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## **A IMPACT OF ADMINISTRATIVE LAW REGULATION ON MODELS OF USING SPATIAL DATA TO PROMOTE TOURISM ASSETS OF POLAND AND ITS CULTURAL AND NATURAL HERITAGE**

**Abstract:** The purpose of the article is to analyze the impact of legal regulations on the use of spatial data related to Poland's tourism assets and its cultural and natural heritage through spatial information services used as part of spatial information systems, both in the public and private sectors. The conducted considerations are to allow for the formulation of *de lege lata* remarks and *de lege ferenda* postulates regarding the existing legal basis for the functioning of the spatial information infrastructure. The proposed solutions should have a positive impact on improving the efficiency of using the data collected in this infrastructure for purposes related to the promotion of Poland's cultural and natural heritage.

**Keywords:** spatial data for tourists, cultural heritage, natural heritage, open data, interoperability

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## **Introduction**

Spatial data in the area of processing information on natural and cultural heritage has significant potential for promoting tourism assets. The article analyses the legal aspects of the issue in question. The purpose of this article is to present the importance of normative instruments in regulating processes related to the processing of spatial data for tourism activities. The role of GIS systems and spatial information infrastructure in the dissemination of information on natural and cultural heritage is considered, in particular in relation to monuments and forms of nature conservation. The importance of open data and the interoperability of the related collections and services is also relevant to this issue. The growth of GIS in tourism is linked to the development of user-oriented web services and their specific needs in this area (Jovanović, 2007). By providing secure and efficient access to such resources, it is possible to disseminate them freely and automatically on geoportals and websites aimed at promoting the tourism assets of EU regions.

## **Material and Methods**

The article uses 2 legal research methods: dogmatic and empirical. The first one consists in a multifaceted analysis of the content, structure and mutual relations of legal acts relating to the processing of spatial data for tourism-related purposes. The second method, on the other hand, refers to the study of the actual effects of the application of the legal norm. The paper presents examples of electronic services that in their daily operation use data that are part of the infrastructure of spatial information based structurally and procedurally on national regulations that implement the INSPIRE Directive. The application of the discussed methods allowed a discussion and formulation of conclusions concerning the most effective solutions of using spatial data to promote tourist attractions.

## **GIS and data on natural and cultural heritage**

Geographical information systems are a solution consisting of databases, hardware, software and users for processing spatial data, one of the functions of which is to support decision-making and disseminate information about specific objects and phenomena. In the context of tourism, there is a need for various forms of information on spatial relationships, of which cartographic studies are the most prominent (Leszczyńska, 2003). Spatial information systems are used not only for data visualization, but above all for spatial analysis resulting in the acquisition of new knowledge (Białousz, 2013). Such solutions also play an important role in areas related to tourism management (Chang, 2011). Information systems offering services to geographic research and decision-making could play roles in tourism management, which are indicated below:

- Conducting Tourism Information Management – from the traveler perspective, GIS has important information storage features and could provide travel information

inquiry service for tourists. Furthermore, from the travel management service sector perspective, it could make tourism management more easily.

- Being Able to Produce a Comprehensive Thematic Map – in comparison with traditional paper tourist map, the advantages of GIS drawing tourism plans are clear visible, because of its tiered storage capabilities, travelers could output a map including all tourism elements, such as terrain, road transport, services, facilities, tourist attractions and choose their own set of elements.
- Providing References for the Tourism Development – from a large amounts of GIS stored data about human and natural landscape, transportation, climate, topography, soil, vegetation, animals and plants, tourism management department could obtain the information that is useful for business operations and improving competitiveness by the use of data mining technology (Wei, 2012).

Through the use of GIS, the implementation of public policies can be based on evidence relating to the current state of specific objects and phenomena on the ground. In the context of tourism, this is important for tourists able to benefit from a better quality of public services adapted to the current needs of their audience.

Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE) indicates in Annex I that the Infrastructure for Spatial Information shall include data concerning protected areas designated or managed under international, Community or Member State law to achieve specific conservation objectives. We can include information on cultural and natural heritage in this category. Annex III of the INSPIRE Directive also covers buildings and habitats and natural homogeneous areas.

### **Nature conservation**

Nature conservation is considered as a set of activities aimed at preserving animate and inanimate nature and the landscape in an unchanged or optimal condition. The primary objective of nature conservation is to maintain the stability of ecosystems and ecological processes and to conserve biodiversity (Habuda, 2017). One of the most important principles resulting from the Act of 27 April 2001. Environmental Protection Law is the preservation of sustainable development, understood, according to Article 3, point 50, as such social and economic development in which a process of integrating political, economic and social activities takes place, maintaining natural balance and sustainability of basic natural processes in order to ensure the possibility of satisfying the basic needs of particular communities or citizens of both the present and future generations.

Catalog of capacities necessary for sustainable development implementation includes:

- measure progress,
- promote equity,
- adapt to shocks,
- to transform development pathways,

- link knowledge with action,
- govern cooperatively.

This standard is derived from the United Nations standards developed as part of the work on the Brundtland Report in 1987 relating to keeping the Earth's environment in the best possible condition for the future (Clark, 2020).

The principle of sustainable development presupposes the application of effective legal mechanisms guaranteeing the preservation of natural heritage for future generations. On the basis of Article 6 of the Act of 16 April 2004 on nature protection, forms of nature protection in Poland include:

- national parks,
- nature reserves,
- landscape parks,
- areas of protected landscape,
- Natura 2000 areas,
- nature monuments,
- documentation sites,
- ecological sites,
- nature and landscape complexes,
- species protection of plants, animals and fungi.

The most important data on these objects are collected in a central register of forms of nature protection maintained in electronic form by the General Director of Environmental Protection. The technical details of the operation of this collection result from the Regulation of the Minister of the Environment of 11 September 2012 on the central register of forms of nature protection. Access to this resource is possible online through the domain [crfop.gdos.gov.pl](http://crfop.gdos.gov.pl). The aforementioned service makes it possible to search for an object on the basis of the criterion of its own name, type of nature conservation form or location in units of the country's basic territorial division. In addition to this graphical user interface, this collection can be used as an interoperable service for browsing (Web Map Service – <https://sdi.gdos.gov.pl/wms>) or downloading spatial data (Web Feature Service – <https://sdi.gdos.gov.pl/wfs>). The General Directorate for Environmental Protection also provides a thematic geoportal (<https://geoserwis.gdos.gov.pl/mapy/>). As emphasized in the literature, one of the primary goals related to the establishment of the INSPIRE directive in the EU area was to organize the data obtained from the member states on environmental protection and thus guarantee better consistency and efficiency of the environmental management processes (Rusztecka, 2012). From the point of view of promoting the tourist values of the regions, data on protected areas and their characteristic habitats of flora and fauna can be a useful source of information for tourists looking for naturally attractive holiday destinations.

## **Protection of monuments**

Pursuant to the definition of Article 3(1) of the Act of 23 July 2003 on the protection and care of historical monuments, a monument is understood to be an immovable or movable object, parts or complexes thereof, being a work of man or related to his activity and being a testimony of a past epoch or event, the preservation of which is in the public interest due to its historical, artistic or scientific value. The content of art. 3 item 1 of the discussed act distinguishes additionally an archaeological monument which is an immovable monument, being a surface, underground or underwater remnant of human existence and activity, consisting of cultural stratification and products or their traces, or a movable monument, being such a product. The collection of data concerning the objects in question is the register of monuments maintained in the voivodeship on the basis of Article 8 by the voivodeship conservator of monuments. On the basis of art. 9 paragraph 1 an immovable monument is entered in the said register on the basis of a decision issued by the voivodeship conservator of monuments *ex officio* or on application of the owner of the immovable monument or the perpetual usufructuary of the land on which the immovable monument is located. Additionally, on the basis of Article 21 *et seq.* a register of monuments was created, which includes the following subcategories:

- The General Conservator of Monuments maintains a national register of monuments in the form of a set of registration cards of monuments located in provincial registers of monuments.
- Provincial conservator of monuments maintains a provincial register of monuments in the form of register cards of monuments located in the province.
- The head of the commune (mayor, town president) maintains a communal register of monuments in the form of a collection of address cards of immovable monuments from the communal area.

