonte, Lombardia, Emilia-Romagna, Toscana, and Lazio. Along the way, the trail is punctuated by a dense network of churches, cathedrals, shrines, fortresses, bridges, post stations, and symbolic markers—tangible expressions of a path leading toward Christian Rome, which from 1300 AD onward became the “New Jerusalem” of Jubilee pilgrimages. Importantly, however, Rome was not the ultimate destination for all travelers. Many pilgrims continued their journey further south to Puglia, where they embarked at ports like Otranto toward the Holy Land (Missikoff, 2010).

The formal recognition of the Via Francigena as a European Cultural Route by the Council of Europe in 1994 sparked renewed scholarly and institutional interest. While this designation has fostered interdisciplinary research and cultural valorization of the territories it crosses, it has also contributed to a process of simplification and commodification, promoting a linear, easily consumable narrative that often obscures the route’s historical and spiritual complexity (Balzaretto, 2023). In recent years, scholarly attention has increasingly focused on the contemporary reappropriation of pilgrimage routes, investigating their hybrid nature and the multiplicity of motivations that drive walkers.

Research by Collins-Kreiner (2016), has emphasized how pilgrimage and tourism are converging phenomena shaped by personal, cultural, and post-secular dynamics. Empirical studies have explored motivations (e.g., Nilsson & Tesfahuney, 2016), spatial patterns of use (e.g., Egresi, 2020), and the relationship between pilgrimage and well-being.

However, most recent literature still tends to separate qualitative analyses (motivations, experiences) from quantitative assessments (flows, economic impact), with few studies attempting to integrate both dimensions. This study addresses that gap by combining ethnographically grounded user feedback with automated, anonymous monitoring of pedestrian traffic. Specifically, the research investigates the Tuscan stretch of the Via Francigena, with the dual aim of:

- ✓ understanding the contemporary motivations, behaviours, and lived experiences of walkers; and
- ✓ testing an experimental methodology for real-time monitoring of user flows that respects ethical and privacy standards.

By positioning this research alongside recent contributions the study offers a novel mixed-methods approach that captures both the subjective and material dimensions of pilgrimage. It contributes to the growing literature on cultural routes as evolving heritage spaces and tools for sustainable tourism and identity-making in rural regions.

MATERIALS AND METHODS

Much of the early literature on pilgrimage research relied heavily on qualitative ethnographic methods—including interviews, participant observation, and narrative analysis (Eade & Sallnow, 1991).

However, an increasing number of scholars have advocated for mixed methods approaches, which bridge the richness of qualitative insights with the empirical rigor of quantitative data (Ivankova et al., 2006). In pilgrimage studies, this has included the use of structured surveys, geo-tracking, mobile applications, and demographic profiling (Lois-González, 2015). Such approaches facilitate data triangulation, enhancing both the validity and interpretability of research findings.

Despite the growing attention to the socio-cultural dimensions of pilgrimage, there remains a relative lack of empirical tools for monitoring user flows along pilgrimage routes. Traditional methods—such as stamped credentials, accommodation registries, and check-in logs—often produce incomplete or unreliable data (Digance, 2006).

Recent advances in non-invasive observational technologies, such as camera traps and infrared sensors, now offer promising opportunities for capturing real-time, anonymous data, while ensuring user privacy (Peterson & King, 2021). Nonetheless, the integration of such tools in pilgrimage studies is still limited and conceptually underdeveloped. This study attempts to fill that gap by combining in-situ user experience data with objective pedestrian flow monitoring.

Location of the study

The survey focused on the Tuscan segment of the Via Francigena, which stretches approximately 400 kilometres. A single monitoring station was installed at a strategically selected location to intercept walkers and gather a representative sample of users (Figure 1). Data collection took place over a 12-month period (January 2024 – December 2024), covering all seasons and user types.



Figure 1. Study area along the Francigena Way (red line) in Tuscany region (Italy)

Monitoring station design

To support the dual data collection process, the study involved the installation of a single integrated rest station that facilitated both observational monitoring and voluntary user participation, while maintaining the natural dynamics of the walking experience. The station (Figure 2) included two core elements:

- wooden public waste bin, inside which a EZVIZ BC1C 4K camera was discreetly installed. The camera, activated by passive infrared sensors (PIR), continuously recorded foot traffic within a predefined region of interest (ROI). The device was configured to protect user privacy and did not capture facial features, in accordance with ethical research standards.
- an information and questionnaire board, placed visibly along the route to encourage short stops. The upper part of the board displayed project information in Italian and English on a durable Forex panel. The lower section included three small iron boxes (one to collect the questionnaires and two to deliver them) containing short bilingual questionnaires, designed to be completed anonymously, quickly (just 5 minutes) and independently by-passing pilgrims.

This setup allowed for the collection of both qualitative and quantitative data, enabling real-time monitoring of flows while capturing direct user perspectives on motivations, experiences, and route-related issues.



Figure 2. Rest area with waste basket, notice board and Camera Trap (image and site data collected during fieldwork by the authors)

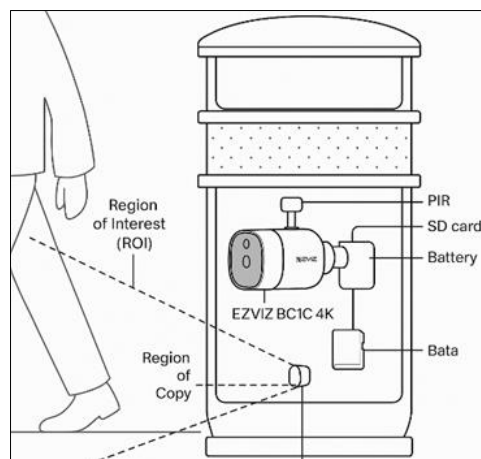


Figure 3. Camera trap installing inside the waste basket

Photo capture survey

To monitor user flows along the Via Francigena in a non-intrusive and continuous manner, this study employed a photo-capture monitoring system based on motion-activated smart cameras. The device used was the EZVIZ BC1C 4K, a high-definition wireless security camera equipped with passive infrared (PIR) sensors for precise movement detection.

The camera was configured to automatically trigger image or video capture when motion was detected within a defined region of interest (ROI). Each file—captured in 4K ultra-high-definition—included metadata such as timestamp and date, enabling detailed analysis of flow patterns, peak activity periods, and directional movement along the route. Designed for long-term autonomous outdoor operation, the EZVIZ BC1C features a rechargeable battery with a duration of up to three months, and a local SD card storage system capable of high-capacity data retention. Importantly, the camera system was integrated with the EZVIZ mobile application, allowing for remote access and real-time monitoring of the captured data. This functionality enabled researchers to verify system performance and access imagery without physical intervention, ensuring the continuity and efficiency of data collection during extended fieldwork. To meet privacy and ethical research standards, the cameras were strategically concealed within the lower section of public wooden waste bins (Figure 3). This positioning ensured that no facial features or personally identifiable characteristics were recorded, as the field of view was limited to the lower body only, thereby guaranteeing full anonymity of individuals being captured. This implementation of a smart monitoring system, combined with remote app-based supervision, offers a novel and replicable methodological framework for the empirical study of user flows along open-air pilgrimage routes.

