

## Article

# Revitalization of Post-Industrial Facilities in Economic and Socio-Cultural Perspectives—A Comparative Study between Poland and the USA

Aleksandra Kuzior <sup>1,2,\*</sup>, Wiesław Grebski <sup>3</sup>, Aleksy Kwilinski <sup>4,5,6</sup>, Dariusz Krawczyk <sup>1</sup> and Michalene Eva Grebski <sup>7</sup>

- <sup>1</sup> Department of Applied Social Sciences, Faculty of Organization and Management, Silesian University of Technology, 26-28 Roosevelt St., 41-800 Zabrze, Poland
- <sup>2</sup> Oleg Balatskyi Department of Management, Sumy State University, 39 Soborna St., 40000 Sumy, Ukraine
- <sup>3</sup> Penn State Hazleton, 76 University Drive, Hazleton, PA 18202, USA
- <sup>4</sup> Department of Management, Faculty of Applied Sciences, WSB University, 41-300 Dabrowa Gornicza, Poland
- <sup>5</sup> The London Academy of Science and Business, 120 Baker St., London W1U 6TU, UK
- <sup>6</sup> Department of Marketing, Sumy State University, 2 Rimsky-Korsakov St., 40007 Sumy, Ukraine
- <sup>7</sup> Psychology Department, Colorado Mesa University, 1100 North Avenue, Grand Junction, CO 81501, USA
- \* Correspondence: [aleksandra.kuzior@polsl.pl](mailto:aleksandra.kuzior@polsl.pl)

**Abstract:** The article presents selected post-industrial heritage sites in Poland and the USA. Comparative studies conducted by the authors concern economic, financial and socio-cultural aspects. The research methods used include a diagnostic survey and analysis of financial documents of selected post-industrial facilities in Poland and the USA. The authors carried out financial analyses of the functioning of selected post-industrial cultural heritage facilities. The aims of the diagnostic survey were to examine public opinion regarding the financing of post-industrial facilities and the interest of young people in post-industrial monuments. Furthermore, the researchers aimed to identify potential customers and determine the most effective methods of promoting post-industrial cultural objects and post-industrial tourism. These research results can be used by authorities managing post-industrial cultural monuments as a guideline for designing marketing activities and segmenting the market for post-industrial tourism services. This will allow marketing information to reach defined target groups more effectively. Surveys showed that respondents from both countries agreed about the need to protect post-industrial heritage. Significant differences in opinions concerned interest in post-industrial tourist offerings. In Poland, 88% of respondents believed that post-industrial facilities can arouse the interest of tourists, whereas only 28% of respondents believed so in the USA. This article considers the development of post-industrial tourism and the revitalization of post-industrial facilities from the new perspective of potential users.

**Keywords:** post-industrial tourism; revitalization of post-industrial facilities; marketing of post-industrial tourism; financing of post-industrial facilities



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**Citation:** Kuzior, A.; Grebski, W.; Kwilinski, A.; Krawczyk, D.; Grebski, M.E. Revitalization of Post-Industrial Facilities in Economic and Socio-Cultural Perspectives—A Comparative Study between Poland and the USA. *Sustainability* **2022**, *14*, 11011. <https://doi.org/10.3390/su141711011>

Academic Editors: José Luis Abrantes and Bruno Morgado Ferreira

Received: 15 May 2022

Accepted: 29 August 2022

Published: 3 September 2022

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## 1. Introduction

The revitalization of post-industrial facilities has recently become a high-profile research topic related to social, economic and political issues. Research directions include, marketing of post-industrial tourism [1,2], economic and social consequences of post-industrialization [3–5], business models [6–9], sustainable development [2,10–12], political conditions and solutions [13,14] and revitalization [15–18]. However, there are few comparative studies.

The authors investigated two geographically distant regions that are similar in terms of their economic history based on the exploitation of natural resources, Northeastern Pennsylvania (USA) and Upper Silesia (Poland). Social and economic changes led some industrial facilities in these regions to be assigned other functionalities. This article presents

selected post-industrial monuments adapted to the function of post-industrial tourism and other uses and analyzes revitalization and maintenance costs in comparison with income from the sale of tickets and rental of rooms for occasional meetings. The article also presents tourist opinions regarding the need to protect post-industrial monuments as well as financing their maintenance from state or local government budgets.

Northeastern Pennsylvania (NEPA) incurred periods of prosperity and recession from the 18th century to the 20th century. After the discovery of anthracite (hard coal), coal mining became the dominant industry in the area. The presence of coal attracted construction of iron furnaces in the area. To transfer coal and iron, a canal system, and later a railroad system, were developed. After World War II, the demand for coal decreased, as oil was becoming the predominate fuel for heating purposes. Oil was easier to transport and store. Decreased demand for coal led to compromises in coal mining safety procedures due to limited investment. In 1959, the Knox Mine collapse, disaster and flood (Pittston, PA, USA) [19] was a significant result of this limited investment. Mining was conducted underneath the Susquehanna River, causing the mine wall and tunnel to collapse and rapidly flood the mine. Eighty-one miners were trapped in the underground tunnel, twelve miners lost their lives and many people lost their livelihoods. Within a few months, most coal mines in the area were flooded, and the coal mining era in Luzerne County ended. The mining industry's rapid shutdown created an economic recession and major unemployment in the area. An available and inexpensive workforce attracted the garment industry, footwear industry and cigar factories to the area, which resulted in a temporary rebound, which lasted for approximately thirty years. In the 1980s, these industries relocated to the southern states (where labor unions did not exist or were not very strong) or relocated to Mexico or abroad (where labor costs were significantly lower). At that time, community leaders working with state and federal agencies started initiatives to stimulate the economy and promote technology transfer. This process helped the region transition from a manufacturing economy to a knowledge-based economy [20], which caused many post-industrial sites to be abandoned. In NEPA, post-industrial sites were developed and repurposed, as follows:

- Four post-industrial sites were converted into tourist destinations.
- Most post-industrial sites were sold to private investors at auctions, and then either restored and repurposed or demolished for the purpose of using the land [21].

