

On industrial tourism as a viable perspective for the Jiu Valley

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Abstract. The need to recognize the value of technological structures as elements of heritage has led to the establishment and development of industrial tourism. The interest in the conservation of abandoned industrial sites has not only scientific but also economic and heritage importance, especially for the regions severely affected by the industrial restructuring process. This process has had disastrous consequences, especially for the mono-industrial regions dominated by a single field of activity. One such example is the Jiu Valley, which was one of the most industrialized areas of the country and the main cities based their economy on the mining industry. But the Jiu Valley is defined not only by mining and mines, by cities and people with a precarious financial situation but also by hospitable cities and people, eager to share their traditions and culture. In this context, the article identifies the potential of exploitation of industrial structures in tourism, thus supporting the perspective component of revitalization by reuse of a mining perimeter. Investments in cultural heritage can lead to positive effects for the local economy not only in terms of cultural consumption, but also in terms of increasing the number of jobs and incomes.

1 Introduction

The Jiu Valley was formed and developed, as a result of coal mining. Now, in the absence of this industry is trying to reinvent itself, being in search of other economic pillars to rely on. Although the development of industrial tourism, as an alternative to former industrial activities is generally accepted as the most viable development direction, none of the coal mines is capitalized in a tourism development project.

The context of the research is determined by the current economic and social situation of the area, as well as by the potential of the existing industrial heritage elements. The use of industrial heritage in tourism will create opportunities for social, economic and environmental improvement for both the area and the local community. The article aims to explore the development potential of industrial tourism in the Petrila mining perimeter, Jiu Valley, an area drastically affected by deindustrialization. The structure of the paper includes: Section 2 - Industrial heritage tourism, Section 3- Revitalization through reuse at

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Petrila, Section 4 - Business model of the destination management organization (DMO),
Section 5 - Diagram of the causal loop for the Petrila theme park.

2 Industrial heritage tourism

Research on industrial tourism confirms that it is an attractive topic, constantly evolving. If [1] defines the concept of industrial tourism as the activity of presenting contemporary manufacturing processes, [2] describes industrial tourism as representing consumer visits to the production area, while [3] defines industrial tourism as visits in sites that allow visitors to learn about past, present and future economic activities, and [4] defines industrial tourism as a type of tourism that involves visits to operational companies and industrial heritage and offers visitors an experience of products, processes production, applicability and historical background.

While [5] uses the concept of industrial tourism with an emphasis on industrial heritage located in the city, arguing the need for its renovation and revitalization, [6] includes industrial tourism in extreme tourism. [7] considers that industrial tourism manifests itself in two directions, assuming, on the one hand, the involvement of enterprises operating in tourism and, on the other hand, the involvement of closed companies, abandoned enterprises. [8] analyses the development of industrial tourism as an alternative to educational tourism, which contributes to increasing the tourist attraction of places of production of goods and services.

In the literature we find terms such as industrial tourism, post-industrial tourism, industrial heritage tourism or cultural tourism with the inclusion of industrial objectives. Heritage tourism, focused on historical sites, is a very well-defined field [9-12], and industrial heritage tourism is a distinctive subset of it, focused on the development of tourist activities in sites, man-made buildings and landscapes in the industrial processes of earlier periods. All industrial heritage sites, including mines, evolve over time, going through phases of intense industrial use until abandonment and can subsequently be revived as a tourist attraction.

Immediately after 1990, in the process of transition from a centralized economy to a market economy, Romania went through a process of massive deindustrialization. [13] concludes that the Romanian industrial heritage is characterized by antiquity, diversity, technical and technological value, but also cultural, architectural and aesthetic.

Although, at international level, one of the widely used reconversion solutions is the integration of industrial heritage in the tourism area, at national level this variant is very little analysed and even less capitalized, often being wrongly identified with cultural tourism. In the literature we can identify a series of studies on the reconversion of former industrial complexes such as the industrial complex "Independence" in Sibiu [14], the industrial complex Resita [15], the industrial area Lugoj [16], the former Petrila mining complex [17] and others [18], but everything remained at the stage of idea and potentially untapped.