Future developments and AI integrations

Looking ahead, the research team envisions the integration of artificial intelligence (AI) tools to further enhance the monitoring system's capabilities while maintaining strict compliance with ethical and privacy standards. One of the key developments under consideration is the implementation of real-time facial blurring algorithms, allowing the system to automatically anonymize any captured facial features during image or video processing. This would significantly strengthen privacy protection measures and enable the use of higher-positioned cameras without compromising participant anonymity. In addition, future phases of the project will explore the use of machine learning algorithms to classify users based on visual features—such as the presence or absence of a backpack—as a proxy for distinguishing pilgrims from casual walkers or tourists. Such classification would enable more nuanced data collection on user typologies, supporting a deeper understanding of who uses the route, when, and why. These AI-driven enhancements would transform the current monitoring system into a smart, adaptive tool capable of generating high-quality, ethically sourced data to support long-term research on pilgrimage flows, infrastructure planning, and heritage route management.

Questionnaire survey

The self-administered questionnaire, available in both Italian and English, contained a small set of questions aimed at gathering essential information about the walkers—particularly important given the methodological decision not to record facial features. The questionnaire enabled a basic profiling of respondents (e.g., demographic details, motivation for the journey), and also served as a cross-validation tool for the photographic flow data collected by the camera. The number of completed questionnaires, compared to the total number of recorded transits, provided a useful indication of the participants' willingness to engage with the research. Figure 4 illustrates the structure of the monitoring station and provides a sample version of the questionnaire used.

Questionario / Questionnaire Studio e monitoraggio del turismo itinerante legato al percorso della Via Francigena Study and monitoring of itinerant tourism related to the Via Francigena Way			
Sesso/Sex	☐ M ☐ F	Età/Age	Data/Date
Nazionalità/Nationality	Mezzo utilizzato/How have you travelled?	☐ a piedi/on foot ☐ in bici/by bicycle ☐ a cavallo/by horseback ☐ altro (specificare)/other (specify):	
Tragitto totale percorso della Francigena/Total covered route of Francigena	Partenza (località/città/provincia):/Departure (place/village/city):	Arrivo (località/città/provincia):/Arrival (place/village/city):	
Data inizio viaggio/Start date of trip	Data fine viaggio/End date of trip		
Viaggi/Have you travelled	☐ da solo/By yourself	☐ in coppia/In couple	☐ in gruppo/In group
Quale motivo ti ha spinto a percorrere la Via Francigena? (segnare al massimo due risposte)/Purpose of the trip(choose two answers at the most)	☐ religioso/Religious ☐ culturale/Cultural ☐ naturalistico – ambientale/Environmental ☐ sportivo/Sport ☐ di ricerca personale/spirituale/Personal/Spiritual research ☐ di studio/Formativo/Formative research/Study ☐ altro (specificare)/Other (specify):		
Quali sono le criticità in generale incontrate lungo la Via? (segnare massimo tre risposte)/Which critical issues did you notice along the Way generally? (choose three answers at the most)	☐ alloggio/Accommodation ☐ punti di tappa e di ristoro/Stop off ☐ segnaletica/Signposting ☐ punti informativi/Information points ☐ manutenzione percorso/Path maintenance ☐ sicurezza percorso/Path security ☐ altro (specificare)/Other (specify):		
Servizi che ti piacerebbe fossero presenti lungo la Via Francigena?/Services that you would like to have along the Via?	☐ degustazioni prodotti tipici/tastings of typical products ☐ trasporto bagagli/luggage transport ☐ info sul paesaggio circostante/info on the surrounding landscape ☐ altro (specificare)/Other (specify):		
☐ Sito web (specificare nome)/ Other web site (specify): ☐ Social network o blog (specificare)/ Social network or blog (specify): ☐ Media: tv, stampa (specificare nome)/ Media: television, press (specify): ☐ In seguito ad altri pellegrinaggi. Quali?/Following other pilgrimages. Which one? ☐ Amici, conoscenti/ Friends or family ☐ Università o scuola/ University or school ☐ Altro (specificare)/ Other (specify):			
Il tuo livello di istruzione/Your education level is:	Come hai raggiunto la partenza? How did you reach the start?	Che tipo di camminatore sei? What type of walker are you?	
☐ scuola elementare - elementary school ☐ scuola media - middle school ☐ scuola media sup. - high school ☐ laurea - degree ☐ post-laurea - postgraduate	☐ a piedi - by walk ☐ in automobile - by car ☐ in autobus - by bus ☐ in treno - by train ☐ in aereo - by plane	☐ è la prima volta - is the first time ☐ n.1 Cammino all'anno - 1 Cammino per year ☐ n.2 - 3 Cammini all'anno - 2 or 3 Cammini per year ☐ oltre n.3 Cammini all'anno - more 3 Cammini per year	
☐ Percorso scaricabile dal sito web (specificare il sito):/The path that I downloaded from the web site (specify which web site): ☐ Guida cartacea (specificare titolo e nome autore):/Paper guide (specify the title and the author): ☐ Mappe/Map ☐ APP for smartphone (specificare):/App for smartphone (specify): ☐ Credenziale del pellegrino/Pilgrim Passport			
Note / Notes			

Figure 4. Questionnaire model. Front and back of the self-administered paper questionnaire used in the study, designed and developed by the authors

Database construction

All photo files captured by the camera trap were manually reviewed. For each detection, the following variables were recorded: Date; Month; Time of detection; Number of individuals present; Mode of travel (on foot, by bicycle, on horseback); Data from the questionnaires were entered into a dedicated digital dataset corresponding to the monitoring station. Each entry included the following variables: Number of pilgrims; Date and time of questionnaire completion; Gender, age group, and nationality; Mode of travel (on foot, on horseback, by bicycle); Departure and arrival location (city/town/village); Start and end date of the trip; Total number of travel days; Travel mode (solo, in couple, in group) and group size (if applicable); Main purpose of the journey; Problems encountered along the route; Source of information about the Via Francigena; Navigation or guidance tools used; Desired services along the route.

RESULTS

This section presents the results obtained through the mixed-methods approach adopted in the study, integrating data from self-administered questionnaires and automated camera-based monitoring conducted at the designated observation point along the Via Francigena in Tuscany. The findings are organized into two main parts:

- qualitative results, based on the content and frequency analysis of the responses collected through the questionnaires voluntarily completed by pilgrims.
- quantitative results, derived from the systematic review of the images and videos captured by the motion-activated camera system, allowing for an objective estimation of user flow, temporal patterns, and modes of travel.

Where possible, cross-analysis was performed to relate the characteristics of the respondents to the flow data, offering a more comprehensive understanding of the types of users and their behaviours along the route. This section highlights the main patterns, emerging trends, and relevant demographic and behavioural variables, providing insight into the contemporary use of the pilgrimage path. A total of 5,821 users were anonymously recorded through the fixed-position camera monitoring system along selected segments of the Via Francigena. Of these, 1,682 individuals voluntarily completed the paper questionnaire during their journey. This represents approximately 29% of the total observed users, providing a substantial and statistically relevant sample for the qualitative component of the study.

Seasonal Distribution

The processing of the questionnaire data reveals a marked preference for traveling during the spring and summer months, confirming the seasonal attractiveness of the Via Francigena during periods of favourable weather conditions (Figure 5). However, a noteworthy finding is the consistent presence of pilgrims during the autumn and winter months, a pattern that contrasts with previous trends, where such off-season activity was rarely observed. This extended seasonality is further corroborated by the camera trap data, which confirms the presence of users throughout the year, albeit with lower frequencies during the colder months (Figure 6). Most frequented months in the spring and summer seasons are April, May (questionnaire data Figure 7a, camera trap data Figure 7b).