The history of NEPA in the United States is very similar to the history of the Upper Silesia Region in Poland, which a similar pattern of economic development. Many coal mines in Poland have already closed and some are in the process of closing, as are iron furnaces and steel mills. The Upper Silesia Region is also transitioning from a manufacturing-based economy to a knowledge-based economy. The historical economic transition took place much earlier in Northeastern Pennsylvania than in the Upper Silesia Region.

The Upper Silesia Region is presently in the process of repurposing abandoned industrial sites. Comparative analysis between Northeastern Pennsylvania and the Upper Silesia Region is important from the perspective identifying best practices and lessons learned. The Silesian Voivodeship, located on 12,334 km<sup>2</sup> [22], is one of the most industrialized areas in Poland, and inhabited by 4.5 million people. The country's most significant natural resources, raw material and industrial potential were located there. From the 19th century onwards, the coal and coke industries, mining of iron ore, zinc and lead ores, and metallurgical production of iron, steel, zinc and lead flourished. Zabrze is one of the largest cities in the Silesian Voivodeship, located in the Upper Silesia Region. Zabrze was characterized as having a monoculture of coal and steel; however, it is currently a leading city in the field of revitalization of post-industrial facilities [23].

Zabrze was perceived as a highly industrial city until 1990. Inhabitants were employed in hard coal mines, coking plants, steelworks, mechanical plants, transport companies and other companies related to the mining industry. Economic difficulties related to the transformation to a free market economy occurred when production fell by one third shortly after 1990. After that, mining industry restructuring resulted in the loss/elimination

of thousands of jobs, permanent unemployment and widening of the poverty zone. Closed mines and coking plants left a degraded natural environment, post-production waste and the abandonment of previously thriving post-industrial facilities. For state authorities, especially the local government, it was a challenge to revitalize the Zabrze and the Upper Silesia Region. The investment policy pursued in the following years had to correspond with concern for social issues related to education, health, housing, ecology, etc. For example, the road system was expanded, water and sewage networks were modernized, new public utility buildings were built, old buildings were thermomodernized, etc. It was possible to change the image of the former industrial “coal and steel monoculture”. After several years, Zabrze and the Upper Silesia Region sought to become a center for medicine, science and culture. This was possible through innovative economic development policies, such as a tourism economy focused on its post-industrial heritage. Zabrze adopted and consistently implemented plans for the city’s development, led by the *Zabrze City Development Strategy 2030*, a strategic plan developed to help Zabrze meet these goals [24].

## 2. Literature Review

Post-industrial tourism develops differently in various countries, depending primarily on the financial resources allocated to revitalizing post-industrial facilities and further financing or co-financing of their activities. However, financial issues are only one important aspect of the post-industrial tourism development process.

In scientific and business approaches, the scheme for activating a tourism industry (including post-industrial tourism) consists of three phases:

- (a) Estimation of tourist potential of a given location;
- (b) Identification of attractions;
- (c) Creation of a development strategy.

A well-prepared process enables achievement of expected results, which in market economy conditions are profit-oriented [25].

This research has shown that in the case of post-industrial tourism facilities, self-financing and generating profit are not possible. In both the USA and Poland, these facilities cannot function without financial support from national, local or state funds. However, the preservation of cultural heritage is an essential element in shaping a region’s cultural identity and, consequently, its social and economic development. A good example is the Ruhr area in Germany, the largest post-industrial region in Europe. The Ruhr region offers the possibility of experiencing surviving post-industrial cultural heritage while reinterpreting industrial heritage as a place of consumption, attractive for its unique aesthetics. Appropriate marketing of a post-industrial region can strengthen its economic position and contribute to sustainable development [1,11]. Another example of cultural heritage sites development with a similar reinterpretation is the city of Porto, Portugal. However, this example is not strictly about post-industrial tourism, but more broadly about cultural tourism, which is an important factor of economic growth. Effective management and marketing strategies are prerequisite to cultural tourism development. [26]. However, too little attention is devoted to these issues in the scientific literature.

In the Scopus database, we found only 13 documents for the “post-industrial tourism” query, and 10 documents for the “post-industrial facilities” query.

