

## Defining industrial tourism in the cross-border region of Portugal and Spain

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### Abstract

This paper deals with the definition and valorisation of industrial and pre-industrial tourism in the cross-border region of *Terras de Trás-os-Montes* (Portugal) and *Castilla y León* (Spain). Industrial and pre-industrial heritage is crucial to collective memory and has significant cultural, historical and tourist value. Industrial tourism is emerging as an initiative that enhances historic landscapes and contributes to urban development, the revitalisation of communities and the preservation of heritage. It is considered an innovative strategy for rehabilitating territories, transforming old facilities into attractions, exploring historic sites or operating companies. The “IN\_GENIOS\_DUERO\_DUORO” project focused on promoting this heritage in the Douro-Duero Euroregion. The methodology included detailed mapping and characterisation, creating a database with 1,079 sites identified in 22 Portuguese and 80 Spanish municipalities. The results show that most sites are in Spain (77.1 %). The municipalities with the most identified sites are Valladolid (250) in Spain and Mirandela (32) in Portugal. The main heritage categories include transport infrastructure (335), wineries (255) and the food industry (221). Around 47.27 per cent of the sites identified are accessible to tourists. The database created is fundamental for valuing, safeguarding and designing tourist routes.

Keywords: Industrial tourism, Industrial heritage, Cross-border region.

## 1 INTRODUCTION

Industrial and pre-industrial heritage represents a fundamental dimension of the collective memory of territories, reflecting the past and present ways of life, production techniques and economic systems. In recent years, there has been growing recognition of this heritage's cultural, historical and tourist value, driving the development of integrated valorisation and promotion strategies, particularly in regions with a strong territorial identity and tourist potential [1, 2, 3].

Industrial tourism has emerged as an initiative that enhances historic industrial landscapes, contributing to urban development, the revitalisation of communities and the preservation of cultural and historical heritage. It involves reusing tangible elements of industrial history, such as factories, mines, and transport infrastructure, which are transformed into museums and spaces for interaction with the public and the promotion of sustainable development [1, 3].

Industrial tourism is an area with high economic, cultural, and social value, offering unique experiences by allowing visitors to explore historic sites or companies during the entire operation and demonstrating manufacturing and production processes [2].

It is also addressed as an innovative strategy in the rehabilitation of industrial territories, highlighting the potential of transforming former industrial facilities into tourist attractions, allowing visitors to learn about historical production processes to learn about the evolution of processes and the socio-economic

impacts of industries, contributes to the preservation of cultural heritage, focuses mainly on economic opportunities in degraded areas [4].

Andrade-Suárez and Caamaño-Franco [5] identify three main categories in industrial tourism: pre-industrial heritage, industrial heritage and active industries, which can be classified into industrial archaeological heritage and industries in operation, dividing industrial tourism activities between visits to active factories and inactive industrial heritage sites [6].

Pre-industrial tourism highlights structures that predate the Industrial Revolution, such as churches and cathedrals, preserved for their cultural, social and religious value. Industrial tourism, conversely, can be defined as the tourist activity centred on visiting and interpreting sites, equipment, processes and memories linked to industrial activity, whether active, decommissioned or converted for museum and cultural purposes [7].

In this context, the project 'IN\_GENIOS\_DUERO\_DOURO: Cooperation for the valorisation of the industrial culture of the Duero-Douro through tourism' arose. Its main objective is to promote knowledge and valorisation of the industrial and pre-industrial heritage in the cross-border cooperation territory between the region of *Terras de Trás-os-Montes* (Portugal) and *Castilla y León* (Spain). The initiative aims to consolidate an integrated and sustainable tourism system in the Duero-Douro Euro-region, taking advantage of the rich history and heritage shared by both sides of the border.

The Douro/Duero River route, as the unifying and structuring element of the territory, serves as the guiding thread for identifying, analysing and promoting spaces and structures of industrial and pre-industrial significance, from mills, factories, hydraulic systems and railways. These tangible and intangible testimonies are tourist resources with great potential for attracting new audiences and fostering local and regional development dynamics.

The 'IN\_GENIOS\_DUERO\_DOURO' project is realised through strong institutional coordination between Portuguese and Spanish entities, focusing on research, technical cooperation and creating innovative tourism products that enhance shared identity. During the implementation period, several key actions were carried out, including an in-depth literature review on industrial tourism and creating a comprehensive database with 1079 sites identified in 22 municipalities in Portugal and 80 municipalities in Spain.

This paper aims to present the mapping and characterisation of industrial attractions in the project region, organising the information into thematic sections that cover the theoretical and institutional framework of the methodology for inventorying heritage elements, the territories involved, and the tourism enhancement strategies adopted. So, the paper is divided into four sections; after this introduction, the methodology used to characterise the industrial attractions is presented, followed by the main results and the conclusion.

## **2 METHODOLOGY**

Collecting and mapping industrial heritage in Portugal and Spain aimed to identify, catalogue and subsequently promote sites of interest in industrial tourism. Data was collected using a structured questionnaire based on the previous literature aligned with the project's objectives. The questionnaire was validated by all the partners involved and sent to local councils between October 2024 and March 2025.

The collection of this information allowed for the construction of a detailed database, essential for the valorisation and promotion of industrial tourism in the region. Identifying and mapping these elements was fundamental to encouraging the development of cultural and industrial tourism, contributing to the preservation of heritage and the economic dynamisation of the territories involved. The database made it possible to catalogue the attractions in the following respects: location (country, county, municipality and full address); name of the heritage site; GPS coordinates (latitude and longitude); category; description; availability for visits; website; classification of level of interest; level of importance for the project.