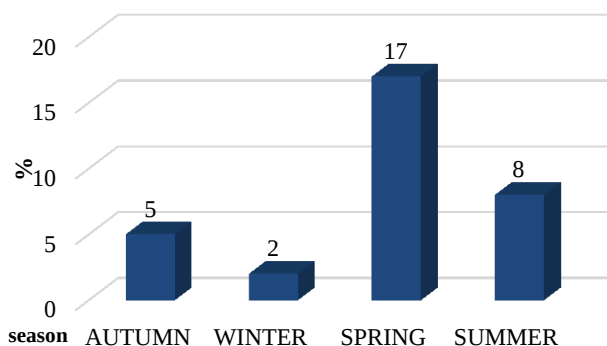


Figure 5. Questionnaire data of pilgrims' percentage distribution by season

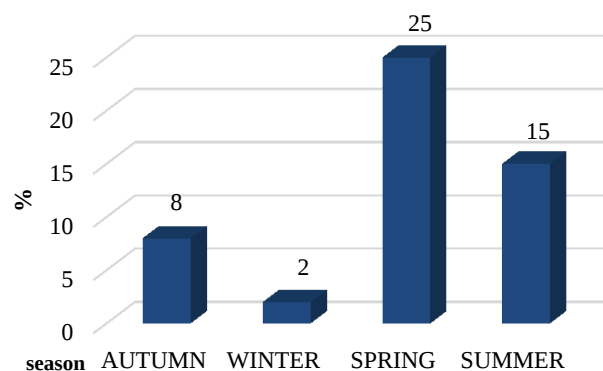


Figure 6. Camera trap data of pilgrims' percentage distribution by season

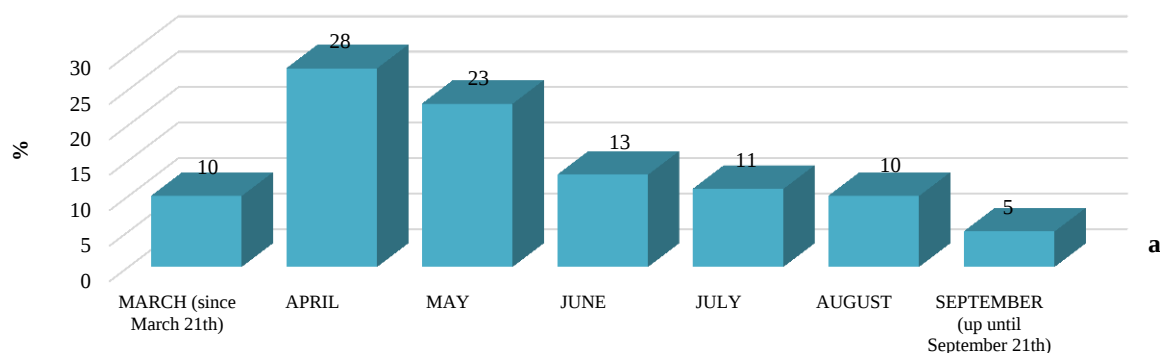


Figure 7. Most frequented months: a) questionnaire data

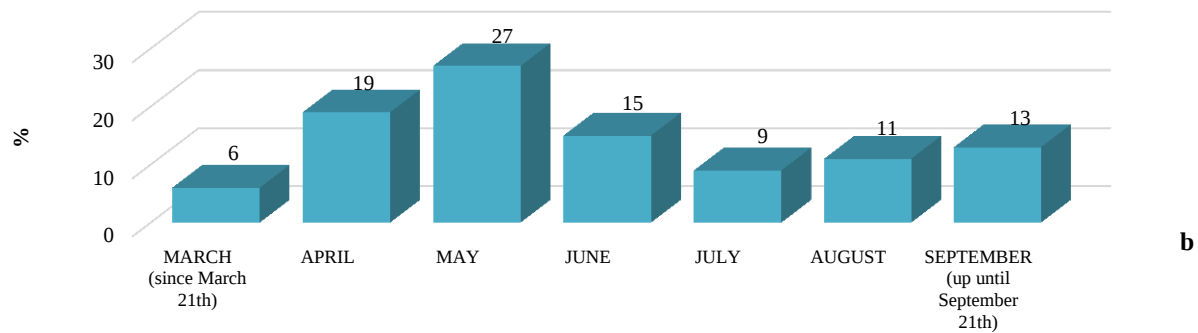


Figure 7. Most frequented months: b) camera trap data

Age Classes

The distribution of age classes was derived exclusively from questionnaire data, as it is not possible to determine users' ages from the camera recordings due to privacy constraints. As shown in Figure 8, the most represented age groups are 51–60 years (17.4%) and over 60 years (42.4%), indicating a predominance of older adult participants among those walking the Via Francigena. These findings are consistent with broader trends in slow and experiential tourism, which often appeal to more mature age groups. The high representation of individuals over 60 years old highlights the importance of addressing their specific needs within the tourism sector. With this age group projected to exceed 20% of the global population by 2050, ensuring accessible tourism is both a social and ethical imperative (Yau et al., 2004). According to UNWTO principles, accessible tourism must guarantee equal access to routes, services, and cultural heritage, aligning with Article 27 of the Universal Declaration of Human Rights, which affirms the right of all to participate in cultural life. Accessibility also extends to travellers with disabilities or chronic conditions, who may require adapted infrastructure, inclusive communication tools, and specialized services. Meeting these needs involves collaboration among institutions, tourism operators, and local authorities, and supports a model of sustainable, inclusive, and responsible tourism (Castelo et al., 2023; Castronuovo, 2023).

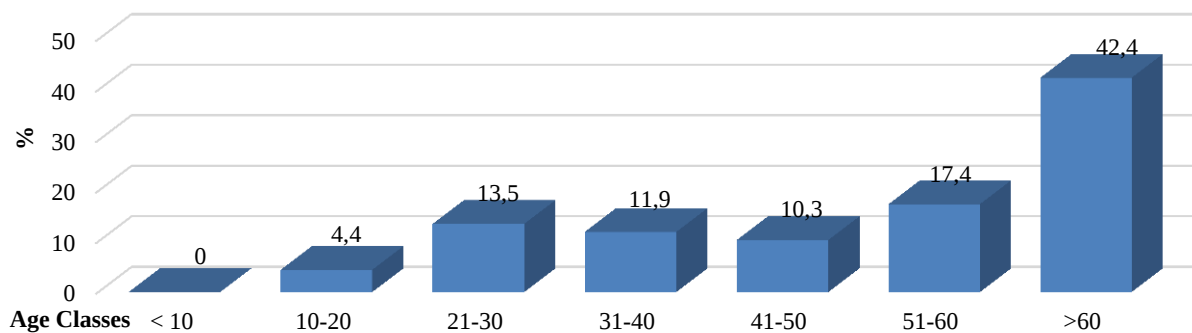


Figure 8. Age Classes percentage distribution

Gender distribution

The gender distribution, derived from the questionnaires, indicates a fairly equal balance between males and females (Figure 9). In Figure 10 are shown the percentage of males and females walking the path "alone". Data from the survey show that 41% of women travel alone along the Via Francigena significant trend that reflects growing autonomy and a desire for self-exploration among female pilgrims. Although each woman may have personal reasons for choosing solo travel, the literature identifies several recurring motivations. These include the need to step outside one's comfort zone, develop a sense of individuality and autonomy (Wilson & Little, 2008), and engage in a journey of personal growth and self-challenge.