The detailed rules concerning the keeping of the aforementioned collections are established in the Regulation of the Minister of Culture and National Heritage of 26 May 2011 on keeping a register of monuments, national, provincial and communal records of monuments, and a national list of monuments stolen or illegally exported abroad. The fact that these provisions do not provide for electronic form as the primary means of keeping these collections deserves criticism. This reduces the efficiency with which public authorities can perform their tasks related to this category of data. It also limits the potential for their re-use, for example in electronic services for tourists seeking objects of particular historical or artistic value in a particular area.

Due to the requirements resulting from the Act of 4 March 2010 on spatial information infrastructure, which is the implementation in the national legal order of the previously discussed INSPIRE directive, the basic data concerning monuments have the form of electronic spatial data and are made available through national and regional geoportals. One such solution is the map portal of the National Heritage Institute ([mapa.zabytek.gov.pl](http://mapa.zabytek.gov.pl)) – an entity established by the Minister of Culture and National Heritage based on the order of 23 December 2010 on the change of the name and scope

of activities of the National Heritage Research and Documentation Centre, issued in accordance with Article 11 and Article 13(1) of the Act of 25 October 1991 on the organization and management of cultural activities. The said ICT system also includes WMS, WFS and CSW spatial data services.

## **Open data**

Issues relating to open data, the principles and modalities for sharing and transferring public sector information for re-use are set out in the Act of 11 August 2021 on open data and re-use of public sector information implementing Directive (EU) 2019/1024 of the European Parliament and of the Council of 20 June 2019 on open data and re-use of public sector information. This act addresses the situation of transfer to external parties of public sector information, comprising open data characterized by electronic form, completeness, timeliness, referentiality, processed in an open and non-proprietary machine-readable format, which is intended to be reused free of charge on the same basis for any user, without the user having to prove his or her identity. Re-use of these resources means such use that goes beyond their intended public tasks. In the 2011 European Commission Communication. Open data - an engine for innovation, growth and transparent governance (COM (2011) 882) identified the following key challenges that can be overcome through effective mechanisms for the re-use of these resources:

- Untapped business and economic opportunities – public data are an essential raw material for a wide range of new information products and services that build on new possibilities to analyze and visualize data from different sources.
- Addressing societal challenges – public data could for example be used to enhance the sustainability of national health care systems or essential factor for tackling environmental challenges, such as unsatisfactory energy efficiency level or increasing emissions because of inefficient traffic management systems.
- Accelerating scientific progress – scientific activities are increasingly undertaken through global collaboration on the internet, using very large data collections, huge computing resources and high-performance visualization for e-science (research enabled by e-infrastructure/ICT).
- Need to act at all levels: local, regional national and EU level – data users do not want their mobile service to stop at the border, and Europe-wide business information services with gaps for one or more countries will lose much of their interest.

Public data exploitation holds important potential for the EU economy and consumer welfare.

Public sector resources, and in particular spatial data, can be used for purposes related to promoting Poland's tourism assets and cultural heritage beyond the original purpose of processing these resources in connection with inventorying and securing objects of natural or cultural value. Examples of commercial solutions using such data include services such as Czech Mapy.cz or Polish Mapa-turystyczna.pl. They are available via a web browser or mobile application, enabling users not only to view data on natural

and cultural sites, attractions and tourist infrastructure, but also to enter their own spatial data (e.g. from a GPS receiver) related to their activities in the area and share them via social media. As the statistical reports commissioned by the EU indicate, the level of maturity of the Member States' policies for opening up public data resources is steadily increasing (Open Data Maturity Report 2021, p. 24). The aim is to achieve a level of data sharing that is as automated and free as possible, using APIs that are easily adaptable to specific applications.

