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## **SOURCES OF GEOGRAPHIC INFORMATION SYSTEMS IN LAW VS. ACCESSIBILITY FOR PERSONS WITH DISABILITIES IN THE EU AND IN POLAND**

**Abstract:** The meaning of space for persons with disabilities is a research area in geography, urban planning, spatial planning and architecture, also in sociology and public policy. Accessibility has become a focus of interdisciplinary research. The development of accessibility standards and new technologies also presents challenges for legal science.

GIS provides data for planning and implementation decisions by policy makers, and then evaluate the implementation. It also serves to enhance the effectiveness of the rights of persons with disabilities. Inadequate spatial planning means that the rights of persons with disabilities are not exercised despite being declared in the law.

The use of GIS is growing ever more widespread, and their strengthened role in disability studies allows to enhance the autonomy of persons with disabilities and foster their integration into society. One of the key issue for the development of GIS in this area undoubtedly comes from the regulations that guarantee access to the physical environment, transport, other facilities, information and communication and public services.

While the sources of legal regulation of accessibility standards and how to ensure accessibility in the traditional sense are known, the basics of GIS for people with disabilities are still insufficiently analyzed.

However, it is also worth looking at the legal basis for the functioning of GIS itself. This article aims to examine the sources of law for the functioning of GIS and its application for people with disabilities in EU and Polish law.

**Keywords:** GIS, new technologies, persons with disabilities, accessibility

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## **Introduction**

It is commonly believed that social and legal norms in a specific society shape the perception of and the reactions to disability. They can limit or – quite the opposite – develop and support the rights of persons with disabilities. Another key factor apart from social and legal conditions is space. Disability, similarly to unemployment and poverty, depends to a considerable degree on spatial conditions (Bird, 2019). Geographical structures can be the source of spatial traps in the life of persons with disabilities. They cover not only the lie of the land, but also its demography, infrastructure, social and economic resources, distance from centres of economic and social activity, and presence of public services. Structural injustice can be compensated by tools and technological solutions introduced thanks to geographic information systems (GIS).

GIS provide more than just information and data used to plan, implement, evaluate and change solutions with regard to space. They make it possible to analyse the placement of (natural and artificial, permanent and mobile) objects in space, but also specific natural phenomena, climate-related events, epidemiological and terrorist threats, historical and cultural elements, and finally economic and social phenomena (see subject literature mentioned in Bachad et al., 2012; Roszewska, 2018). The mutual effect of information technologies and space research serves human development. It even serves to redefine fundamental rights (Kocaman & Ozdemir, 2020). A greater role of GIS in studies on disability could increase their dissemination in practice, thus increasing the effectiveness of the realisation of the rights of persons with disabilities, their autonomy and their integration into society.

The progress of accessibility standards and new technologies likewise constitutes a challenge for the legal studies. The main focus of the present publication is to identify the sources of law that regulate the operation of GIS for the purpose of ensuring accessibility to persons with disabilities, as well as their place in the legal system. While the sources of legal regulations of accessibility standards and the ways of ensuring accessibility are identified, albeit not without difficulty, the foundations of GIS for persons with disabilities remain insufficiently analysed. It is worth examining the legal basis for the functioning of GIS in EU and Polish law and the extent to which they affect the legal framework for the functioning of GIS in order to apply it to the full realisation of the rights of persons with disabilities.

### **The concepts of GIS and accessibility**

The starting point is the proper understanding of the concepts of GIS and accessibility. GIS has no legal definition, although it does incidentally appear in EU regulations (for recent instances, see: Article 65(3)(e) of Regulation (EU) 2021/2116). The concept of GIS is explicated chiefly in the doctrine. They are defined as systems for acquiring, collecting, processing, analysing, and sharing data containing spatial information as well as the accompanying descriptive information about objects distinguished in the section of geographic space covered by the system. In other words,

they are understood as systems for the flow and use of information using technological tools (Gaździcki, 1990; Bielecka, 2006 and the subject literature cited therein). The component parts of these systems – as it is sometimes added – are also their users and support staff (Kistowski & Iwańska 1997; Bielecka, 2006).

Accessibility, in turn, is a technical as well as normative category. In the first case, it serves to indicate and meet various measurable parameters and requirements that affect human functioning in the environment; it is a function of compliance with regulations or criteria that define a certain minimum level of solutions necessary to fully benefit people with disabilities (Salmen, 2001; Iwarsson & Ståhl, 2003). Accessibility describes the degree to which an environment, service, or product allows access by as many people as possible, in particular people with disabilities. And an accessibility standard is a level of quality accepted as the norm (WHO, 2011). Accessibility appeared as a universal normative category in the UN Convention on the Rights of Persons with Disabilities. The Convention does not provide a definition of accessibility. It does, however, list accessibility as one of the general principles underlying the Convention (Article 3(f)) and provides a description of the purpose of accessibility, its scope, the means of achieving it and its addressees (Article 9).

