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HOW WALKABLE IS INDUSTRIAL HERITAGE? – MAPPING ACCESSIBILITY AROUND ERIH SITES

Mateusz NARAMSKI[1*], Krzysztof HERMAN[2]

[1] Silesian University of Technology; mateusz.naramski@polsl.pl, ORCID: 0000-0001-7288-1298
[2] Silesian University of Technology; krzysztof.herman@polsl.pl, ORCID: 0000-0002-3196-9696
* Correspondence author

Purpose: To assess pedestrian accessibility of selected industrial heritage sites in Europe (ERIH Anchor Points) using POI density as a proxy for walkability and functional accessibility.
Design/methodology/approach: The study applies a spatial analysis of Points of Interest (POIs) within a 1,500-meter radius using GIS tools and walkability metrics inspired by the 15-minute city framework.
Findings: The results reveal significant disparities in POI availability and walkable service coverage, with lower accessibility observed in rural or peripheral sites.
Research limitations/implications: The analysis relies on POI data, which may vary in quality and completeness depending on the source and geographic context.
Originality/value: This paper bridges walkability research and tourism studies by applying urban accessibility concepts to the evaluation of industrial heritage sites in a European context.
Keywords: POI, 15-minute cities, Tourist infrastructure, walkability.
Category of the paper: Case study.

1. Introduction

Cultural tourism today increasingly emphasizes the accessibility of heritage sites, considering a wide range of factors – both physical and social. Researchers have focused on addressing the needs of individuals with specific access requirements, including older adults (Rao et al., 2025; Fatima et al., 2022), families with children (Michail et al., 2025), and tourists with limited mobility (Bridge, 2025).

One of the essential dimensions of accessibility is the ability to move comfortably and safely on foot in the surroundings of heritage sites. Pedestrian mobility directly affects spatial perception, the comfort of visitation, and access to accompanying services—factors that play a key role in shaping the overall tourist experience.

In recent years, numerous concepts and tools have been developed to assess pedestrian accessibility (walkability). The most frequently cited include the concept of the 15-minute city (Teixeira et al., 2024; Allam et al., 2022), which promotes urban planning based on the availability of daily services within walking distance; Walk Score (Walk Score, n.d.), a tool that evaluates proximity to amenities; and the National Walkability Index (U.S. Environmental Protection Agency, 2017), which measures spatial structure and access to public transit.

All these approaches are rooted in the idea of walkability, which also serves as the foundation for this study. The aim of this article is to assess pedestrian accessibility in selected sites of industrial heritage in Europe—specifically, the ERIH Anchor Points. The analysis focuses on Points of Interest (POIs) located within a 1500-meter radius of each anchor point, allowing for an evaluation of the attractiveness and functionality of these locations from the perspective of a walking tourist.

This study aims to fill a notable research gap by systematically evaluating the pedestrian accessibility of European industrial heritage sites, a topic that has received limited attention in tourism and urban planning literature. Unlike prior work that has focused on individual cities or national contexts, this article provides a comparative, pan-European perspective grounded in empirical data.

The research addresses the following hypotheses:

- H1: ERIH Anchor Points located in urban areas exhibit a significantly higher density of walkable services (POIs) than those in rural or peripheral regions.
- H2: There are substantial cross-national differences in pedestrian accessibility, reflecting broader variations in planning policy and infrastructure development.
- H3: Sites with greater POI density within short walking distances (under 15 minutes) offer more favorable conditions for sustainable cultural tourism.

To test these hypotheses, we conducted a spatial analysis of Points of Interest (POIs) surrounding 110 ERIH Anchor Points across 15 European countries. Using data from Google Maps and geoprocessing tools in R, we calculated service density, categorized POIs by type, and assessed walking distance intervals. The approach draws conceptually from the 15-minute city model and aims to operationalize walkability in a tourism-oriented context.

This methodological framework not only captures spatial accessibility, but also provides insights into the functional integration of heritage sites with their surrounding environments. The results contribute to broader academic discussions on sustainable urbanism, cultural tourism infrastructure, and the adaptation of walkability metrics to non-residential settings.