### **Spatial data interoperability**

The concept of interoperability of spatial data is defined in the INSPIRE Directive. Article 3(7) of this act states that it means the possibility for spatial data sets to be combined, and for spatial data services to interact, without repetitive manual intervention, in such a way that the result is coherent and the added value of the spatial data sets and services is enhanced.

The issue of improving the level of interoperability between information systems in the EU Member States is addressed in the European Commission Communication European Interoperability Framework - Implementation Strategy (COM (2017) 134). This document formulates the following most relevant problems related to the insufficient degree of cooperation between electronic services and datasets:

- legal issues, e.g. by ensuring that legislation does not impose unjustified barriers to the reuse of data in different policy areas;
- organizational aspects, e.g. by requesting formal agreements on the conditions applicable to cross-organizational interactions;
- data/semantic concerns, e.g. by ensuring the use of common descriptions of exchanged data;
- technical challenges, e.g. by setting up the necessary information systems environment to allow an uninterrupted flow of bits and bytes.

In the context of this issue, the EU institutions place an important emphasis on supporting the processes of managing and developing the European interoperability reference architecture and European interoperability cartography. The primary objective of EIF implementation is to inspire European public administrations in their efforts to design and deliver seamless European public services to other public administrations, citizens and businesses which are to the degree possible, digital-by-default (i.e. providing services and data preferably via digital channels), cross-border-by-default (i.e. accessible for all citizens in the EU) and open-by-default (i.e. enabling reuse, participation/access and transparency).

The EIF has formulated the following catalogue of principles relating to fundamental behavioral aspects to drive interoperability actions:

- Subsidiarity and proportionality;
- Openness;
- Transparency;
- Reusability;

- Technological neutrality and data portability;
- User-centricity;
- Inclusion and accessibility;
- Security and privacy;
- Multilingualism.

Data openness and the use of data formats that enable the processing of public sector information resources in an automated way are closely linked to the achievement of semantic and technical levels of interoperability. The organizational level, on the other hand, is characterized by important links to legal procedures related to spatial data management.

## **Results and discussion**

Spatial information plays an important role in electronic services for promoting the tourism assets of EU regions. A main objective of the article was to analyze the relationship of legal instruments regulated by the Act of 4 March 2010 on spatial information infrastructure based on Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE), in relation to normative solutions proposed in Directive (EU) 2019/1024 of the European Parliament and of the Council of 20 June 2019 on open data and the re-use of public sector information. In this article, particular emphasis is placed on identifying potential added values resulting from ensuring the interoperability of electronic services and data sets, as well as possible legal barriers related to the subject matter of ongoing research.

An important element of the considerations is the description of the registers established in the Act of July 23, 2003 on the protection of monuments and the care of monuments and the Act of April 16, 2004 on the protection of nature. In this field, it is also important to assess the possibilities of their further improvement using information and communication technologies, open spatial data formats and GIS tools.

The analyses made in the article allowed conclusions to be drawn on the ways, conditions and benefits of using spatial data as a resource relevant to the dissemination of comprehensive and up-to-date tourism information.

## **Conclusion**

Increasing the interoperability and openness of spatial data in the area of processing natural and cultural heritage information is a beneficial process that improves the performance of public tasks and the reuse of such resources. This makes it possible to ensure more effective promotion of the tourist assets of regions based on comprehensive and up-to-date spatial data on natural or culturally significant sites. It is also important to use the potential of big data and virtual reality, which will make it possible to forecast and model tourist traffic effectively. This will allow cultural and natural assets to be used in a more sustainable way.



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