GIS are used to serve numerous functions and can be considered in different contexts even for the needs of people with disabilities. For example, it is possible to analyse the incidence of disability in space (Roszewska, 2018) and to use GIS tools to identify social needs as well as plan and coordinate public services (Roszewska, 2019). Accessibility in terms of spatial factors, on the other hand, is a matter not so much of the availability of a particular facility or service, but rather of its functional distribution in a given area. It is not only the distance that separates people from an object – a place where products are offered or services provided. What also matters are the waiting time, which depends on the accessibility of transport, the type and choice of offers in a given area, the quality in relation to services provided in another area, etc.

### **Legal regulations of accessibility**

We undoubtedly consider the UN CRPD to be the primary source of regulation of accessibility for persons with disabilities. Although the prevailing view is that the CRPD does not create new rights, but only operationalises pre-existing human rights taking into account the new disability paradigm, in the case of accessibility one can be convinced that we are dealing with the emergence of a new right – the right to access (Roszewska, 2021).

The CRPD has been adopted by the EU, as well. A number of pieces of legislation in Union law that regulated the rights of persons with disabilities, including made some kind of reference to accessibility for persons with disabilities prior to the signing of the Convention, were included in the appendix to Annex II to the Council Decision of 26 November 2009 concerning the conclusion, by the European Community, of the United Nations Convention on the Rights of Persons with Disabilities (2010/48/EC). Since its entry into force, the UN Convention has been an integral part of EU law. While

the validity of the earlier equality directives in the light of the CRPD cannot be questioned, they should, as far as possible, be interpreted in line with the Convention (CJ judgments in Joined Cases C-335/11 and C-337/11 and Cases C-363/12 and C406/15).

The mutual relations between Union law and the Convention, however, are more complex than that (Pohjankoski, 2017). Even the UN Committee on Persons with Disabilities itself expressed concerns about the implementation of Article 9 of the CRPD (Committee on the Right of Persons with Disabilities, 2015); the concerns remain valid. A step towards the implementation of the accessibility principle under the Convention was supposed to be Directive (EU) 2019/882 of the European Parliament and of the Council of 17 April 2019 on the accessibility requirements for products and services (OJ L 151, 07/06/2019, pp. 70–115) called the European Accessibility Act (EAA). Its objective is to approximate the laws of the Member States with regard to the accessibility requirements for certain products and services, in particular by eliminating and preventing barriers to the free movement of certain accessible products and services that result from divergent accessibility requirements in the Member States. The Directive refers to the understanding of accessibility in the CRPD and indicates that accessibility and universal design should be interpreted in accordance with General comment No. 2 (2014) – Article 9: Accessibility, drawn up by the Committee on the Rights of Persons with Disabilities (Recital 50). Unfortunately, the EAA does not fully implement Article 9 of the CRPD with regard to accessibility due to the very narrow material scope of the regulation.

The EAA was going to be transposed into national legislation by 28/06/2022 and enter into force on 28/06/2025, with a transitional period until 28/06/2030, and in some cases even later (Articles 31 and 32 of the EEA). In order to implement it in Poland, a draft law on the accessibility of certain products and services was prepared (draft No UC 119).

While the EAA was still in the making, the Act of 19 July 2019 on ensuring accessibility to persons with specific needs was adopted in Poland. It sets out measures to ensure accessibility to such persons and the obligations of public entities in this regard. The Polish act was not the first to refer to an ‘accessibility law’. However, the drafters assumed that accessibility should be a horizontal principle underlying the implementation of all public policies. One of the instruments for implementing this principle was supposed to be the above-mentioned law of a systemic character, broadly defining measures to ensure various aspects of accessibility for persons with special needs and the obligations of public entities in this respect (Explanatory memorandum, pp. 2 and 4).

The law undoubtedly has a horizontal character and will contribute to the gradual improvement of accessibility of public institutions. However, the objective to render its scope systemic has not been achieved. Already Article 1(2) makes a reference in the area of digital accessibility to the Act of 4 April 2019 on digital accessibility of websites and mobile applications of public institutions. It covers three areas of accessibility only. The legislature has not brought order to the legislation in the area of accessibility law. The national provisions in this field are still dispersed. Only to a narrow extent does the law

apply to non-governmental actors. Specific obligations concerning accessibility result from many other provisions assigned to specific areas of accessibility (architectural accessibility, digital accessibility, communication accessibility, transport accessibility) or specific categories of rights, goods and services, such as education, work, health, transport, tourism, postal services, commercial services, cultural goods, and natural goods (Roszewska, 2021). The proposed law on the accessibility of certain products and services likewise has a narrow scope of impact, with the EU being largely responsible for that fact. After all, the law implements directive (EU) 2019/882 of the European Parliament and of the Council of 17 April 2019 on the accessibility requirements for products and services (European Accessibility Act).