2. Literature review

Pedestrian accessibility has gained increasing importance in recent decades across urban, planning, and—more recently—tourism-related research. Within this context, scholars identify several interrelated dimensions. Transport accessibility refers to the ease of reaching a tourist site from a transport hub (Rossetti et al., 2020). Spatial accessibility concerns the physical structure of the surroundings and perceptions of safety (Wali et al., 2024). Functional accessibility (Liu et al., 2023) refers to the availability and quality of supporting infrastructure—an aspect that is central to this study.

In academic discourse, accessibility is closely associated with the concept of the 15-minute city. Originally introduced by Moreno et al. (2021), the concept has become a foundational principle for designing pedestrian-friendly urban environments. In recent years, it has sparked extensive scholarly debate. Supporters emphasize its potential health and environmental benefits (Allam et al., 2022), its compatibility with smart technologies (Popescu, Nicolescu, 2025), and its broader socioeconomic impacts (Krauze-Maślankowska, Maślankowski, 2025). At the same time, the concept has faced criticism. Researchers point to its limited applicability in car-dependent cities (Wang et al., 2024) or in regions with harsh climatic conditions (Alawadi et al., 2025). Mouratidis (2024) highlights several key pitfalls, such as a narrow focus on sustainability, neglect of spatial quality, and insufficient consideration of socio-political realities.

In parallel to the development of the 15-minute city concept, urban studies have increasingly focused on two interconnected frameworks: sustainable development and smart cities. The notion of sustainable urbanism promotes compact, mixed-use environments that reduce car dependency and foster walkable, resilient communities. In this context, walkability is not only a question of spatial proximity, but also of environmental responsibility and equitable access to services (Sharifi, 2021).

Complementing this, the smart city paradigm emphasizes the role of digital technologies, data infrastructure, and participatory governance in improving urban livability. Smart city strategies often include intelligent transportation systems, digital wayfinding, and mobile apps that facilitate navigation, public transport use, and access to nearby services (Albino et al., 2015; Bibri, Krogstie, 2020). Such tools can enhance both the physical and informational accessibility of heritage sites, making them more attractive to tourists and easier to integrate into sustainable mobility networks.

Importantly, scholars increasingly advocate for a convergence of these approaches. Bibri (2022) proposes the idea of "smart sustainable cities" that leverage ICT not only for efficiency, but also to foster inclusive, green, and human-centered urban environments. In this integrated view, walkability becomes a key indicator of broader urban quality – linking spatial planning, technological innovation, and cultural accessibility.

Regardless of one's stance, the concept strongly promotes walkability, understood as the extent to which an area is conducive to walking (Frank et al., 2006), or more broadly, supportive of human presence (Southworth, 2005). Walkability is inextricably linked with the availability and diversity of Points of Interest (POIs). As Yu et al. (2023) emphasize, a high density of POIs increases the likelihood that people will choose to walk rather than use a car. Similarly, Ge et al. (2023) demonstrate that not just density but also the functional diversity of the built environment significantly influences pedestrian decisions.

The intersection of these ideas with cultural tourism is particularly compelling. Moreno et al. (2025) analyzed areas surrounding heritage sites in Seoul and found that some sites lacked sufficient service infrastructure. They concluded that increasing service density could enhance walkability. This suggests that adapting the 15-minute city model offers promising opportunities for evaluating the surroundings of tourist attractions.

This is particularly relevant in the context of industrial heritage tourism. Such sites are often located on the peripheries of cities or in areas with underdeveloped tourist infrastructure. Therefore, this study focuses on assessing the environment around selected sites listed on the European Route of Industrial Heritage (ERIH).

Despite the growing interest in walkability and the 15-minute city, the majority of existing studies have focused on residential neighborhoods or central business districts, with limited attention paid to the accessibility of cultural or heritage sites – particularly those located on the urban periphery. Similarly, while the role of pedestrian infrastructure in tourism has been acknowledged, few empirical studies have attempted to systematically assess service availability around industrial heritage attractions across different national contexts. This article addresses this gap by applying walkability metrics to ERIH Anchor Points at a European scale, providing new insights into the spatial integration and tourism readiness of these unique sites.