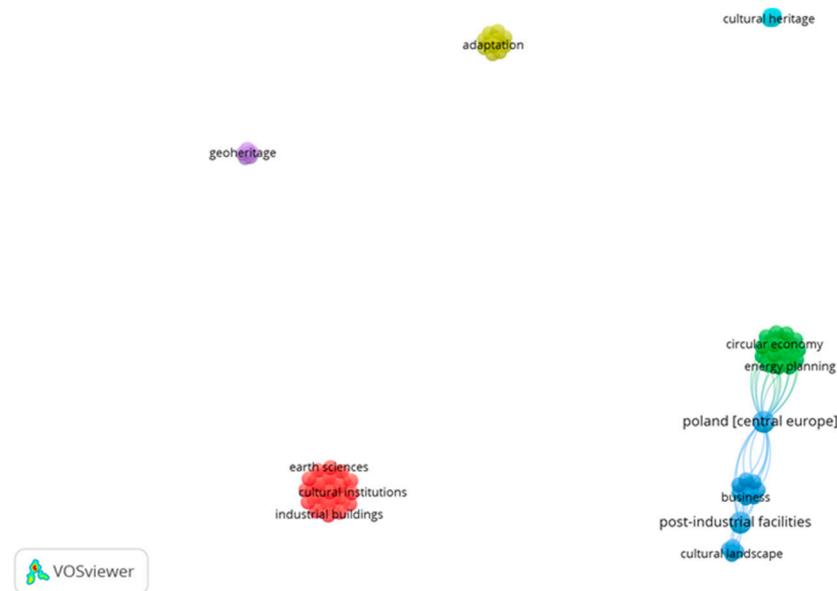
Thematic correlations with “post-industrial tourism” refer to tourism development, sustainable development, industrial tourism, industrial research, industrial heritage, modern technologies, tourism and the leisure industry (see Figure 1).



**Figure 1.** Network visualization of “post-industrial tourism”.

The literature includes, inter alia, proposals for business models using systems’ dynamics [6], opportunities to develop post-industrial facilities and rehabilitation of degraded areas [27]. Attention is also given to the role of residents who, in the process of social participation, take part in creating a city’s image and legitimizing its further development based on using monuments of post-industrial culture, inter alia. Some studies recognize the need to revitalize post-industrial sites and see opportunities for economic development. Revitalizing and restructuring post-industrial areas is closely linked to introducing a tourist function to these areas. Changes were first conditioned by economic factors, and then by the changing motivations and preferences of tourists. The tourism consumer model has changed. Symbolic of these changes is the shift from 3S tourism (sea, sand and sun) to 3E tourism (excitement, entertainment and education) and 4H tourism (heritage, handicraft, habitat and history) [28,29]. This confirms the legitimacy of investing in the revitalization of post-industrial facilities and post-industrial tourism. SWOT analyses assess the benefits of post-industrial tourist routes for the natural environment and local communities, emphasizing their impact on the region’s sustainable development [15]. The literature also explores motivational and anticipatory aspects of post-industrial society tourism. Understanding the cognitive revolution and taking the effective selection of travel and sightseeing destinations into account are key to marketing success [30]. Ethnographic studies examining post-industrial tourism in correlation with labor migration indicate the emergence of new mobilities and migratory movements driving post-industrial economies and hedonistic consumerism [31].

The thematic contexts defined using the VOSviewer program for “post-industrial facilities” are mainly the cultural landscape on the one hand, and business on the other, in combination with energy planning and the circular economy (see Figure 2).



**Figure 2.** Network visualization of “post-industrial facilities”.

In the literature, authors of several articles cited herein prove that the preservation of post-industrial facilities and their proper use may contribute to a positive change in the functionality of brownfields. Apart from their aesthetic, leisure and tourism value, they can also be used for educational purposes [32]. The literature presents five adaptation strategies for preserving post-industrial facilities. The first strategy is to effect revitalization measures by adapting a building to new functions without changing its original external or internal layout. The second strategy includes conserving the historic form and façade of a building’s exterior alongside an interior intervention including varying degrees of transformation. The interior is usually altered according to the white cube model; that is to say, the industrial character of the interior is evidenced only by a few historical relics. The strategy of coexistence of the old and the new on a post-industrial site involves construction of contemporary buildings alongside historical forms; new buildings are integrated into the post-industrial space and do not dominate the post-industrial landscape. The fourth strategy incorporates a new object and/or volume of modern objects which dominates a redeveloped historic site. The last strategy balances new and historic elements so that there is an equivalent combination of related historic and contemporary forms, which highlights the contrast between new and old elements [33]. The most frequently used strategy for the revitalization of post-industrial facilities is the exterior conservation strategy with interior interventions, which is evident in the sites analyzed in this article. However, comparative research and sharing of good practices is lacking, although interest in post-industrial tourism research is slightly increasing. These studies provide a basis and guidelines for taking up the challenges of revitalization, adapting functionality and adopting appropriate business practices in this industry, through research regarding business models, marketing practices, social perception and social participation.

### 3. Materials and Methods

This research used a diagnostic survey (opinion survey) as well as document analysis to study the financing of post-industrial facilities’ operations. Desk research and a literature analysis were also carried out; multiple case studies illustrated selected post-industrial sites and their functionalities.

A pilot survey was carried out to examine public support for the transformation of post-industrial facilities into tourist facilities, and for the purpose of continuous quality improvement (CQI). Data were collected in communities of customers of post-industrial tourist facilities. For comparative purposes, identical questions were asked in English

and Polish. In the USA, 50 people (28 men and 22 women) completed the pilot voluntary anonymous questionnaires, and in Poland 60 people (28 men and 32 women) completed pilot questionnaires. Most respondents were young people (aged 20–30 years) of local origin. The survey aimed to improve the quality of services (CQI) by:

1. Identifying people's interest in post-industrial monuments;
2. Identifying the age group of potential customers visiting post-industrial cultural monuments to develop ticket pricing and structure admission;
3. Identifying the most effective methods of promoting post-industrial cultural objects;
4. Developing the structure and methods of financing post-industrial cultural monuments.