Important vestiges of the industrial era disappear, and their cultural importance is almost unknown even among specialists. The conservation and capitalization of the industrial patrimony can be constituted as a strategy of economic recovery of Romania. Romania does not currently have any distinct industrial tourism objectives, according to [19] few have been achieved in this regard, although over time there have been several initiatives to preserve industrial culture, related to the exploitation of resources. These were materialized in the establishment of dedicated museums:

- Brad Gold Museum (1986) - unique in Europe, the fourth largest in the world due to the diversity and complexity of its mineralogical collection;

- Petroșani Mining Museum (1961) - the only technical coal mining building in Romania, hosting a large number of exhibitions of both mining and numismatics;
- Ploiești Oil Museum (1961) - the only specific museum in Romania, houses numerous museum pieces offering those interested the opportunity to know the most important moments in the history of oil and the city;
- Hunedoara Iron Museum (1974) - has interesting information on the evolution of techniques and technologies for the production and processing of iron from the hallstatt to the present;
- Slănic Prahova Salt Museum (1982) - important tourist attraction, presents the evolution of salt extraction methods from the beginning;
- Mediaș Natural Gas Museum (2020) - the only specific museum in the country that presents the entire gas activity in the country;
- Cacica Salt Museum (2011) - located 40 meters below ground level, the only museum of underground history and archaeology in Romania.

Regarding the cultural value of the industrial fund in Romania, it has aroused more and more interest in recent years and the possibility of reusing it has been debated. Although there are some examples of successful reuse of some industrial monuments, the Romanian industrial heritage is not considered a priority for public authorities. Given that in the List of Historical Monuments updated in 2015, Hunedoara County appears with 518 objectives, a solution for reuse of industrial spaces in tourism is also included in the Development Strategy of Hunedoara County, which includes a tourist circuit called generic The "coal road" that would take place starting from Petroșani, from the old colony and the mining museum, continuing with the Petrila Sud mine and the Aninoasa mine, and as a terminus point, the former mining quarry from Câmpu lui Neag. For the Aninoasa mine, a project for the reconversion of spaces through tourism was elaborated. Based on the proposed changes, it can be adapted to become a thematic museum, thus offering a complex image of what the extractive activity meant for the development of the region.

The Coal Transition Strategy of the Jiu Valley, 2021-2030 includes a direction for the development of tourism in the area. This direction involves the elaboration of an integrated tourism concept of Jiu Valley with emphasis on the development of a tourist brand, with the involvement of locals who will participate in promoting cultural elements, supporting the current museum activity of the former Petrila Mine, functional reconversion and use of post-industrial heritage in tourism, the transformation into cultural and educational centres, etc., the creation of thematic circuits to promote the natural potential of the area, etc. In the same document, it is proposed to establish the Destination Management Organization (DMO) Jiu Valley, and to promote the area as an annual tourist destination, not only seasonal, by organizing thematic tourist circuits including both natural and anthropic heritage of the region. Also, different scenarios of economic development of the Jiu Valley were discussed [20]. In the first scenario, the economic and social impact generated by the complete cessation of mining operations is estimated at almost 5 billion lei, with the loss of 6528 jobs both in the energy sector and in related economic sectors. In the second scenario, with the continuation on a smaller scale of this activity, the total estimated economic and social impact, in the conditions of a strongly interdependent sector with other economic sectors, the effects of layoffs lead to losses of almost 2.5 billion lei and loss of 3252 jobs in the total economy. At the same time, three scenarios of alternative economic development were analysed with the development of the primary, secondary and tertiary sectors, on different types of activities underutilized in the Jiu Valley, the economic and social impact being over 2500 jobs and can support a diversified economy, not only in terms of economic branches, but also in terms of the types of jobs created and supported.

3 Revitalization by reuse at Petrila

The mining activities carried out in the units within the Jiu Valley supported not only the population, but also the local community through contributions to the local budgets to which they belonged. Thus, direct taxes and duties (tax on buildings, land, and means of transport owned or used; display and advertising tax; concession tax for real estate used in mining), income tax deductions but also withdrawals from the state budget, as well as donations and sponsorships, were the main receipts from local budgets.

At the level of 2015, after the last reorganization of the mining system, the main contributors to the local budgets were:

- Hunedoara Energy Complex Company – Lonea S.A. Mining Exploitation Branch;
- Hunedoara Energy Complex Company – Prestserv Petroșani S.A Branch;
- The National Company of mine closures Jiu Valley – Petrila Mine S.A. Branch, entity that was definitively closed in 2015.

As during 2015, both the Hunedoara Energy Complex Company - Prestserv Petroșani S.A. Branch, and the Jiu Valley National Mine Closure Company – Petrila Mine S.A. Branch definitively ceased their activities, it is obvious that starting with 2016, the local budget of Petrila loses the contributions of the two entities, an action that leads to the reduction of direct taxes and contributions to the revenues from the collected quotas, generating a decrease of the local budget with negative effects on economic policies, social and environmental issues at the community level [21].