### **Legal regulations of GIS**

GIS are faced with a similar dispersion of legal sources. There is not even a legal act that would attempt to cover horizontally all the functions performed by GIS. In the EU, the leading source of law for GIS is 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). However, its objective was to set the legal, conceptual and organisational framework for the construction of spatial infrastructure in the Member States (Bielecka, 2011). The standardisation of spatial data infrastructure was supposed to facilitate the collection, retrieval, use and sharing of data.

Considering its main objectives (building an infrastructure for spatial information), the INSPIRE directive refers primarily to the information function of GIS. However, the creation of spatial information infrastructure, in addition to providing faster access to spatial data, was also intended to help more effectively execute tasks in the fields of, among others, spatial and economic planning, implementation of construction projects, crisis management, and many others. This can be achieved thanks to the possibilities offered by GIS in the compilation and analysis of multiple data using an automated process of their visualisation and spatial data analysis (Felchner & Jankowska, 2013).

The specific spatial data themes covered by the directive have been assigned various priorities, taking into account priority Community policies and progress already made in the Member States (Recital 14). The directive placed a strong emphasis on environmental policies and policies that affect the environment, such as transport, agriculture, energy, spatial planning, regional development, etc. (Recital 5, Article 1). In addition, it set out several specific objectives, including establishing a legal framework for the use of spatial data in the EU, creating coordination structures in the Member States and the EU, and identifying the spatial data needed. At a later stage, online services were going to be established.

Gathering in one act the issues covering the spatial information infrastructure and the obligation to implement these solutions into Polish law was a step towards coherence of resources and facilitation of their search and sharing, as well as effective use of data provided by public institutions. On the basis of the INSPIRE directive, a wide range of spatial data concerning the environment, geography, society and economy is

collected. A legal framework for sharing spatial data and services has been created. However, the INSPIRE directive and the Polish law did not specifically address all potential functions of GIS and their application for public policies. This was not the purpose of these regulations. The directive did, however, require Member States to characterise the current and planned functional dimension and land use, e.g. residential, industrial, commercial, agricultural, forestry, or recreational (Annex III). These include, for example, the geographical distribution of dominance of specific pathologies and information indicating the effect on health (biomarkers, decline of fertility, epidemics) or well-being of humans (fatigue, stress, etc.) linked directly (air pollution, chemicals, depletion of the ozone layer, noise, etc.) or indirectly (food, genetically modified organisms, etc.) to the quality of the environment. It is further required to label utility facilities, administrative and social governmental services, and public services (including civil protection sites, schools and hospitals). The administrative and social governmental services referred to in Annex III to the INSPIRE directive include specialist services for the benefit of persons with disabilities (INSPIRE Thematic Working Group Utility and Government Services, 2013). Thus, although the directive does not treat accessibility as a key issue, the requirement to take into account the functional dimension should contribute to its implementation. Accessibility as a set of standards and a legal obligation is not sufficiently taken into account in functional spatial planning. It is to be expected that this process should progress more smoothly.

Access to spatial information at the European level is regulated by other provisions, as well. They concern access to information, re-use of public sector information, protection of information, and personal data processing. In national law, there are additional legal regulations that underpin the creation and operation of databases for the use of a specific sector of public administration, as in the case of education or health (see the list in Felchner & Jankowska, 2013). People with disabilities benefit from such infrastructure common to all citizens. Still, further work on the model of spatial infrastructure regulation is needed (Szpor, 2011). The changes that have taken place since the adoption of the INSPIRE directive take too little account of its usability for people with disabilities.

### **Juridisation of GIS vs. accessibility**

The right to information is only a part of the area that should be subject to juridisation in the context of GIS. Space monitoring was supposed not only to serve informational purposes, but also to be an instrument of rational management. In addition to maintaining a continuously updated information database, GIS was meant to enable analysis of the current spatial status and forecasting of spatial development processes. In the first years, significant diversity of the developing local information systems was observed (various systems were created without any clear legal basis), along with small resources of data important for the decision-makers in various areas of administration and poor use of the data that had already been collected (Szpor, 1998). The initial work of the government was oriented mainly towards the needs of geodesy, especially to replace paper maps. In turn, the development of legal regulations and the

interest of science focused strongly on the right to and the protection of information, including secrets subject to legal protection (Szpor, 1998). Yet a common model for the juridisation of information issues was called for already at the end of the 1990s. Even some dangers related to the legislative empowerment of information systems were pointed out. However their establishment was undoubtedly in the public interest. Already at the end of the 1990s, it was proposed to establish a central spatial information system (or metainformation, as it was even then defined) and to base it on statutory provisions harmonising inter-ministry information networks (Szpor, 1998).