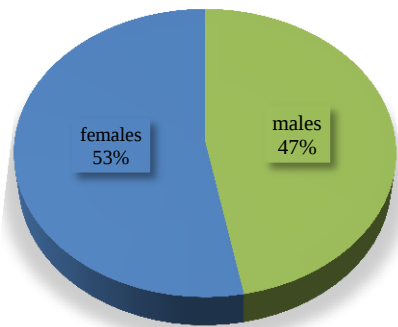


Figure 9. Gender percentage distribution (questionnaire data)

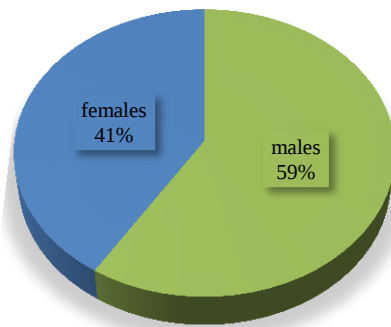


Figure 10. "Walk Alone" percentage distribution of Males and Females (questionnaire data)

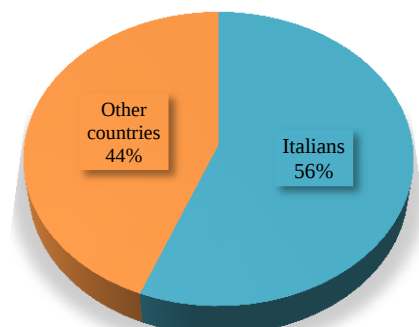


Figure 11. Nationality percentage distribution

For many, the pilgrimage is more than a leisure activity—it becomes a transformative experience, a means to reassess personal values, cultivate identity, and gain deeper understanding. Additionally, the social dimension of the journey plays a crucial role, as interactions along the way contribute to a sense of community and shared purpose (Pereira & Silva, 2018).

Nationalities distribution

The analysis of respondents' nationalities highlights a strong domestic presence along the Tuscan stretch of the Via Francigena. As shown in Figure 11, Italian pilgrims represent the majority (56.14%) of users, reflecting both geographical proximity and growing national interest in the route (Figure 12). Among international pilgrims, the most represented countries are France and Germany (each 6.38%), followed by England (4.83%), Switzerland (3.93%), the United States (3.76%), and Australia (3.03%). This distribution confirms the Via Francigena's appeal among European travelers, particularly those from neighboring countries, while also demonstrating its emerging global visibility.

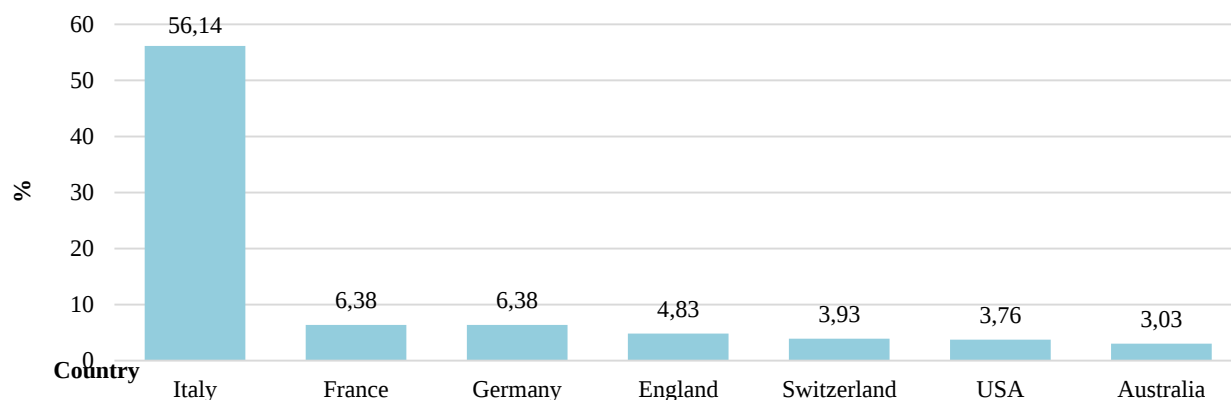


Figure 12. Total countries percentage number

The distribution between the nationalities and age classes shows that the highest percentage of both foreigners and Italians falls within the 50-59 age bracket. (Figure 13).

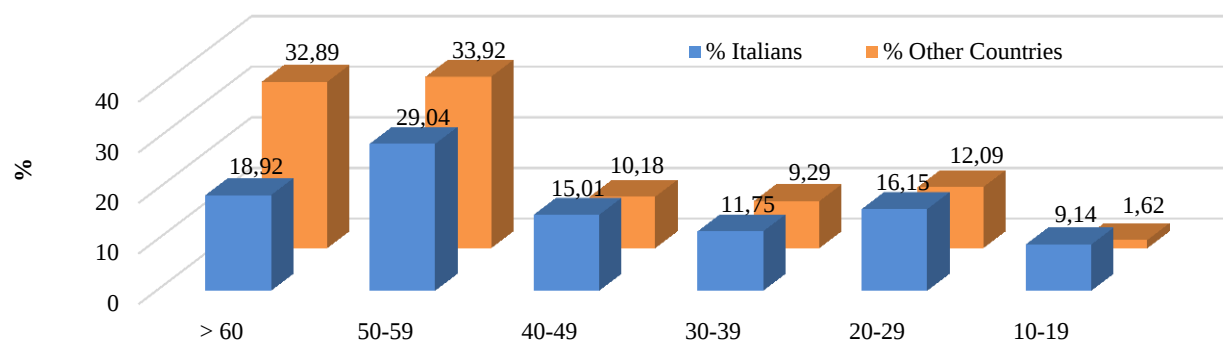


Figure 13. Percentage distribution between the nationalities and age classes

Fruition target

The analysis of the most common modes of travel among pilgrims—whether on foot, by bicycle, or on horseback—reveals a clear prevalence of walking. This trend is consistently observed in both the questionnaire responses and the camera-based monitoring system, confirming that the vast majority of users experience the route on foot (Figure 14).

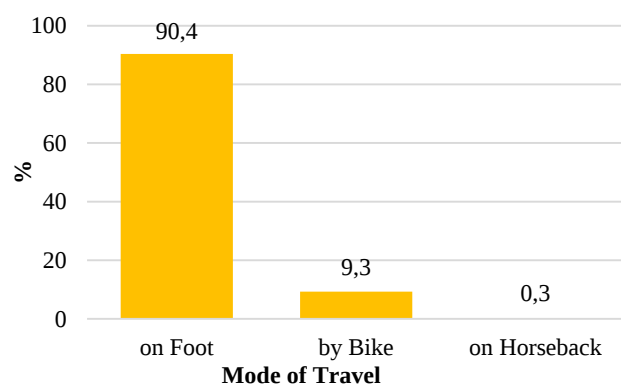


Figure 14. Fruition target: travel mode of flows

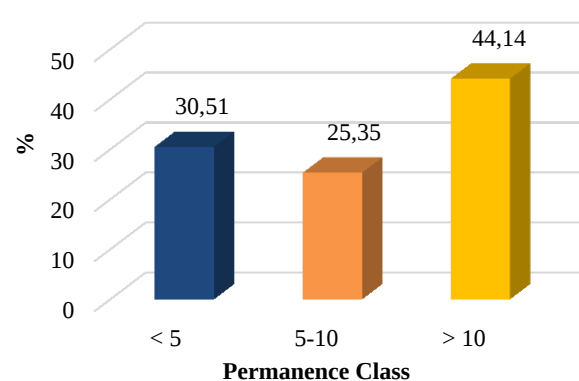


Figure 15. Percentage distribution of permanence classes

Length of the journey

We also examined the time that "pilgrims" spend on the road, categorizing their stays into three groups: less than 5 days, 5 to 10 days, and more than 10 days. The largest group consists of those staying for more than 10 days (Figure 15).