Reported to the total local budget of Petrila city, the contributions collected from, Prestserv Petroșani Branch and Petrila Mine S.A. Branch represented 39,84% of the total taxes and direct fees collected in 2013 - in the amount of 731.253 lei, 32,90% of the total taxes and direct taxes collected in 2014 - in the amount of 634.885 lei and 25,59% of the total taxes and direct fees collected in 2015 - in the amount of 430.511 lei.

The contribution to the receipts from the broken-down quotas is significant in relation to the total budget of the locality, in the amount of 3.057.783 lei in 2013 representing 26,52% of the total contributions, 2.512.121 lei in 2014 representing 21,96% of the total contributions and 1.741.494 lei in 2015 representing 28,18% of the total contributions.

The contributions of the mining entities to the local budget Petrila amounted to 3.789.036 lei in 2013 representing 10,74% of the total contributions, 3.147.006 lei in 2014 representing 7,77% of the total contributions and 2.172.005 lei in 2015 representing 4,18% of the total contributions [21].

If the development of industry in the area functioned as an economic and demographic accelerator, its decline generated visible changes at the local level, with negative consequences both on the appearance of the area, with large areas of ruins and on the economic and social situation of the population, significant number of jobs, general poverty, but also changes in demographic structure.

4 The business model of the Destination Management Organization (DMO)

It is unanimously accepted that the role of the DMOs goes beyond marketing, including other management activities [22, 23]. The DMOs function as an interface between the public sector responsible for tourism marketing and private sector enterprises that provide tourism services [24]. A key objective of the DMOs is to promote compatibility between destination resources and the needs of travellers. Their key objectives are to improve the image of the destination, increase the profitability of the industry, reduce seasonality and ensure long-term financing [25].

The DMOs can be national, regional, state and local. They are national if they are responsible for the marketing of tourism, leisure and other recreational activities at the national level. When operating in rural areas, villages, towns or resorts are regional and tourism marketing in a state, province or territory is the role of state DMOs. Local DMOs have the same responsibility as state DMOs, but in a smaller geographical area. At all levels, DMOs need to work with a variety of stakeholders (hotels, restaurants, airlines, travel agencies, and recreational areas) [26].

Starting from the approach of [27] we conceptualized a business model for a proposed theme park in the perimeter of the former Petrla mine [28, 29]. The business system allows partners to create value and also to acquire some of this value, along three dimensions that take into account the content, structure and governance of activities, actors and revenue streams. The activities refer to the involvement of the human, physical and/or capital resources of any interested party in the business model in order to serve a specific purpose in order to achieve the general objective. Creating value in tourism business models often transcends the boundaries of an organization and involves co-production with private and public entities, but also the community and tourists. The actor size identifies all partners and customers relevant to transactions related to a particular business model. Finally, income flows are the third dimension that explains how the value created by the actors' activities is appropriated [30] and disseminated in the value network [31, 32].

Figure 1 provides an overview of the DMO business model of the Petrla Theme Park, the activities being placed in the centre. The four-task domains structure the maximum range of DMO activities identified by [33] are: planning, product development, marketing and interest representation.