The authors chose four post-industrial sites that have been converted to tourist attractions in Luzerne County and Lackawanna County, NEPA, USA, and four post-industrial facilities in Zabrze, Upper Silesia Region, Poland.

The diagnostic survey allowed the authors to answer specific research questions:

1. What is the level of public support for promoting post-industrial sites for tourism in the USA and Poland?
2. What is the public interest in post-industrial monuments?
3. What marketing tools, in the opinion of the respondents, can be used to promote post-industrial monuments?
4. What age group of potential tourists may be most interested in visiting post-industrial sites?
5. How should the operating costs of post-industrial facilities be financed?

The proprietary questionnaire used in the diagnostic survey consisted of 24 questions related to public interest in post-industrial monuments, marketing and advertising tools, the age group of potential visitors, and methods of financing post-industrial tourist facilities.

Data were collected at post-industrial sites in the northeastern part of Pennsylvania, USA, and in Upper Silesia, Poland. Both regions once had very prosperous mining and steel industries and are now in a period of economic transition to a knowledge-based economy.

Research methodology included a comparative analysis of similar facilities in Poland and the USA. Post-industrial facilities in the USA have over 40 years of history. Experiences (positive and negative) based on this long history may serve as good and bad practice guidelines for currently emerging post-industrial facilities in Poland. Identification of good practices as well as mistakes made in the USA will allow for better planning of emerging post-industrial facilities in Poland. The creation of post-industrial tourist facilities had the support of local residents. Local residents patronized these centers by purchasing admission tickets and organizing cultural events (school trips, conferences, etc.) in post-industrial sites.

This study is part of a multi-stage research project; research has already been carried out in Poland and the Ukraine [2]. The current research concerns a comparative analysis of Poland and the USA. Post-industrial facilities in Germany and Slovakia will be taken into account in future comparative research.

## 4. Results

### 4.1. Description of Post-Industrial Sites Converted to Tourist Attractions in NEPA, USA

The authors chose four post-industrial sites that have been converted to tourist attractions in Luzerne County and Lackawanna County, NEPA, USA.

1. Eckley Miners' Village (Weatherly, PA, USA);
2. Pennsylvania Anthracite Heritage Museum (including the Lackawanna Coal Mine Tour);
3. Pennsylvania Coal and Iron Furnaces (aka as the Scranton Iron and Steel Furnaces or the Lackawanna Iron and Coal Furnaces (Scranton, PA, USA));
4. Steamtown National Historic Site (Scranton, PA, USA).

Eckley Miners' Village (aka Shingleton) [34] was a farming community and lumbering center used for shingle manufacturing until approximately 1853. Mining leases and coal transportation were the predominant industries from the 1850s to the 1960s. Paramount

Pictures transformed the village into a movie set for *The Molly Maguires*, after which Eckley Miners' Village was purchased by the Anthracite Historic Museum which subsequently transferred it to Eckley Miners' Village Associates and the Pennsylvania Historic and Museum Commission. This transfer resulted in the village being used as a living history museum.

Originally owned by the Six Nations, the Pennsylvania Anthracite Heritage Museum (including the Lackawanna Coal Mine Tour) [35,36] helped sustain the iron and coal industry along the Lackawanna River, where the coal and textile industries dominated from the 1860s onwards. This industrial site and its ancillary structures are a tourist destination (with exhibits, tours and event centers) administered by the Pennsylvania Historic and Museum Commission (PHMC).

Purchased in 1987, the Steamtown Historic Site (aka Steamtown NHS) [37] is administered by the National Park Service (USA); part of the Lackawanna River Heritage Trail includes a museum and artifacts related to the railroad industry and its relevance to the anthracite mining industry. Visitors can take a short steam train ride, view original structures (e.g., the roundhouse) and antique artifacts in an area that includes a walking trail and the Electric City Trolley Museum.

Operating since the 1840s, the Scranton Iron and Steel Furnaces (aka the Pennsylvania Coal and Iron Furnaces or the Lackawanna Iron and Coal Furnaces (Scranton, PA, USA)) [38] was an industrial site as well as a residential community and mining location with commercial properties, including a tavern and hotel. This site provided items needed by the railroads and the anthracite mining industry. When its functionality ended (1902), the site was sold to private investors before becoming the property of the Commonwealth of Pennsylvania (in the 1960s) to be administered by the PHMC as part of the Anthracite Heritage Museum (1971) with the help of the Iron Furnaces Associates. In 1991, the site was placed on the National Register of Historic Places and continues to be a tourist attraction offering special events and a trail within walking distance to downtown Scranton and the University of Scranton.