3. Methods

The subject of the study was the tourist infrastructure surrounding the Anchor Points of the European Route of Industrial Heritage (ERIH). During the research period, 110 Anchor Points located across 15 European countries were included in the analysis. The study focused on the accessibility of infrastructure fulfilling basic tourist needs, such as accommodation, dining, transportation, and leisure. Data were obtained from Google Maps in February 2024 and covered points of interest (POIs) located within a 1,500-meter radius of each ERIH site. According to the Google POI classification, the dataset included hotels, tourist attractions, restaurants, bars, cafes, convenience stores, museums, parks, art galleries, and public transport stops. For each identified object, the walking time from the ERIH site was recorded. Additionally, when available, Google user ratings and the number of reviews were also

collected. The data was analyzed using the R programming language and RStudio software, which enabled the calculation of descriptive statistics and the creation of visualizations.

4. Results

4.1. Overall characteristics ERIH Anchor Points

The collected dataset contained 17,446 records, each representing a single point of interest (POI) located within a 1500-meter radius (in straight line) from one of the Anchor Points. Table 1 presents the number and the proportion of each POI type relative to the total number of identified locations, while Table 2 shows the number of ERIH sites and the corresponding POIs across the analyzed countries.

Table 1.
The number of POI types in a 1.5 km range from ERIH anchor points

Type	N	Share
gastronomy	4237	24.30%
transport	3211	18.40%
hotels	2454	14.1%
cafe	1631	9.35%
bar	1613	9.25%
park	1390	7.91%
attractions	1339	7.68%
convenience_store	621	3.56%
art_galery	540	3.10%
muzeum	410	2.35%
TOTAL	17446	100,00%

Source: Own work.

Table 2.
The number of Anchor Points and POI's in given country

Country	Number of Anchor Points	Share	Number of POI's	Share
Austria	2	1,82%	38	0,22%
Belgium	4	3,64%	788	4,52%
Czech Republic	4	3,64%	890	5,10%
France	4	3,64%	350	2,01%
Germany	31	28,18%	4760	27,28%
Italy	8	7,27%	1318	7,55%
Luxembourg	1	0,91%	53	0,30%
Netherlands	8	7,27%	1346	7,72%
Norway	5	4,55%	204	1,17%
Poland	10	9,09%	1335	7,65%
Portugal	3	2,73%	324	1,86%
Spain	11	10,00%	2030	11,64%
Sweden	3	2,73%	407	2,33%
Turkey	1	0,91%	398	2,28%
United Kingdom	15	13,64%	3205	18,37%
TOTAL	110	100%	17446	100%

Source: Own work.

As one can read from Table 1; gastronomy-related venues constitute the largest group of POIs (24.3%), followed by transport-related facilities (18.4%) and hotels (14.1%). These categories represent essential infrastructure components that directly support tourist activity. Additionally, cafés (9.35%) and bars (9.25%) are also well represented. Parks (7.91%) and tourist attractions (7.68%) add recreational value to the surroundings of ERIH sites. Less frequent but still significant are convenience stores (3.56%), art galleries (3.10%), and museums (2.35%), which reflect the cultural and service-related diversity of the examined areas.

Table 2 provides an overview of the distribution of Anchor Points and associated POIs by country. The majority of Anchor Points are located in Germany (28.18%), which also has the highest number of identified POIs (27.28%), indicating a strong infrastructure concentration around heritage sites in that country. The United Kingdom follows, with 13.64% of Anchor Points and 18.37% of POIs, suggesting relatively dense infrastructure around fewer sites. Spain, Italy, the Netherlands, and Poland also show notable shares of both Anchor Points and POIs, indicating a well-developed support environment for industrial heritage tourism in those countries. In contrast, countries such as Austria, Luxembourg, Turkey, and Norway have relatively few sites and low POI counts. Figure 1 contains a map that provides additional insight into the geographical distribution of Anchor Points across European Countries.

Figure 1. ERIH Anchori Point locations at the time of data collection.

Source: Own work, with implementation of Leaflet R package and OpenStreetMap.

The average number of POIs within the specified 1.5 km radius from an ERIH site was 159. A total of 39 Anchor Points had more POIs than this average, while the remaining 71 had fewer. This indicates that the distribution of POIs across ERIH sites is right-skewed, as confirmed by the histogram of this variable presented in Figure 2.