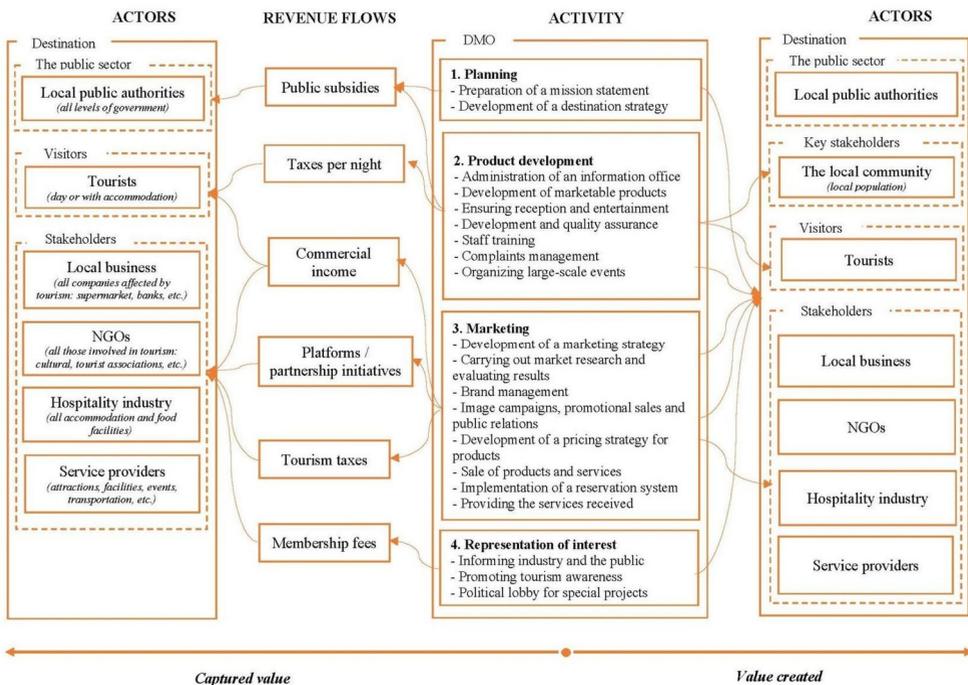


Fig.1. Business model for DMO with community involvement.

These activities align with the DMO functions identified by other authors [34, 35] and undoubtedly create direct and/or indirect value for relevant actors within the destination [36].

Prescriptive and perceptive [34, 37], planning activities improve and support the execution of other activities, especially those related to marketing and product development. For example, planning activities can lead to more effective marketing initiatives that increase the number of visitors and thus create value for the destination. Product development involves delivering more targeted product and service offerings that, in combination with effective marketing initiatives and improved internal relationships with stakeholders, increase the number of visitors and enrich experiences.

Therefore, it is suggested that both tourists and residents are the main beneficiaries of these activities. Marketing activities involve obtaining direct benefits for destination service providers. Finally, interest-related activities are supposed to improve the visitor experience through local and political support.

The activities in the four areas are funded through a combination of funding sources identified by [38]. References [37] base the links between activities and sources of income on the premise that non-commercial revenues should also be allocated for the benefit of the actors who paid them.

We chose, as a reference point for the business model developed for the Petrila Theme Park, the approach to shaping a business model for Community-type DMOs in Switzerland because this pattern is confirmed by a number of other publications [38-41] and training guides for tourism professionals. One equally important reason is that Switzerland serves as a “living laboratory” [38] with a long tourism tradition [42].

In short, the normative business model is a prescriptive maximum of the activities of the potential destination management organization, financed by a wide set of revenue streams and with a sense of control over the competitiveness of the destination and its development.

5 Diagram of the causal loop for the Petrila Theme Park

Causal loop diagrams (CLDs) are an important tool for representing the closed loop structure of systems. They have been used for a long time in academic activity and more and more frequently in business because they allow the rapid capture of hypotheses about the causes of dynamics, extraction and capture of mental models of individuals or teams, but also the communication of important feedback considered responsible for a problem [43].

A causal diagram is made of variables linked by arrows that reflect the causal influences between the variables. The diagram also highlights the most important feedback loops. The variables are correlated by causal links, highlighted by arrows. Each causal link is assigned a polarity, either positive (+) or negative (-) to indicate how the dependent variable changes when the independent variable changes. Important loops are highlighted by a loop identifier that shows whether the loop is positive (reinforcing) or negative (balancing) feedback. The loop identifier moves in the same direction as the corresponding loop.

The link polarities describe the structure of the system and not the behavior of the variables, that is, they describe what would happen if there was a change and do not describe what actually happens [44].

Figure 2 shows abstractly the way in which community-based tourism contributes to the well-being of the host population; the economic sustainability of the business being correlated with the social benefits for the community. The activities of a community-based tourism business are, to some extent, parallel to the activities of the local government, in order to meet the needs of the community and increase the standard of living of the inhabitants of the community. The first reinforcement loop (R1) is oriented towards the efforts of the destination management organization to increase the revenues from tourism activities using the capital accumulated for investments in tourism services / infrastructure.