Route preferences

The data reveal interesting patterns in the route choices made by respondents. 33% of those surveyed chose to walk only the Tuscan stages of the Via Francigena, while 44% indicated Siena as their starting point. Additionally, 35% of the total sample reported that they had arrived in Rome, completing the route beyond Tuscany (Figure 16).

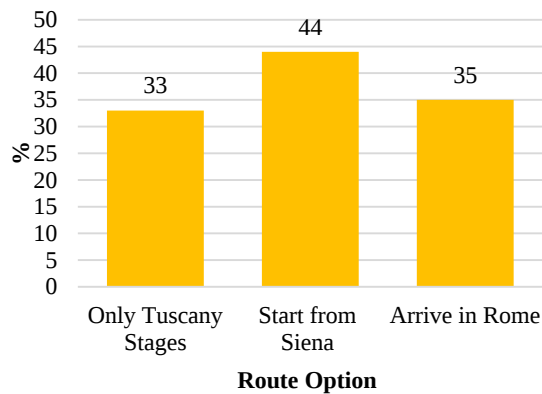


Figure 16. Percentage of Travelers on Different Segments of the Route

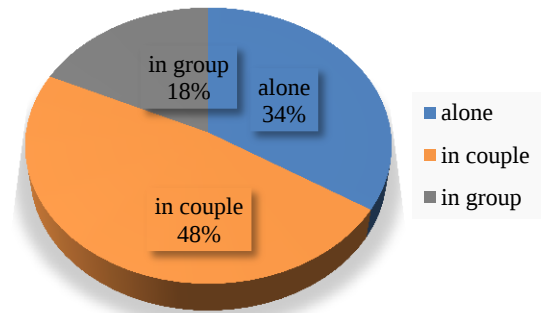


Figure 17. Travel mode preference percentage

Travel mode

The preferred travel mode by users is "in couple" (48%), followed by the "alone" (34%) and "in group" mode 18%. The average number of groups is 4 people; the largest group was 37 people (Figure 17).

The graph below (Figure 18) shows the difference between the preferences of Italian users and those of other nationalities regarding the travel mode. Foreigners tend to travel alone or in pairs, while Italians prefer group travel.

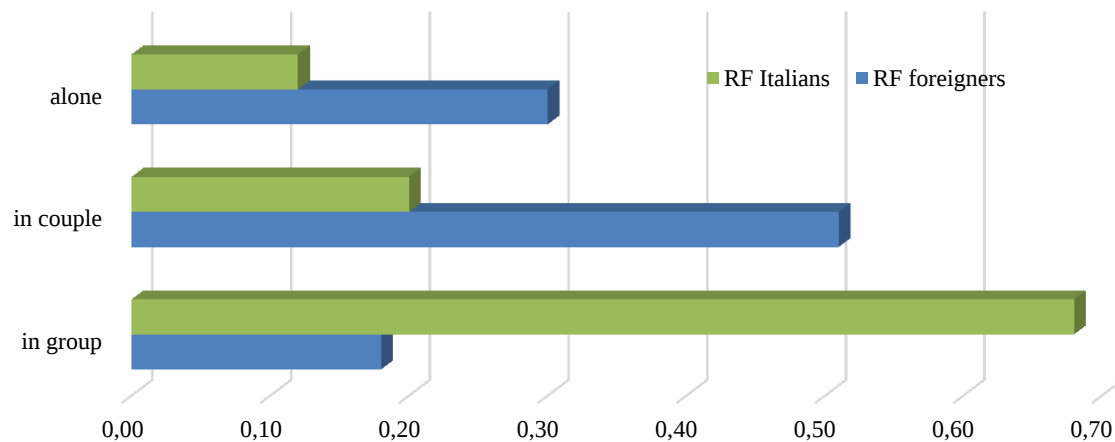


Figure 18. Relative frequencies for travel mode

Travel motivation

Pilgrimage is one of the oldest and most fundamental forms of human mobility, with enduring political, social, cultural, and economic implications throughout history (Eickelman & Piscatori, 1990). Over time, individuals undertaking religious or spiritual pilgrimages have increasingly found themselves accompanied by others who travel for leisure, sport, cultural discovery, or as a retreat from modern life (Collins-Kreiner, 2010). In this evolving context, pilgrimage becomes a shared cultural thread across nations and traditions. A close connection is often established between the pilgrim and the diverse landscapes encountered along the journey.

As Ingold (2011) notes, movement itself is a form of engagement with the environment, shaping both perception and meaning. Today's tourist-pilgrim typically seeks an emotional and immersive experience, one that incorporates elements such as culture, nature, gastronomy, interpersonal encounters, hospitality, and relationships with local communities (Splendiani et al., 2023). To better understand current motivations behind these journeys, the questionnaire invited pilgrims to indicate the primary reason for undertaking the path. Respondents could choose from the following categories: religious, cultural, nature and environment, sports, personal/spiritual search, study/training, or other.

The results indicate that the most frequently cited motivation was related to nature and the environment (26%), followed by cultural interest (21%) and personal/spiritual exploration (20%). Other motivations included sport (17%), religion (12%), other reasons (3.4%), and educational purposes (0.4%) (Figure 19).

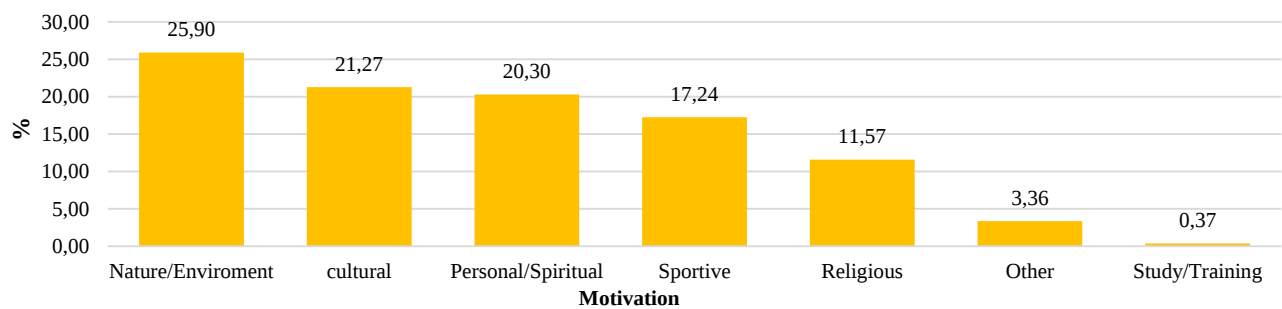


Figure 19. Purpose of travel motivations

Critical issues encountered along the route

Pilgrimage is generally perceived as a low-cost form of travel. Apart from the return trip, transportation expenses are minimal, and accommodation—sometimes even offered for free—is often available at moderate costs. The experience of walking the Way promotes a simple lifestyle, which, when combined with its spiritual dimension, offers a unique and introspective form of tourism. However, despite the affordability and accessibility that characterize the pilgrimage experience, several critical issues were highlighted by participants through the questionnaire. Respondents were asked to identify the main difficulties encountered along the route, choosing from a predefined list of issues.

These included: accommodation, rest stops, signage, information points, path maintenance, path safety, and other. Multiple responses were allowed, and a weighted score was calculated based on selection frequency. The most commonly reported issue was the lack of rest stops (18%), which included difficulty in finding food services (restaurants, delicatessens), as well as a lack of benches or shaded areas. Among those who selected this category, many specifically mentioned the absence of water supply points as the most critical concern.