The link between spatial information and spatial planning law has its historical roots. It was for the purposes of spatial planning that the regulation of the spatial information system was called for. The Act on spatial information infrastructure has become the basis for regulating the emerging right to geoinformation in Poland, which, as a part of the widely understood right to information, has been recognised as a separate legal category and is subject to a separate legal regulation. The right to geoinformation has been defined as a new subjective right of the individual, embedded in the doctrine of the information society, which imposes on us new standards of behaviour and creates new expectations and opportunities (Dobrowolski, 2006). Yet the legislation was heavily influenced by the areas of regulation at the EU level. These required namely implementation in national law, thus setting the priorities of legal regulations. There was a logical reason behind that. Functional planning and use of space required an interoperable spatial information infrastructure.

The functioning of GIS is not standardised in a comprehensive way. It is even less standardised for the purpose of ensuring accessibility to persons with disabilities. Determining the legal basis for the functioning of GIS vs. accessibility is further complicated by the fact that it is not clearly assigned to a specific field of science as a research area or to a specific branch of law as an area of legal regulation. Spatial information is regulated in land use planning law. Many aspects related to access to information using GIS are governed by other legal acts. In particular, industry-specific information systems relating to data in space are standardised in the provisions concerning the relevant law branch. GIS is a subject of information law research, too. It continues to be a young field of law in Poland, yet the extent of standardisation has already been outlined. Ever more often, it is a separate subject of teaching. The situation is different in terms of the rights of persons with disabilities. This field is usually studied as part of human rights and social law. However, research on accessibility for people with disabilities is scarce. Accessibility law as a certain complex of legal regulations is only just entering a period of intensive progress. It has not yet been widely recognised or accepted (Greco, 216; Broderick, 2020; Roszewska, 2021). Accessibility law regulations are not in the mainstream of legal considerations, despite the fact that they concern a wider group of people than just persons with disabilities. They affect, to varying degrees, also elderly people, people with temporary impairments caused by injury or illness, parents with young children, and pregnant women.

## Conclusions

The relationship between GIS and accessibility is undisputed. Juridisation of GIS in the area of accessibility seems to be necessary for the purpose of comprehensive standardisation of various tasks related to spatial governance. Regulations should strengthen the effectiveness of the application of new technologies in social and economic relations (Szpor, 2017). The lack of a legal basis for the full implementation of the social functions of GIS precludes their harmonious development. There is still little recognition in subject literature of the wide application of GIS and the need for its fuller regulation. There is not even a discussion in which field the functions of GIS for accessibility law could be regulated – whether they should be developed within information law, or more narrowly within spatial information law, or exclusively within accessibility law.

Regulatory fragmentation, gaps, lack of coherence and stability, and even chaos in the definitions are typical for newly emerging areas of law. In this case, we are dealing with an exceptionally complicated situation, entailing the constantly developing law of information technology, intersectional applications of GIS, and access law, which is only slowly being identified. In this situation, it is easier to notice the shortcomings and dangers of the current legal status quo than to present a coherent vision of juridisation of the mutual relations between GIS and accessibility.

The subject of regulation is certainly one of those in which the law follows social changes caused by technical development. Moreover, the area is highly internationalised. Technical civilisation and the nature of new technologies force the internationalisation of law and the search for new forms of protection of civil liberties and rights (Szpor, 2017; Chauvin et al., 2021). Undoubtedly, fundamental human rights can be redefined with the progress of science and technology (Kocaman & Ozdemir, 2020). In this context, it is a positive phenomenon that also accessibility for persons with disabilities is perceived as one of the binding international human rights standards.

The UN Convention on the Rights of Persons with Disabilities requires the legal standardisation of accessibility at the national level. In the view of the Committee on the Rights of Persons with Disabilities, states parties to the CRPD are obliged to adopt and monitor national accessibility standards. And the first step is to adopt an appropriate legal framework. To this end, states should undertake a comprehensive review of accessibility legislation in order to identify, monitor and address gaps in legislation and its implementation (General comment No. 2).

It is not optimal to build an entirely new legal environment for the functionality of spatial information systems for the purpose of implementing the right of access. It seems more desirable to include general legal solutions for information technology in the area of information technology law. The scope of legal regulations that standardise and guarantee the use of GIS for accessibility purposes needs to be agreed. The starting point should certainly be terminological consistency, an agreed list of principles, and a legal framework that takes into account the constant and rapid technological development,



providing for minimum standard solutions where full legislative regulation is impossible or impractical due to the pace of change and the level of specialised solutions in practice.

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