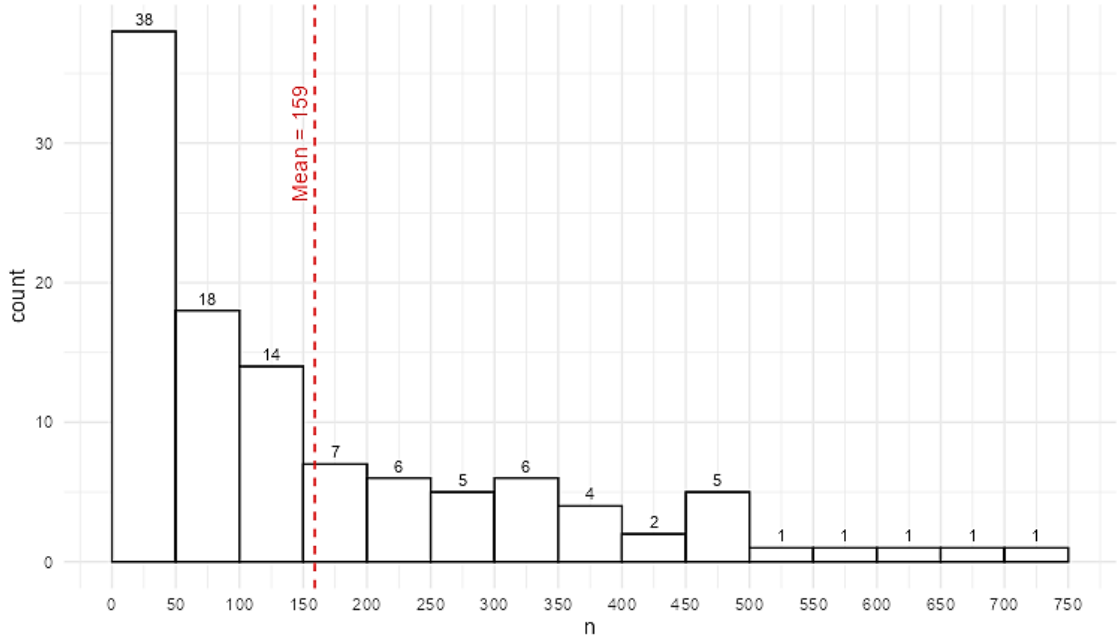

Figure 2. Histogram of POIs numbers in 1.5 km range of ERIH sites.

Source: Own work.

The presented distribution is clearly right-skewed, with a large number of sites surrounded by a relatively modest number of POIs, and a smaller group of sites with notably higher values.

Descriptive statistics further support this observation. The minimum number of POIs recorded for a site was 1, while the maximum reached 707. The median value is 95.5, which is significantly lower than the mean of 158.6, indicating that the average is strongly influenced by a few high-density outliers. The first quartile (Q1) is 34.25 and the third quartile (Q3) is 227.5, meaning that 50% of the ERIH sites are located in areas with between 34 and 228 POIs.

Notably, 38 sites fall within the first histogram bin (0–49 POIs), confirming the presence of many low-density areas. Only a few ERIH sites are situated in locations with exceptionally dense infrastructure, which disproportionately increases the mean value. This high variance in POI availability suggests uneven levels of infrastructure development surrounding industrial heritage sites across the network.

Table 3 presents the ERIH Anchor Points with the highest and lowest number of POIs within a 1.5 km radius. The top-ranked sites, such as the German Technical Museum in Germany (707 POIs), the Heineken Experience in the Netherlands (653 POIs), and the Museum of Industry in Belgium (607 POIs), are all situated in highly urbanized or tourist-oriented areas. Their extensive surrounding infrastructure reflects a high degree of accessibility and service availability, which likely enhances their attractiveness and functionality for visitors.

In contrast, the sites listed in the bottom ten — including the Metallurgic Park in France (1 POI), Charcoal Hall of Grossouvre (3 POIs), and Erzberg Adventure in Austria (4 POIs) — are located in areas with limited tourist infrastructure. This may be due to geographical isolation, smaller urban contexts, or a lower level of tourism development in their immediate surroundings.

The large disparity between the top and bottom sites (ranging from 707 to 1 POI) illustrates the high variability in infrastructure density across ERIH locations. This heterogeneity supports the earlier observation of a right-skewed distribution, where a relatively small number of sites dominate in terms of POI availability, while the majority are located in modestly equipped areas. This uneven distribution has potential implications for the visitor experience, site accessibility, and the broader regional integration of industrial heritage tourism.