#### 4.2. Description of Post-Industrial Facilities Transformed into Tourist Facilities in Silesia, Poland

There are many post-industrial facilities in the Upper Silesia region. To protect post-industrial cultural heritage, the *Industrial Monuments Route of the Silesian Voivodeship* (2015) was created by the Board of the Silesian Voivodeship; by 2022, it had identified forty facilities. According to the regulations, they all had to meet at least six conditions:

1. Technical conditions of the facility are completely safe.
2. The facility and its events are available to visitors on specific and publicly designated dates (days and hours).
3. The facility/site complies with all legal, ownership and financial requirements.
4. The site and artifacts have historical value representing the heritage of their industrial culture. Permanent and temporary exhibits as well as events allow visitors to recognize the original functions of the site and artifacts. The site represents the history of a given place.
5. The facility is adapted to serve tourism and has, at least to a minimum extent, a tourism-related infrastructure.
6. The facility conducts promotional and educational activities [39].

The plan brings together artifacts related to mining, metallurgy, energy, railways, communications, textiles, water production and the food industry. The industrial route includes museums as well as inhabited workers' areas and/or operating workplaces. The owners of individual facilities are local governments, private persons, and private and state enterprises. Most post-industrial facilities included in the Industrial Monuments Route are located in Zabrze, and are of the greatest interest to tourists. In the development plan adopted by the local government, "Zabrze 2030", one of the defining elements of transformation was post-industrial heritage tourism. The foci for generating tourism are the restoration and revitalization of post-industrial facilities, which will be given new functions.

There are many revitalized post-industrial monuments in the area of Zabrze, Poland; it is a leader in the field of post-industrial heritage tourism [40]. Zabrze's most famous revitalized sites are the "Królowa Luiza" Adit (Queen Louise) and the Historic Coal Mine "GUIDO". The revitalization costs were approximately PLN 180M and PLN 240M, respectively [41]. Similar tourist, gastronomic, cultural and educational functions are fulfilled by the Maciej Shaft and the Water Tower.

The Queen Louise Adit is the largest tourist complex related to the heritage of hard coal mining in Poland and is unique in Europe. It is an excellent illustration and representative example of the changes that have taken place in European industry over the past 200 years. Nowhere else has such a unique site been revitalized, conserved and adapted for visitors. The Queen Louise site is located under the center of Zabrze, a city with almost 180,000 inhabitants, and was awarded with the prestigious European Heritage Award (Grand Prix Europa Nostra) [42]. Other winners of this award include Trafalgar Square and Royal Albert Hall in London, and the National Observatory in Athens. The Queen Louise site tells the story of the mining industry from the turn of the 19th century through to the 20th century. It has a modern tourism-related infrastructure and two unique outdoor parks. The most valuable elements of the complex, and what distinguishes it across Europe, are the underground workings of the former "Królowa Luiza" mine and the accompanying Main Key Tunnel, which is more than 5 km long [43]. The entire process of revitalizing the Queen Louise complex was a monumental and very difficult undertaking. The work has been finalized; a safe, authentic, highly attractive facility and one-of-a-kind European landmark is accessible to tourists. The main goal of this ambitious project was to preserve the mining heritage of the region by adapting and revitalizing the complex for cultural, educational and tourist use. The project was financed by the European Union, national funds and other sources. The cost of renovation was EUR 40 million. "Królowa Luiza" also offers boat trips in the underground canals beneath the city (which used to float coal barges in the 19th century) as well as the opportunity to visit the underground port. In 2019, approximately 200,000 people visited these and other attractions in or near Zabrze, where there was no tourist traffic before [44]. After March 2020, the number of tourists decreased due to the COVID-19 pandemic.

The historic "Guido" Coal Mine is a unique tourist facility in Europe, where you can go underground using an original mining "szola" (three-level passenger crane) and see the miners' workplace along almost 5 km of tourist routes in post-mine corridors. Visitors learn about mining and mine protection techniques from the 19th century to the present day. One of the attractions is a route with an electric suspension railway—the only mining railway of this type in the world available to tourists. Visiting the Guido Mine is a trip into history where tourists can play the role of a real miner and perform a number of mining operation tasks under the supervision of professionals. Underground spaces are available for cultural events, conferences, meetings and educational events, including the lowest pub in all of Europe. Tourists are offered three levels of sightseeing at depths of 180, 320, and 355 m under the streets of Zabrze. The Guido Mine was founded in 1855 by Count Guido Henckel von Donnersmarck, an industrial magnate from whom it also took its name. It was a private investment undertaken during the great industrial revolution. During this time, there was an awareness of the risks associated with the construction of new industrial plants. The road to regular mining proved to be long and difficult, and was challenged by water and snowstorms. Coal seams were difficult to access due to a tectonic fault. In 2000, due to cost reductions in the coal industry, the unique Guido underground mine began to be dismantled. Many institutions and private persons initiated the end of destructive mining practices and the establishment of the Historic Guido Mine. In 2007, an independent cultural institution of the City of Zabrze and the Silesian Province became leaders of the Historic Guido Mine project. Currently, the Guido mine is the second deepest coal mine in Europe open to the public for tourists and the only one accessed via the original mining elevator (szola) [45]. Approximately PLN 240M was allocated for the

reconstruction and adaptation of the historic infrastructure of the Guido Mine in Zabrze for tourism and cultural purposes.