Accommodation-related problems accounted for 15% of responses. These included limited availability—particularly in low season—high costs, and poor visibility in guidebooks or maps. Issues related to signage were selected by 12% of respondents, who noted missing or unclear route markers, and a lack of distance indicators on existing signs.

Path maintenance concerns, selected by 11%, mainly referred to overgrown vegetation and inadequate clearing of the trail. Meanwhile, path safety issues (8.1%) were related to unprotected crossings on paved roads and the presence of vehicular traffic along certain segments. Finally, the “Other” category (14%) included a variety of additional comments and difficulties not captured by the predefined options (Figure 20).

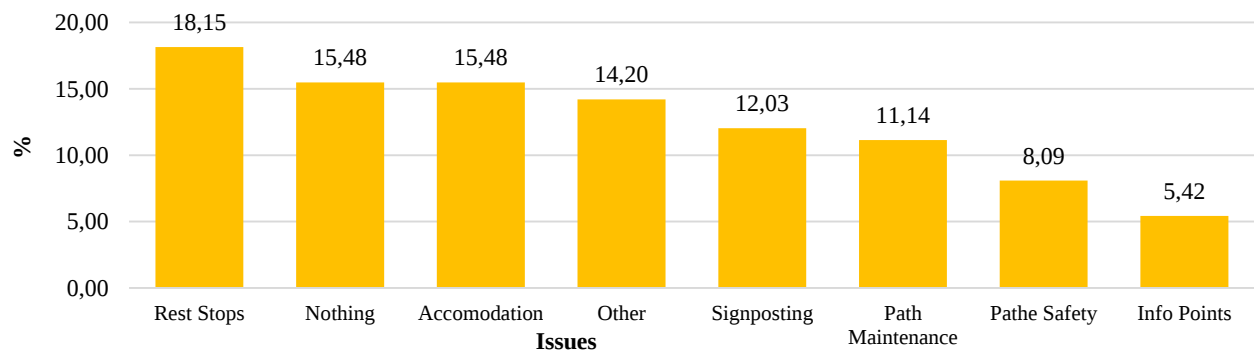


Figure 20. Critical situations found along the path percentage

How did people learn about via Francigena

The main knowledge sources of the Via Francigena are: friends or family (30%), through websites (24%), and other pilgrimages (about 21%) (Figure 21).

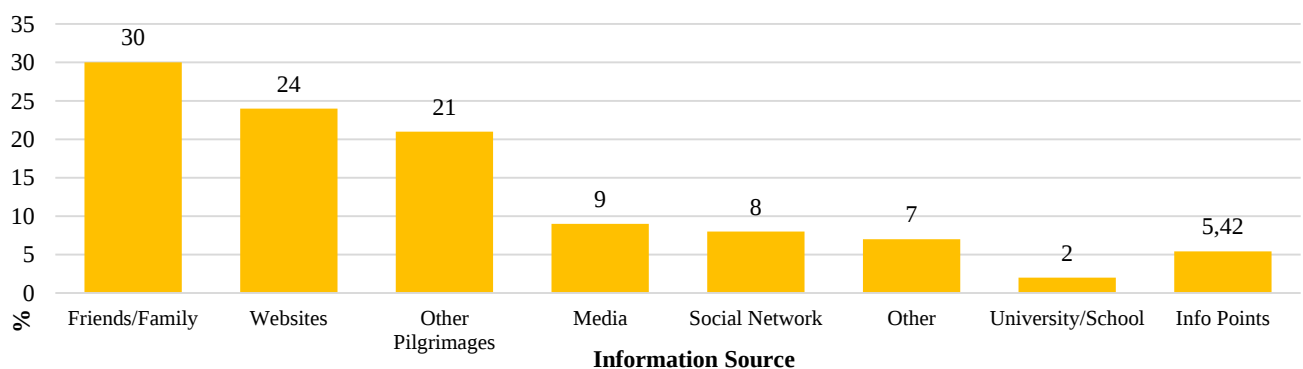


Figure 21. Percentage of Via Francigena knowledge sources used

Guiding tool

Among the various navigation tools used by pilgrims along the Via Francigena, the smartphone app emerged as the most common, selected by 39% of respondents. This was followed by the use of a printed map (21%) and online route tracking via websites (also 21%). A smaller proportion (8.7%) relied primarily on traditional cartographic maps for orientation during their journey (Figure 22).

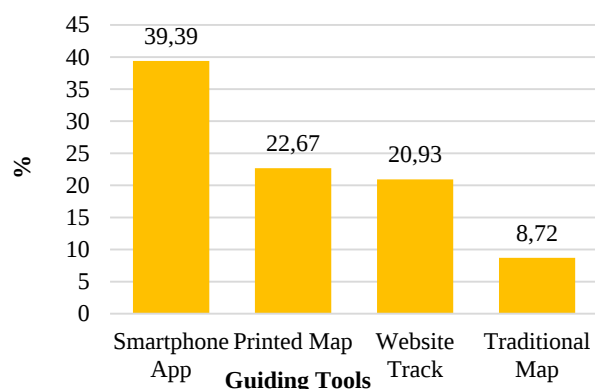


Figure 22. Guiding tool use percentage

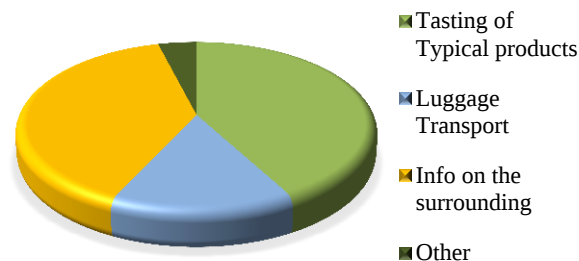


Figure 23. Services that pilgrims would like to have along the Via Francigena

Services requested by the pilgrim

A final key insight emerging from the questionnaire data concerns the types of services that pilgrims would like to encounter during their journey. These preferences further reinforce the observation that individuals are drawn to the route for both cultural and experiential motivations. Specifically, 42% of respondents expressed interest in discovering local businesses that offer tastings of regional products, while 39% indicated a desire to receive interpretive information about the surrounding landscape as they walk along the path (Figure 23).

In light of these findings, the economic potential of small towns along the Via Francigena becomes increasingly evident. Tourism generated by these cultural itineraries—which may be broadly defined as a form of rural tourism—promotes the discovery of local food, wine, agriculture, and traditional crafts. This model of travel aligns with the concept of experiential tourism, which offers significant opportunities for local economic development. If pilgrims were more clearly identified and their contributions to local economies better recognized, they could play a key role in enhancing the landscape and supporting agricultural and cultural activities. Their presence not only generates economic value, but also stimulates further tourism (Aminian, 2012). From a resilience perspective, these cultural and territorial dynamics have the potential to transform and revitalize the economic performance of small inland towns located along the Via Francigena (Aquino, 2018). Investing in services, hospitality infrastructure, and local engagement strategies could strengthen the long-term sustainability of these routes and foster deeper connections between travellers and local communities.

DISCUSSION

The data collected during in 12 sampling months shows a growing phenomenon of "pilgrimage" along the Francigena route. These data allowed us to define the user profile of the Via Francigena in Tuscany. The modern pilgrim is a traveller who enjoys the path in the spring and summer, with presence peak for the months of April, May and June.

However, there is a good presence even for the autumn months. These findings have been confirmed by cross checking with camera trap data. The modern pilgrim covers the age groups 51 to 60 (17.4%) and over 60 (42.4%), confirming other surveys results. Well represented are also the intermediate age groups 31-40 (11.9%) and 41-50 (10.3%).