Table 3.
Anchor Points with most and least POI's

Top 10			Bottom 10		
Site	**Country**	**POI's (n)**	**Site**	**Country**	**POI's (n)**
German Technical Museum	Germany	707	Emsland Moormuseum	Germany	10
Heineken Experience - Heineken Brewery	Netherlands	653	Museum of the Iron and Steel Industry and Mining of Castilla and León	Spain	10
Museum of Industry	Belgium	607	La Encartada Fabrika-Museoa	Spain	8
Asturian Railway Museum	Spain	564	Leon Wyczolkowski District Museum Exploseum	Poland	8
Kelham Island Museum	United Kingdom	532	Norwegian Industrial Workers Museum World Heritage Site	Norway	7
Museum of the Jewellery Quarter	United Kingdom	491	Museum of the Art of Woolmaking	Italy	6
tim - State Textile and Industrial Museum	Germany	476	Ferropolis - Town of Iron	Germany	5
Manufaktura | Museum of the Factory	Poland	475	Erzberg Adventure	Austria	4
Campolmi Factory | Lazzerini Library | Textile Museum	Italy	458	Charcoal Hall of Grossouvre	France	3
Catalonian Museum of Science and Industry	Spain	455	Metallurgic Park	France	1

Source: Own work.

These results support Hypothesis 1, as the ERIH sites with the highest POI counts – such as the German Technical Museum or the Heineken Experience – are all located in dense, urban environments. In contrast, rural or peripheral sites consistently show much lower POI availability, confirming the spatial disparity in walkable infrastructure.

Although the POI search area was restricted to a 1,500-meter radius from each site, some identified locations are not easily accessible on foot, which may negatively impact the overall walkability and functional accessibility of the tourist site. To address this issue, the next stage of the analysis focused on examining the walking distance to various types of POIs in greater detail.

4.2. POI walking distance to sites analysis

The sheer number of POIs located near a tourist site does not fully capture their actual accessibility. What significantly affects the tourist experience is whether basic needs—such as food, rest, or onward transport—can be met quickly and without the need for motorized travel. In other words, it is not only the presence of infrastructure, but its pedestrian proximity, that determines how functionally accessible a site truly is.

To account for this, Figure 3 presents the distribution of POIs around ERIH sites divided into time intervals representing walking distance ranges, providing a more detailed view of how easily these services can be reached on foot.

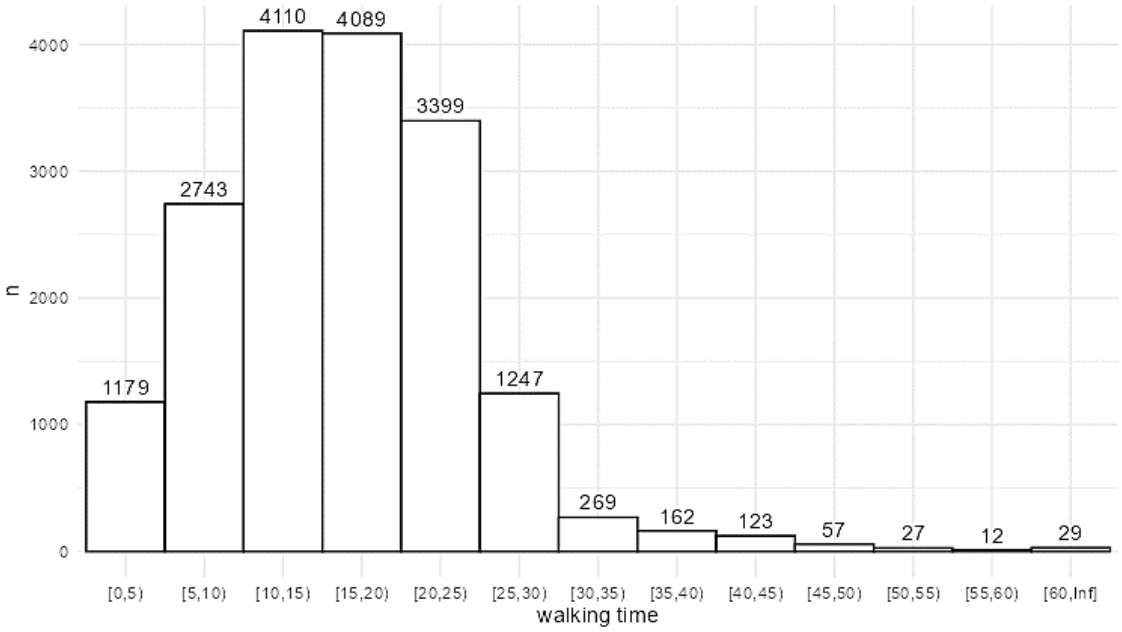

Figure 3. The number of POIs within given walking range from ERIH Anchor Points.
Source: Own work.