The Water Tower was built in 1909 as an element of the municipal water supply network. It was designed by architect August Kind and construction advisor Friedrich Loose. It is 46 m high and 23.3 m in diameter. Its main structure consists of eight pillars on a regular octagonal plan with a central pillar. There was a water tank under the mansard roof, which was dismantled in recent years. The lower part of the building consists of three usable floors with apartments and offices. Until recently, the decaying tower was threatened with demolition. The city managed to save the tower. The interiors were renovated, and a glass staircase with an elevator was erected next to the tower. In the restored building, there will be, among other things, a cafe and an interactive exhibition presenting issues related to coal. The facility will be open to visitors after completion of construction. The water tower revitalization project was funded by the European Union (EU) (PLN 35.8M) and the city of Zabrze (PLN 24.7M) [46].

Maciej Shaft is a complex of facilities of the former “Concordia” Mine (later Pstrowski) in Zabrze-Maciejów (Upper Silesia Region). The history of this structure and its artifacts from the beginning of the 20th century did not end with the depletion of hard coal deposits in the area. Przedsiębiorstwo Górnicze (Mining Enterprise) DEMEX Sp. z o. o. transformed the shaft into a deep well. The buildings, artifacts and equipment were transformed into social, gastronomic and economic event centers. Maciej Shaft combines history with modernity, cultivating mining traditions that coexist in the shaft with modern design, as well as a Silesian restaurant that stands out on the gastronomic map [47].

#### *4.3. Social Support Data for Transformation of Post-Industrial Facilities into Tourist Facilities in the USA and Poland*

Analysis of questionnaires completed by the respondents facilitated drawing conclusions and providing answers to the research questions posed. A comparative data analysis was organized according to the individual topics, as follows: public interest in post-industrial monuments, marketing and advertising tools, age group of potential visitors, and methods of financing post-industrial tourist facilities.

##### 4.3.1. Public Interest in Post-Industrial Monuments

1. The opinion of respondents in the USA and Poland was that local residents should protect and promote the industrial heritage of the city and the region.
2. Social support for the promotion of industrial monuments was higher in the USA than in Poland.
3. The discrepancy between public opinion in the USA and Poland regarding tourist interest in potential industrial heritage sites in the area was significant.
4. Respondents in Poland were more optimistic that post-industrial facilities would capture the interest of tourists. USA respondents were less optimistic in this regard.
5. In Poland, 88% of individuals who voluntarily filled out anonymous surveys believed that post-industrial facilities could attract tourist interest, compared to 28% in the US.
6. In Poland, 55% of tourists believed that their city had historic post-industrial facilities, compared to 18% in the US.
7. In the US, 78% of tourists were interested in promoting their city’s industrial heritage, compared to 38% in Poland.

##### 4.3.2. Marketing and Advertising Tools

1. The opinions of tourists regarding marketing historic post-industrial facilities were very similar in the USA and Poland; the Internet ranked first, followed by television advertisements.
2. Billboard advertisements and direct meetings with tourists had more support in Poland than in the USA.

3. Tourists in Poland and the USA agreed that the primary marketing/advertising platforms should be the Internet (100% in the USA and 88% in Poland) and television (80% in the USA and 55% in Poland).
4. Tourists in Poland believed that billboard advertising would be effective (55% in Poland and 8% in the USA), as would face-to-face meetings with tourists (37% in Poland and 8% in the USA).

#### 4.3.3. Age Group of Potential Visitors

1. The opinion of tourists about the age group of potential visitors diverged considerably in the USA and Poland.
2. In Poland, individuals aged 30–50 years were considered potential tourists for historic post-industrial sites.
3. In the USA, individuals aged 60 and over were considered potential tourists for historic post-industrial sites.
4. This discrepancy is most likely due to higher activity of retirees in the USA than in Poland.
5. Retirees can also be more emotionally attached to historic post-industrial sites.
6. In Poland, tourists believe that visitors will primarily be aged 30–50 years (60% in Poland and 12% in the USA).
7. In the USA, tourists believe that visitors will be people over 60 years of age (40% in the USA and 5% in Poland).

#### 4.3.4. Method of Financing Post-Industrial Tourist Facilities

1. The perception of financing post-industrial tourism facilities was significantly different in the USA and Poland. In the USA, tourists believed that historic sites should earn their keep and should not be financed using taxpayers' money.
2. Tourists in the USA were concerned that historic post-industrial sites would not be able to generate enough income to cover their maintenance costs.
3. Tourists in the USA were concerned about the public budget being drained by historic post-industrial sites, which could lead to tax increases.
4. In Poland, tourists were more optimistic; they believed that historic post-industrial facilities would be able to earn their keep, and that if they did not, they should be subsidized by public funds (taxpayers' money).
5. The discrepancy between tourists' opinions in the USA and Poland was related to the taxation system. In the USA, the public pays federal, state and local taxes.
6. Local tax is determined based on the city's expenses. Residents fear that historic post-industrial facilities will increase the city's expenses, which will result in higher taxes.
7. In Poland, the tax system is central; therefore, the public was not concerned about the impact of historical post-industrial facilities regarding a direct increase in taxes.
8. In the USA, 80% of tourists believed that monuments of post-industrial culture require co-financing (they will not be self-sufficient institutions) compared to 28% of tourists in Poland who expressed the same opinion.
9. In Poland, 47% of tourists expected post-industrial sites to generate profits, compared to 8% in the USA.
10. In Poland, 52% of tourists expected post-industrial facilities to be funded by taxpayers, compared to 10% in the USA.
11. In the USA, 80% of tourists believed that post-industrial facilities should earn money sufficient to pay their operating costs, compared to 35% of tourists in Poland.
12. In Poland, 82% of tourists believed that post-industrial sites would generate sufficient income, compared to 16% in the US.