The data is available in Excel files in the project's cloud. The analysis is based on a survey of 1,079 heritage sites in Portugal and Spain. In this paper, descriptive statistics were used to characterise the attractions. In addition, the attractions have been distributed on a map to make it easier to visualise the industrial heritage in the region under analysis.

### 3 RESULTS

The characterisation of industrial tourism begins with its geographical distribution (Figure 1). In this case, most attractions are in Spain (77.1%). This disparity may be associated with the territorial dimension of each country, as well as the diversity and history of industrialisation in both regions.

Regarding the distribution by municipality in each country, specifically in Portugal, the municipalities with the highest number of heritage sites identified are Mirandela, with a total of 32, followed by *Bragança* and *Tabuaço*, both with 28 sites, *Peso da Régua* with 19 sites and *Torre de Moncorvo* with 17. In Spain, the most significant number of heritage sites identified is Valladolid with 250 attractions, followed by Toro with 75, *Zamora* with 53 attractions and *Peñafiel* with 38.



Figure 1. Geographical Distribution of Industrial Heritage

The heritage sites identified were classified into various categories, reflecting industrial activity and infrastructure diversity. The category with the most records is transport infrastructure, with 335 heritage sites, highlighting the historical importance of communication routes and logistical means. This is followed by wineries, with 255 sites, underscoring the importance of wine production and culture. The food industry also represents a significant proportion, with 221 heritage sites, demonstrating the essential role of this sector in the economy and industrial tradition. Water heritage brings together 100 heritage sites, covering infrastructure for managing and utilising water resources. Transformation and manufacturing industries account for 73 heritage sites, reflecting the diversity of production activities over time. Energy production infrastructures account for 44 assets, while extractive industries account for 25 assets, illustrating the exploitation of natural resources. The metal and steel industry sector has 12 heritage sites, and the textile heritage, associated with producing fabrics and clothing, has six heritage sites. Finally, the 'Other' category covers eight heritage sites, encompassing elements that do not fit into the previous classifications.

The division by country reveals that the most representative category in Portugal is wineries, with 62 records, followed by the food industry (62 records) and transport infrastructure (47 records). In Spain, the most representative category is transport infrastructure (288 records), followed by wineries (189 records) and hydraulic heritage (159 records).

Finally, the level of accessibility of the heritage was analysed, and the percentage of heritage sites declared as accessible to receive tourists is approximately 47.27%. This indicates that less than half of the heritage sites identified are officially ready to welcome visitors, suggesting a possible need to improve accessibility and tourist reception infrastructures.

### 4 CONCLUSIONS

The categorisation of the heritage identified covers various types, reflecting the richness and historical diversity of the cross-border region. The main types of heritage identified include wineries, illustrating the strong wine-growing tradition of the *Douro-Duero* region, and transport infrastructure, namely old railway stations and bridges, which witness industrialisation's impact on regional connectivity. There are also hydraulic structures, such as water mills and historic dams, which show how water resources have been used for industrial activity over the centuries.

The spatial analysis of the data also made it possible to identify areas of greater heritage density, suggesting the existence of centres of high historical and cultural value. The typological diversity and

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geographical distribution of heritage assets reinforce the region's relevance in the context of industrial and pre-industrial heritage, providing a comprehensive view of its evolution over time. In this sense, the map is a fundamental tool for valuing and safeguarding this legacy. It enables a more in-depth knowledge of its distribution and characteristics and the definition of strategies to promote its preservation and sustainable tourist use. The database preparation had some limitations, namely the difficulty in obtaining information from all the municipalities in the sample. We suggest an on-site visit to fill in all the information for future studies.

This was an essential practical study for the region under analysis, since the database will enable industrial tourism routes to be drawn up based on the specific interests of tourists and the categorisation of industrial heritage.

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### REFERENCES

- [1] Q. Gu, M. Li, and S. S. Kim, "Effects of liquor and wine heritage stimuli on tourists' experiential value and behavioural intentions," *Journal of Destination Marketing and Management*, 34, 1–10, 2024. <https://doi.org/10.1016/j.jdmm.2024.100961>.
- [2] Z. Montenegro, J. Marques, and C. Sousa, "Regional development through industrial tourism: A systematic literature review," *Revista Portuguesa de Estudos Regionais*, 68, 7–27, 2024. <https://doi.org/10.59072/RPER.VI68.594>.
- [3] M. Yan, Q. Li, and Y. Song, "Spatial and temporal distribution characteristics and influential mechanisms of China's industrial landscape based on Geodetector," *Land*, 13, 6, 1–15, 2024. <https://doi.org/10.3390/land13060746>.
- [4] I. Merylova, "Revitalizing industrial territories in Ukraine: Spatial model of the tourism cluster in the Prydniprovsk region," *Frontiers of Architectural Research*, 2024. <https://doi.org/10.1016/j.foar.2024.03.015>.
- [5] M. Andrade-Suárez and I. Caamaño-Franco, "The relationship between industrial heritage, wine tourism, and sustainability: A case of local community perspective," *Sustainability*, 12, 18, 1–16, 2020. <https://doi.org/10.3390/SU12187453>.
- [6] A. Rodríguez-Zulaica, "Redefiniendo el concepto de turismo industrial: Comparativa de la terminología en la literatura castellana, francesa y anglosajona," *PASOS Revista de Turismo y Patrimonio Cultural*, 15, 2, 311–318, 2017. <https://doi.org/10.25145/j.pasos.2017.15.019>.
- [7] R. L. Ibrahim and A. Mohammed, "On energy transition-led sustainable environment in COP26 era: Policy implications from tourism, transportation services, and technological innovations for Gulf countries," *Environmental Science and Pollution Research*, 30, 6, 14663–14679, 2023. <https://doi.org/10.1007/s11356-022-23165-8>.