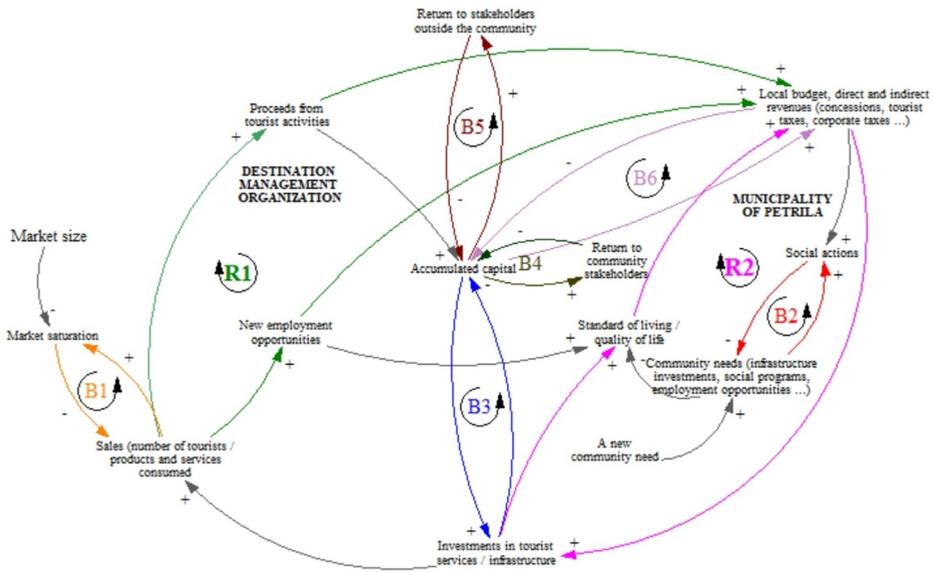


Fig.2. Achieving satisfaction at the community level by developing tourism with community involvement.

As a consequence, there is an increase in the number of tourists attracted and community products and services sold, generating new employment opportunities. The external engine responsible for balancing this process is the size of the market which influences the market saturation and decreases the number of sales, a situation that requires a balancing loop (B1), the arrows being highlighted in red.

The second consolidation loop (R2) deals with the municipality of Petrila which uses the budget for social actions aimed at the needs of the community, in order to increase the quality of life in the community. Given that the increase in social actions leads to a decrease in the remaining needs of the community, the second balancing loop (B2) appears, also highlighted in red.

The accumulated capital is self-balancing by dividing between reinvestment and redistribution between the parties involved, owners / shareholders. The third balancing loop (B3) is required due to the fact that by making investments in tourist services / infrastructure the accumulated capital is diminished. The same situation occurs in the case of redistribution to community stakeholders (B4), non-community stakeholders (B5) and redistribution to the local budget (B6). Also, the investments made by the destination management organization can indirectly contribute to increasing the living standard of the community, but its main intention remains to increase the consumption of tourism products and services.

The variables of the system with a positive impact on the well-being of the host population in community-based tourism are investments in tourism services / infrastructure made from accumulated capital, the emergence of new employment opportunities due to the increase in the number of tourists attracted and the level of sales of products and services, the increase of the level of revenues to the local budget achieved both from the revenues related to tourism activities and as a result of increasing employment opportunities and based on accumulated capital, increasing the standard of living / quality of life as a result of social actions carried out by the municipality its redistribution in the community.



Fig.3. The municipal budget consolidation tree.



Fig.4. The municipal budget utilization tree.

The main premise is that local public authorities, as well as residents, are parties in the ownership structure and have an influence on decision-making and development planning in the tourism business. In this way, both the financial impact of the business and other positive effects induced by the development of tourism, return to the community.

6 Conclusions

We do not claim to give the answer only through this research to such a complex question: Is industrial heritage tourism a solution for the revitalization of the mining perimeter and thus for the entire Jiu Valley? The records showed us the need to revitalize the area, and heritage tourism can be a solution. The research area was restricted to a single mining perimeter in the Jiu Valley, showing that the premises for future research can be created throughout the region. Thus, the article proposes an DMO business model for the management of an industrial tourist destination and presents the diagram of the causal loop for the Petrila theme park in order to highlight the process of consolidating the local budget of the municipality of Petrila, consisting of revenue streams, both direct and indirect. On the one hand, the accumulated capital is distributed to the parties involved, and on the other hand it is redistributed to the local budget in the form of taxes and duties. Also, based on investments in tourism services and infrastructure, sales of tourism products increase, which leads to increased revenues from tourism activities with effects on the local budget. An important contribution to the consolidation of the local budget is the increase of employment opportunities for the local population, through the contributions to the local budget.

It also highlights how the budget, thus consolidated, is used to increase the well-being of the host population. On the one hand, social actions are carried out with the aim of satisfying the needs of the community materialized in investments in infrastructure, social programs or new employment opportunities and, on the other hand, investments in tourist

services / infrastructure are made on the basis of accumulated capital. These investments will have the effect of increasing the number of tourist products sold and, in this process, there will be an increase in accumulated capital, which will lead to the emergence of new employment opportunities

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