In all research areas, there was no significant difference in the responses of men and women.

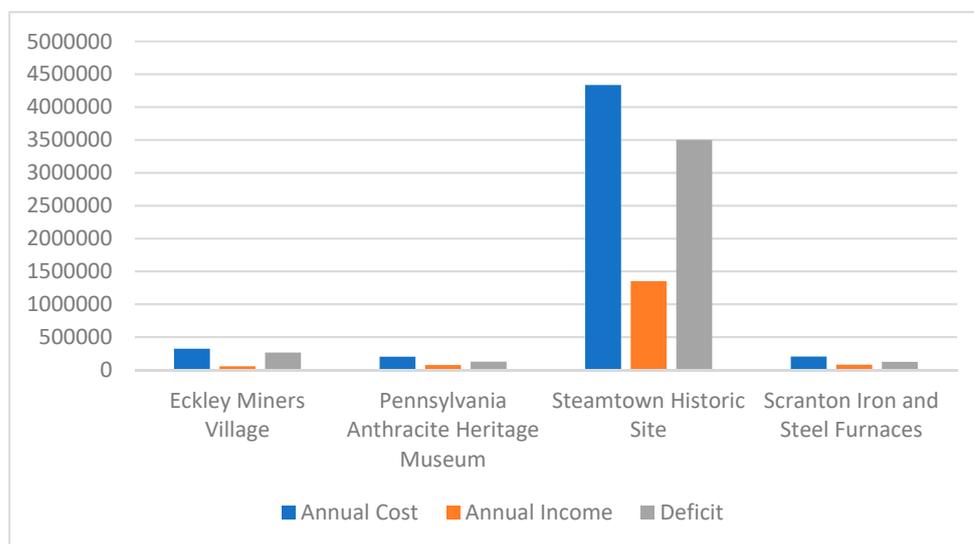
## 5. Discussion

All four Northeast Pennsylvania post-industrial sites described above are open to the public every day, including Saturday and Sunday. Admission is paid, with a discount for students and pensioners. However, each tourist facility requires constant funding due to the high cost of living. The maintenance costs of these post-industrial tourist facilities and income generated from visiting fees are shown in Table 1 and Figure 3.

**Table 1.** Financial situations of post-industrial tourist facilities in Northeast Pennsylvania.

Facility	Annual Maintenance Cost	Income from Ticket Sales	Profit or Deficit
Eckley Miners' Village	USD 321,925	USD 56,645	USD 265,000 deficit
Pennsylvania Anthracite Heritage Museum	USD 201,000	USD 74,543	USD 126,000 deficit
Steamtown Historic Site	USD 4,336,000	USD 1,350,000	USD 3,500,000 deficit
Scranton Iron and Steel Furnaces	USD 205,000	USD 81,000	USD 124,756 deficit

Source: This study, based on [48–50].



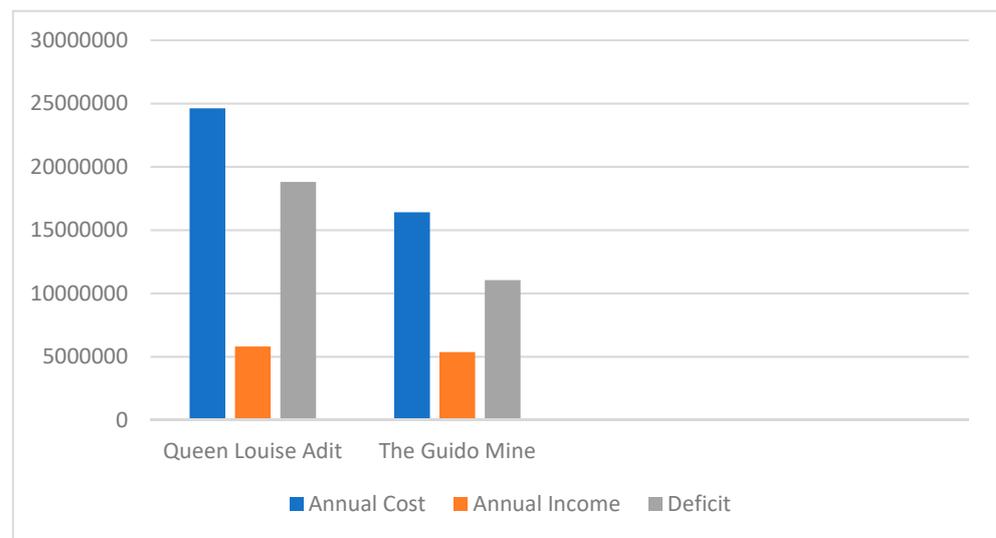
**Figure 3.** Financial situations of post-industrial tourist facilities in Northeast Pennsylvania. Source: This study.

Zabrze is a post-industrial city. Most of its post-industrial facilities have been developed for a variety of purposes, including tourist purposes related to the protection of cultural heritage. Table 2 and Figure 4 present financial data for two selected post-industrial facilities in Zabrze, which are open to the public six days a week. On Mondays these facilities are closed to visitors, as are most museums in Poland. Admission is paid, with a discount for students and seniors. The maintenance costs of these facilities are very high, and ticket sales do not balance these expenses.