This shows how the pilgrimage routes are spreading among the younger age groups. Regarding the distribution between genders, these are well balanced between women, which prevail with 55-60%, and men, located between 40-45 %. Among those who travel "alone", the male percentage is higher with 59% of total surveyed. The Tuscan path is more frequented by Italians (56%) compared to users from other countries covering 44% of the total. Is however observed a greater variety of countries represented, with the highest percentages for France, Germany, England, Switzerland. The most widespread use target is "on foot", with no significant numbers for those traveling by bike or on horseback. The time that user spends on the road is more than 10 days and, as most of those who undertake journeys of this duration are foreigners, so Italians prefer to cover stages lasting no more than 5 to 10 days. The favourite steps of the Tuscan section are those from Lucca to Rome, finish line for the 35% of sampled. The modern pilgrim (for the Tuscan path) travels mainly pairs or alone. The group journey is the least preferred. Foreign pilgrims prefer traveling in couples compared to Italian pilgrims that prefer groups.

The modern user prefers smartphone app to direct his journey but also continues to use the classic paper guide. An important data emerging from the analysis is that religious motivation is no more prevalent. The modern pilgrim is still motivated by personal research and spiritual reasons, but mainly moved by a naturalistic, environmental and cultural motivation, expressing the need for a experiential journey, related to rural areas, landscape and historical heritage that characterizes them. This concept is strengthened by the understanding that individuals who choose this path are interested in receiving information about the surrounding landscape and being guided to companies that offer tastings of local products.

Building on the previous finding, we can conclude that cultural routes, like the Via Francigena, are powerful instruments, for promoting social innovation and revitalizing marginal areas (Aquino, 2018), providing opportunities for

economic development by stimulating tourism (Altinay et al., 2016), creating employment, and fostering entrepreneurship in local communities (Laeis & Lemke, 2016). Recent tourism literature has demonstrated the multifaceted benefits of the cultural routes as a social innovation project for marginal areas. These itineraries can be an excellent tool for maintaining the territory and the landscape in a sustainable way, contributing to the socio-economic survival of rural areas, enhancing the typical agro-food, contributing to the dissemination of cultural identity and intergenerational exchange, recover the historical heritage of the old streets and annexed structures, fostering the sustainable development of tourism, the stimulation of healthy habits of life such as walking, the carrying out of historical-cultural educational activities (Bambi et al., 2019).

However as our analysis confirms, several challenges and limitations must be addressed for the successful implementation of cultural routes. Among these factors, poor route design, weaknesses in attractiveness factors, lack of hospitality services (dedicated accommodation facilities such as pilgrim hostels), insufficient investments in basic infrastructure (signage, water access points, etc.), and lack of collaboration among different stakeholders, including public authorities, local communities, and volunteer organizations, are notable (Forlani et al., 2023).

CONCLUSIONS

This study applied a mixed-methods approach—combining questionnaires and camera-based monitoring—to analyze user flows and motivations along the Via Francigena in Tuscany. The results highlight the growing popularity of pilgrimage routes, especially during spring and summer, and confirm the emergence of a modern pilgrim profile, characterized by a majority of older adults, a balanced gender distribution, and a preference for walking, often alone or in pairs. While religious motivations are still present, they are no longer dominant. Instead, pilgrims are primarily driven by natural, cultural, and experiential factors, reflecting a broader transformation in the meaning of pilgrimage.

The route offers a form of slow, immersive tourism, closely tied to landscape, rural culture, and local identity.

The Via Francigena demonstrates strong potential as a tool for sustainable rural development, capable of promoting social innovation, supporting local economies, and revitalizing marginal areas. However, critical challenges remain, including infrastructure gaps, lack of hospitality services, and fragmented coordination among stakeholders.

The methodology adopted in this study, particularly the use of non-intrusive digital monitoring, offers a replicable model for other cultural routes. Future developments could include the use of AI technologies for privacy protection and user profiling, enhancing both data quality and ethical standards in flow analysis.

Author Contributions: Conceptualization, Y.I. and Y.E.A.; methodology, Y.I. and L.D.D.; software, Y.I. and B.B.; validation, Y.I. and L.D.D. and B.A.; formal analysis, Y.I. and Y.E.A. and A.A.; investigation, Y.I. and L.D.D. and G.K.; data curation, Y.E.A. and L.D.D. and S.A. and Y.I.; writing - original draft preparation, Y.I. and B.B.; writing - review and editing, Y.E.A. and B.B. and Z.T. and B.A. and A.Z.; visualization, A.A. and G.K. and S.A. and Y.E.A. and B.B.; All authors have read and agreed to the published version of the manuscript.

Funding: Not applicable.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study may be obtained on request from the corresponding author.

Acknowledgements: The research undertaken was made possible by the equal scientific involvement of all the authors concerned.

Conflicts of Interest: The authors declare no conflict of interest.

REFERENCES

- Altinay, L., Sigala, M., & Waligo, V. (2016). Social value creation through tourism enterprise. *Tourism Management*, 54, 404-417. <https://doi.org/10.1016/j.tourman.2015.12.011>
- Amarok, S., Antunes, A., & Henriques, C. (2018). A closer look at Santiago de Compostela's pilgrims through the lens of motivations. *Tourism Management*, 64, 271-280. <https://doi.org/10.1016/j.tourman.2017.09.007>
- Aminian, A. (2012). Cultural routes: A new approach for cultural tourism development. *Journal of Geography and Regional Planning*, 5(13), 368-371.
- Aparicio, J. C. (2024). *Trekking to Rome: A Study on Long-Distance Solo Walkers and their Quest for Wellbeing on the via Francigena*. Bulletin, The Confraternity of Saint James. <https://doi.org/10.13140/RG.2.2.33187.16160>
- Aquino, R. S., Lück, M., & Schänzel, H. A. (2018). A conceptual framework of tourism social entrepreneurship for sustainable community development. *Journal of Hospitality and Tourism Management*, 37, 23-32. <https://doi.org/10.1016/j.jhtm.2018.09.001>
- Balzaretti, R. P. (2023). Tracing the Identity and Mobilities of a Rediscovered Medieval Route Network: Via Francigena (1695-2020). *AGEI - Geotema*, 73.
- Bambi, G., Iacobelli, S., Rossi, G., Pellegrini, P., & Barbari, M. (2019). Rural tourism to promote territories along the ancient roads of communication: Case study of the rediscovery of the St. Francis's ways between Florence and La Verna. *European Countryside* 2019, 11(3), 462-474. <https://doi.org/10.2478/euco-2019-0025>
- Bambi, G.; Conti, L.; Rossi, G.; Barbari, M. (2023). Promotion of sustainable tourism in marginal rural areas: a gis database for the planning and the development of equestrian tourism (Case of study in Tuscany - Italy). *GeoJournal of Tourism and Geosites*, 50, 1447-1457. <https://doi.org/10.30892/gtg.50425-1143>
- Carullo, L., Lanteri, P., Riguccioni, L., Russo, P., & Tomaselli, G. (2014). *The Transformation of the Landscape Along the Pilgrimage Routes in The Province of Catania-Sicily*. The European Pilgrimage Routes for promoting sustainable and quality tourism.