The presented histogram reveals that the majority of POIs are located within relatively short walking distances. In particular, the first three intervals — [0-5), [5-10), and [10-15) minutes — are of special significance, as they collectively account for over 8000 POIs. This means that nearly 47% of all recorded POIs are reachable within 15 minutes on foot, with a substantial portion located within just 5 or 10 minutes.

These results align with the concept of the "15-minute city", which emphasizes the importance of having essential services within immediate pedestrian reach. The presence of POIs in such short distances supports the idea that many ERIH sites are integrated into walkable environments that can accommodate tourists' needs directly before or after their visit.

Beyond the 15-minute mark, the number of accessible POIs decreases progressively. While walking times of up to 20-25 minutes may still be considered acceptable in tourist contexts, the sharp decline beyond that point suggests reduced convenience and a growing dependence on other forms of transport.

Overall, the data underscore the importance of short-distance accessibility in enhancing the functionality, appeal, and sustainability of heritage tourism sites.

The next step of the analysis focused on identifying which types of POIs are most accessible to visitors of ERIH Anchor Points. Figure 4 illustrates the distribution of POIs by type across 5-minute walking time intervals, emphasizing their relative proximity to the heritage sites.

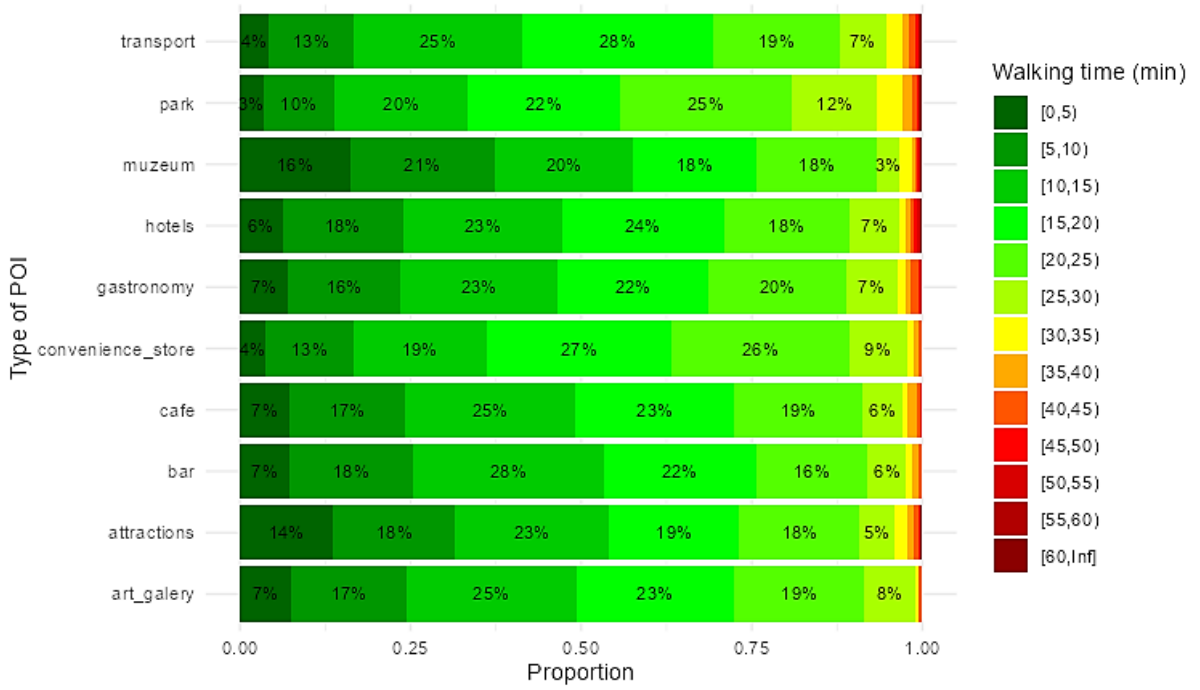

Figure 4. The share of walking time intervals within POI types.