**Table 2.** Financial situations of post-industrial tourist facilities in Zabrze.

Facility	Annual Maintenance Cost	Income from Ticket Sales	Profit or Deficit
Sztolnia Królowa Luiza [Queen Louise Adit]	PLN 24,615,650.03	PLN 805,002.00	PLN 18,810,648.03 deficit
Kopalnia Guido [The Guido Mine]	PLN 16,410,433.36	PLN 5,358,463.39	PLN 11,051,969.97 deficit

Source: This study, based on financial data of the Coal Mining Museum in Zabrze (2019 data).



**Figure 4.** Financial situations of post-industrial tourist facilities in Zabrze. Source: This study.

Converting post-industrial sites into tourist sites is an expensive undertaking. These are not self-financing facilities that require constant funding from a city or state budget.

According to the authors, only the most valuable objects of great historical importance should be transformed into tourist facilities. The rest can be used for commercial purposes, adapting them for catering, educational, training or other purposes. However, interest in post-industrial sites and the desire to protect cultural heritage means that economic factors become secondary, provided that it is possible to subsidize the functioning of post-industrial facilities as monuments. Researchers in various countries have identified interest in post-industrial monuments and their revitalization for cultural purposes [51–53]. There is a consensus to promote and make post-industrial heritage available as post-industrial tourism destinations.

Research using the diagnostic survey method revealed a positive attitude of respondents to these issues. Respondents believed that the post-industrial cultural heritage of the city and the region should be protected. The protection of post-industrial cultural monuments is important for the continuity of preserving cultural heritage for present and future generations, despite the financial outlays required to maintain buildings and other post-industrial facilities. Preserving post-industrial heritage is also important from the point of view of preserving cultural identity and implementing sustainable development [33,54].

## 6. Conclusions

As shown by the financial analyses, the annual maintenance of monuments is expensive. It is possible to obtain a fraction of the cost from ticket sales and rental of the premises; however, the city or the state contributes most of the cost (Tables 1 and 2). The USA does not have access to the same financial support as Poland, where the EU contributes to the cost of rehabilitating post-industrial sites. Despite the fact that these facilities are not self-sustaining, there are social and cultural benefits including, but not limited to, the preservation of cultural heritage and its tourism-related benefits. Tourists come to the city not only to buy tickets and visit monuments, but also to spend the night, eat and shop. In such cases, it is necessary to consider the effects of tourism from a broader economic and socio-cultural perspective (local, regional, national and international) and take into account the entire complex of tourist services focused on monuments of post-industrial tourism. Although financial analyses showed that none of the presented monuments were self-financing and required continuous public funding, social benefits were noticeable in the attitude of the inhabitants towards promoting the cultural monuments of their region or city. Despite large budget deficits, local authorities managed to find funds to finance the operation of these sites.

In the diagnostic survey, respondents said that local residents should protect and promote the post-industrial heritage of their city and region. Polish respondents believed that tourists will be interested in visiting post-industrial facilities. The number of tourists confirms this opinion; in 2019, approximately 200,000 people visited Zabrze. Surveys showed how young people perceive post-industrial tourism and its potential. Therefore, they can guide further research, the adaptation of good practices in many post-industrial regions and the preparation of marketing tools promoting post-industrial objects. Practical implications from the diagnostic research include how to define target groups and what information transmission channels are best to attract tourists' interest to post-industrial tourists. These research results can be used by authorities managing post-industrial cultural monuments as a guideline for designing marketing activities and segmenting the market for post-industrial tourism services, which will allow them to reach defined target groups more effectively.

The authors intend to conduct further comparative research including post-industrial regions in Slovakia and Germany. Research will be undertaken regarding local community's and tourists' perceptions of post-industrial tourism, the use of new marketing tools and the Formula 7 P marketing mix.

**Author Contributions:** Conceptualization, A.K. (Aleksandra Kuzior), W.G., A.K. (Aleksy Kwilinski), D.K. and M.E.G.; methodology, A.K. (Aleksandra Kuzior), W.G., A.K. (Aleksy Kwilinski), D.K. and M.E.G.; software, A.K. (Aleksandra Kuzior), W.G., A.K. (Aleksy Kwilinski), D.K. and M.E.G.; validation, A.K. (Aleksandra Kuzior), W.G., A.K. (Aleksy Kwilinski), D.K. and M.E.G.; formal analysis, A.K. (Aleksandra Kuzior), W.G., A.K. (Aleksy Kwilinski), D.K. and M.E.G.; writing—original draft preparation, A.K. (Aleksandra Kuzior), W.G., A.K. (Aleksy Kwilinski), D.K. and M.E.G.; writing—revision and editing, A.K. (Aleksandra Kuzior), W.G., A.K. (Aleksy Kwilinski), D.K. and M.E.G.; visualization, A.K. (Aleksandra Kuzior), W.G., A.K. (Aleksy Kwilinski), D.K. and M.E.G.; supervision, A.K. (Aleksandra Kuzior), W.G., A.K. (Aleksy Kwilinski), D.K. and M.E.G. All authors have read and agreed to the published version of the manuscript.

**Funding:** This research received no external funding.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** Not applicable.

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

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