- Carvache Franco, M., Carvache Franco, O., & Carvache Franco, W. (2020). Exploring the satisfaction of ecotourism in protected natural areas. *GeoJournal of Tourism and Geosites*, 29(2), 672-683. <https://doi.org/10.30892/gtg.29223-498>
- Castelo, R., Garcia Juan, L., Gomez-Heras, M., & González-Soutelo, S. (2023). The Challenge of Accessibility to Heritage around the Via Francigena: The Potential of Thermal Heritage for Accessible Tourism. *Heritage, MDPI*, 6, 7115–7125. <https://doi.org/10.3390/heritage6110371>
- Castronuovo, V., & Trono, A. (2023). Pilgrimage Tourism, Accessibility and Local Communities in Western Countries. The Camino de Santiago de Compostela and the via Francigena for All. *Host Communities and Pilgrimage Tourism*, 143-161. <https://doi.org/10.1007/978-981-19-9677-1>
- Cerutti, S., & Dioli, I. (2013). Via Francigena mountain itineraries: The case of Piacenza Valleys. *International Journal of Religious Tourism and Pilgrimage*, 1(1), 26–33.
- Collins-Kreiner, N. (2010). Researching pilgrimage: Continuity and transformations. *Annals of Tourism Research*, 37(2), 440–456. <https://doi.org/10.1016/j.annals.2009.10.016>.
- Collins-Kreiner, N. (2016). Pilgrimage tourism: Past, present and future rejuvenation: The case of the Hajj. *Tourism Management Perspectives*, 19, 164–170. <https://doi.org/10.1108/TR-04-2019-0130>
- Devereux, C., & Carnegie, E. (2006). Pilgrimage: Journeying beyond self. *Tourism Recreation Research*, 31(1), 47–56. <https://doi.org/10.1080/02508281.2006.11081246>
- Digance, J. (2006). Religious and secular pilgrimage: Journeys redolent with meaning. *Tourism, Religion and Spiritual Journeys*, 36–48.
- Eade, J., & Sallnow, M. J. (1991). *Contesting the sacred: The anthropology of Christian pilgrimage*. Routledge.
- Egresi, I. (2020). Perception of tourism impact: A comparative analysis between Turkish and international students studying in Turkey. *Journal of Environmental Protection and Ecology*, 21(1), 325-333
- Eickelman, D. F., & Piscatori, J. (1990). *Muslim travellers: Pilgrimage, migration and the religious imagination*. University of California Press.
- Fernandes, C., Pimenta, E., Gonçalves, F., & Rachão, S. (2012). A new research approach for religious tourism: The case study of the Portuguese route to Santiago. In M. Peris-Ortiz & J. Álvarez-García (Eds.), *Religious Tourism and Pilgrimage Management: An International Perspective* 97–110. <https://doi.org/10.1504/IJTP.2012.048996>
- Forlani, F., Ferrucci, L., & Paciotti, A. (2021). Mapping and evaluating the attractiveness of pilgrim routes from an experiential perspective: The case of the ‘paths through Italy’. *International Journal of Religious Tourism and Pilgrimage*, 9, 24-37. <https://doi.org/10.21427/FDH7-VZ60>
- Forlani, F., Paciotti, A., & Splendiani, S. (2023). Improving tourism resilience through Cultural Routes. An exploratory analysis of the Italian case "Via Francigena". *Turistica, Italian Journal of Tourism*, 32, 45-70. <https://doi.org/10.70732/tijt.v32i1.21>
- Ingold, T. (2011). *Being alive: Essays on movement, knowledge and description*. Routledge.
- Laeis, G., & Lemke, S. (2016). Social entrepreneurship in tourism: applying sustainable livelihoods approaches. *International Journal of Contemporary Hospitality Management*, 28(6), 1076-1093. <https://doi.org/10.1108/IJCHM-05-2014-0235>
- Lois González, R. C., Lopez, L., & Moscarelli, R. (2020). Who Is Interested in Developing the Way of Saint James? The Pilgrimage from Faith to Tourism. *Religions, MDPI*, 11. <https://doi.org/10.3390/rel11010024>
- Lopez, L. (2014). How Long Does the Pilgrimage Tourism Experience to Santiago. *International Journal of Religious Tourism and Pilgrimage*, 1.
- Lopez, L. (2020). The secular pilgrim: Motivations and identity on the Camino de Santiago. *Journal of Contemporary Religion*, 35(1), 43–60.
- Missikoff, O. (2010). The Via Francigena in historical maps and photographic heritage of the Italian Geographical Society Exhibition. Exhibition “The Via Francigena”. *Almatourism - Journal of Tourism, Culture and Territorial Development*, 1(1), 67–69.
- Turner, V., & Turner, E. (1978). *Image and pilgrimage in Christian culture: Anthropological perspectives*. Columbia University Press.
- Ivankova, N. V., Creswell, J. W., & Stick, S. L. (2006). Using mixed-methods sequential explanatory design: From theory to practice. *Field Methods*, 18(1), 3–20.
- Jensen, R. (2015). *Pilgrim - longing, wandering, thinking - earlier and now*. Oslo: Novus forlag.
- Kato, K., & Prozano, R. N. (2017). Spiritual (walking) tourism as a foundation for sustainable destination development: Kumano-kodo pilgrimage, Wakayama, Japan. *Tourism Management Perspectives*, 24, 243-251. <https://doi.org/10.1016/j.tmp.2017.07.017>
- Lois-González, R. C., & Santos, X. M. (2015). Tourists and pilgrims on the way to Santiago: Motives, Caminos and final destinations. *Journal of Tourism and Cultural Change*, 13(2), 149–164.
- Lucarno, G. (2016). The Camino de Santiago de Compostela (Spain) and the Via Francigena (Italy): a comparison between two important historic pilgrimage routes in Europe. *International Journal of Religious Tourism and Pilgrimage*, 4, 48-58. <https://doi.org/10.1080/14766825.2014.918985>
- Margry, P. J. (2008). *Shrines and Pilgrimage in the Modern World: New Itineraries into the Sacred*. Amsterdam University Press.
- Nilsson, M., & Tesfahuney, M. (2016). Performing the pilgrim: Embodiment, identity, and the Camino de Santiago. *Tourist Studies*, 16(3), 287–305.
- Øian, H., Stokowski, P., Vistad, O. I., Williams, D., (2020). Long-distance hikers and their inner journeys: On motives and pilgrimage to Nidaros, Norway. *Journal of Outdoor Recreation and Tourism*, 31. <https://doi.org/10.1016/j.jort.2020.100326>
- Oviedo, L., Rodríguez-Torrico, P., & Peña, A. I. (2014). Motivations for pilgrimage: Why pilgrims travel El Camino de Santiago. *International Journal of Religious Tourism and Pilgrimage*, 2(1), 1–15.
- Pereira, C., & Silva, C. (2018). Women Solo Travellers Motivations and Experiences. *Millenium*, 2, 99-106. <https://doi.org/10.29352/mill0206.09.00165>
- Peterson, T., & King, D. (2021). Ethical innovation in visitor monitoring: Sensor-based systems in protected natural areas. *Journal of Sustainable Tourism*, 29(4), 652–670.
- Splendiani, S., Forlani, F., Picciotti, A., & Presenza, A. (2023). Social Innovation Project and Tourism Lifestyle Entrepreneurship to Revitalize the Marginal Areas. The Case of the via Francigena Cultural Route. *Tourism Planning & Development*, 1-17. <https://doi.org/10.1080/21568316.2022.2161616>
- Wilson, E., & Little, D. E. (2008). The solo female travel experience: Exploring the “geography of women’s fear.” *Current Issues in Tourism*, 11(2), 167–186. <https://doi.org/10.2167/cit342.0>
- Yau, M. K., McKercher, B., & Packer, T. L. (2004). Traveling with a disability: More than an access issue. *Annals of Tourism Research*, 31(4), 946–960.