Source: Own work.

Among the POI types with the highest share within a 15-minute walking distance are museums (57%) and tourist attractions (55%)—both closely linked to the thematic focus of Anchor Points. Those located within the shortest walking times may represent auxiliary facilities that directly support the heritage site, whereas POIs situated slightly further away could indicate that the Anchor Point is embedded in a dense, tourism-oriented environment. Art galleries also demonstrate relatively good accessibility, with 49% situated within this walkable range.

A second cluster of accessible POIs includes bars (53%) and cafés (49%), suggesting that options for refreshment and informal socializing are readily available to pedestrian visitors. Similarly, gastronomy venues (46%) and hotels (47%) are moderately accessible, which aligns well with the expectations of day-trip and overnight tourists alike.

On the other hand, transport-related POIs and convenience stores appear less accessible overall. Only 40% of transport facilities are located within a 15-minute walking radius, and just 36% of stores fall within close proximity to the sites. This may reflect urban design patterns where public transport hubs and commercial amenities are situated along main roads or outside historical zones.

Finally, parks emerge as the least accessible category, with only 33% located within a 15-minute walk. This suggests that while natural or green spaces are present, they are typically situated on the periphery of heritage clusters or integrated into more dispersed urban landscapes.

The results provide indicative support for Hypothesis 3. While the study does not directly measure sustainability outcomes, a higher concentration of POIs within a 15-minute walking range—particularly key services such as cultural attractions, food venues, and accommodation—suggests more favorable conditions for sustainable cultural tourism. Sites with dense and walkable service environments are likely to reduce visitor reliance on motorized transport, support local economies, and enhance the overall tourist experience, which are all consistent with principles of sustainability described in the literature (e.g., Allam et al., 2022; Bibri, 2022).Another interesting question that arises is in which countries the POIs around Anchor Points meet the criteria of x-minute cities. Since most countries host only a few ERIH Anchor Points, this part of the analysis focuses solely on countries with at least 10 such sites. Four countries meet this criterion: Germany (31), Poland (10), Spain (11), and the United Kingdom (15).

Table 4.
Number and share of POIs within specified walking ranges in countries with at least 10 Anchor Points

5 min			
Country	**Total POI's (n)**	**Withing 5 min walking range**	**Share**
Poland	1335	168	12,58%
Spain	2030	200	9,85%
Germany	4760	455	9,56%
United Kingdom	3205	227	7,08%
10 min			
Country	**Total POI's (n)**	**Withing 5 min walking range**	**Share**
Spain	2030	672	33,10%
Poland	1335	420	31,46%
Germany	4760	1272	26,72%
United Kingdom	3205	673	21,00%
15 min			
Country	**Total POI's (n)**	**Withing 5 min walking range**	**Share**
Spain	2030	1226	60,39%
Poland	1335	702	52,58%
Germany	4760	2309	48,51%
United Kingdom	3205	1418	44,24%

Source: Own work.

The presented results indicate that Poland has the highest share of POIs accessible within a 5-minute walk from Anchor Points (12.58%). However, Spain ranks highest for both the 10-minute and 15-minute walking ranges, while Germany and the United Kingdom consistently record the lowest shares across all three categories.

It is worth noting that in both Spain and Poland, over half of the POIs are reachable within a 15-minute walk, aligning with the concept of a 15-minute city. Nonetheless, caution should be exercised when assessing the walkability of ERIH Anchor Points, due to the unique nature

of the route. As it focuses on industrial heritage monuments, many Anchor Points were deliberately situated on the outskirts of urban areas—either to mitigate noise and pollution or because their location was dictated by natural resources, such as access to mineral seams in the case of mines.

The national-level variation in walkable POI shares provides evidence in support of Hypothesis 2. For example, Spain and Poland exhibit notably higher proportions of services within a 10- or 15-minute walk, while Germany and the UK—despite hosting the most sites—perform less favorably in terms of immediate pedestrian access. These discrepancies may reflect differences in national planning approaches and levels of tourism-oriented development.

5. Discussion and conclusions

In both academic literature and practical applications, various distance thresholds and walking-time metrics to points of interest (POIs) are commonly used as indicators of walkability or as tools for evaluating the 15-minute city concept. However, as Southworth (2005) notes, pedestrian accessibility should not be reduced solely to distance. According to the author, the quality of the environment through which pedestrians move is equally—if not more—important. A similar view is presented by Tobin et al. (2022), who argue that the concept of walkability is too narrow, and propose expanding it to include elements of the natural environment, infrastructure, and social cohesion. Guzman et al. (2024) also emphasize that, while POIs are a necessary element in the assessment of pedestrian accessibility within the 15-minute city framework, they are not sufficient on their own.

These findings suggest that while the presence of POIs alone cannot provide a comprehensive understanding of urban environmental quality, it can serve as a useful starting point for more in-depth analyses. This is echoed by Steiniger (2016), who identifies POIs as a central element in walkability tools such as WalkScore, and by Bruno et al. (2024), creators of the Proximity Time Index, which is based on average walking times to essential services.

It is important to note, however, that POI-based studies are highly sensitive to data quality and completeness. This issue is highlighted by Rahman et al. (2025), who emphasize that the reliability and source of POI data significantly affect the outcomes of accessibility analyses in the context of the 15-minute city model.

In light of these observations, the current study should be seen as an introductory exploration into the topic of walkability and the adaptation of the 15-minute city concept to tourism. The findings also offer valuable insights into the spatial distribution and accessibility of tourist infrastructure in the vicinity of ERIH Anchor Points (European Route of Industrial Heritage).

The analysis reveals that the spatial distribution of tourist infrastructure around ERIH sites is highly uneven. While some locations are situated in densely populated, multifunctional urban areas, many others are located on the periphery or in rural regions with limited service provision. The dominant POI categories include food services, transport, and accommodation, indicating a relatively strong foundation of basic tourist amenities. However, cultural and recreational facilities, such as museums, parks, and art galleries, are significantly less common.

Only 47% of POIs are located within a 15-minute walking radius, and fewer than 25% within 10 minutes. This highlights the uneven pedestrian accessibility, which may have a notable impact on tourists' experience and the overall attractiveness of the site. National-level differences are also evident—Spain and Poland exhibit a higher share of walkable POIs, whereas Germany and the UK (despite having the highest number of ERIH sites) show lower levels of short-distance accessibility.

Thematic disparities in infrastructure integration are also apparent: sites related to industrial production, textiles, and company museums tend to be surrounded by a more diverse and accessible service environment compared to mining-related or post-industrial landscape sites.

The findings discussed in this study offer support, both direct and indicative, for the three research hypotheses. The analysis confirmed that urban ERIH Anchor Points benefit from greater pedestrian accessibility due to higher POI density (H1), and that this pattern varies significantly across national contexts (H2), highlighting the role of spatial policy and planning culture. While Hypothesis 3 regarding sustainability was not tested directly, the observed concentration of essential POIs (such as cultural attractions, restaurants, and accommodations) within a 15-minute walking distance points to favorable conditions for walkable, service-rich environments aligned with the principles of sustainable cultural tourism.

These results suggest that POI-based assessments can serve as a useful starting point for identifying tourism-friendly and sustainable urban configurations. However, they must be interpreted cautiously, as accessibility in itself does not guarantee sustainable outcomes. Future studies could build on this work by incorporating visitor behavior, environmental impact indicators, or socioeconomic metrics to more comprehensively assess tourism sustainability at heritage sites.

While this study offers a novel spatial approach to assessing pedestrian accessibility in industrial heritage tourism, it is not without limitations. Most notably, the analysis relies on POI data obtained from Google Maps, which may vary in completeness and accuracy across countries and regions. Furthermore, the study does not account for subjective experiences of walkability, nor does it include data on actual tourist behavior or mobility patterns.

Despite these constraints, the research contributes new knowledge by demonstrating how urban accessibility concepts – traditionally applied in residential or commercial contexts – can be successfully adapted to cultural tourism. From a theoretical perspective, the findings support an expanded understanding of walkability as a relevant construct for heritage planning. Practically, the results can inform local and regional policymakers in identifying service gaps,

prioritizing infrastructure investments, and promoting more integrated and sustainable tourism strategies. Future research may build on this foundation by combining POI-based assessments with surveys, behavioral data, or qualitative evaluations of tourist experience.

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