# DIGITAL MAPS

## IP PARADIGMS AND NEW TECHNOLOGY

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**Marlena Jankowska**

# DIGITAL MAPS
## IP PARADIGMS AND NEW TECHNOLOGY

Introduction by
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Any errors or mistakes are the author's own.

Dr. hab. Marlena Jankowska

# Introduction

If you ever wondered what a digital map is, then you should consider reading this book because of how it will change your concept of the familiar map and transform how you would view maps in the new digital age. More importantly, this book will educate you on how intellectual property in digital maps may be protected and monetised.

This book by Marlena Jankowska, a leading legal Polish scholar, will illuminate the world of digital maps in four chapters offering insights into the nature of cartography, the nature and development of copyright on geographical maps, how digital maps attract protection and the new legal paradigm required for various categories of works of authorship.

The pervasiveness of geographic information in society in general in the digital age is preeminent in everything that we do. The four chapters build an 'axiological pyramid' from data to information to knowledge and then to wisdom. These foundations set the platform for the digital map. In the second chapter the analogue map is described as having been built on a grammar of cartography. This is important if legal doctrines are to be applied to established terminology and have practical economic effect. Chapter three describes the process of creating digital maps and protection of its various elements. Maps derived from vector data have different treatments as opposed to those derived from raster data. Protection of these forms of digital map include traps and 'steganographic' (hidden) elements. The final chapter grapples with the digital map as a new copyright category of a work of authorship.

This is an interesting legal book that tries to provide an understanding of the confluence of both the law tradition and new technology. It is even more important as a legal text that postulates overarching principles and values to resolve problems of ownership and paternity, assertion of rights and philosophies and paradigms. The book draws on the civil European law and common law jurisprudence in the Western world. Examples are drawn from various countries and Polish law is used as a comparator and base for much of the discussions.

Prof. Dr. George Cho
Canberra, Australia
September 2017

# Introduction – the subject of the study and the methodological approach

In recent times, we have witnessed significant development of geolocation technologies and the emergence of the concept of the geoinformation society. Both of these have resulted from the development of spatial information systems, or geographic information systems (GIS). Access to geospatial data (Geoinformation or GI), and the practical dimensions of this access are becoming increasingly important. Nevertheless, this subject matter features only poorly in Polish legal literature and international studies of this topic are also few and far between. This book steps into this void in order to confront the issue of the digital map in the light of copyright law. The objective is to paint a fine-grained picture from a sufficiently broad perspective and on different levels, so as to allow an understanding of how the phenomenon of the digital map challenges the concepts and mechanisms of intellectual property rights which have been developed by the legal doctrine so far. This study aims to make a critical analysis of the application of the provisions of copyright law in their current form and wording in relation to digital maps.

We are now witnessing the birth of a new field of science, which draws on many disciplines and areas of law to create its own foundations and structure, while at the same time trying to establish a basis in the area of legal sciences[1]. In the course of legal studies, the legal aspects of geoinformation are increasingly treated as a separate taught subject whose scope is evolving in much the same way that space law did and still does. One cannot escape the fact that these two areas are very closely related, sometimes overlapping or drawing from each other. In

[1] It is curious to note what one prominent Polish professor in the theory of law, Z. Ziembiński, said some time ago: 'You have to accept the fact that the separation of the individual disciplines within the legal sciences followed in a very spontaneous and often random way, and also have in mind the fact that the speed of social change related to rapid transformations of economic life in recent decades [...] led to widely differing views on this matter', Z. Ziembiński, *Metodologiczne zagadnienia prawoznawstwa*, Warsaw 1974, p. 68.

the field of technical sciences, the achievements of geoinformation literature have been significant. In these studies, references to the law, and particularly intellectual property rights are ever-increasing, but are frequently expressed in clumsy and general terms, accepting entirely as dogma that the digital map falls into the scope of copyright protection.

This has driven the author to strive towards two goals. The first aim is to prepare a legal study building on existing studies in technical sciences and accompanied by literature to confront common copyright-related comments with a more accurate legal understanding and by applying fundamental copyright law concepts. The second aim is to provide a thorough analysis of the process of creating goods and services in the geoinformation society leading to a synthesis between the technical process of creating a digital map and a legal understanding and qualification of these activities.

The subject of the study is to provide a critical analysis of existing copyright legislation, something which, the creators of GIS increasingly find, fails to offer adequate protection of their work. This analysis aims to demonstrate flaws in the structural framework of various legal institutions, the correction of which could lead to broader and, above all, more reliable protection of such assets. The author questions the claim, widely repeated in international legal literature, that the protection of Geographic Data is more certain in European continental systems based on EU legislation than in the Anglo-Saxon systems which offer no separate regime for protecting *sui generis* rights to databases[2]. This study suggests that the Database Directive 96/9/EC does not in fact provide effective protection, thereby rendering the legal situations of GIS in the legal systems of continental and Anglo-Saxon countries equivalent. This in turn justifies the need for a broader comparative analysis in search of a real protection regime for GIS and geodata.

To this end, the work is divided into four chapters. Chapter I sets out a number of concepts, the understanding of which is essential to the arguments that follow, namely the concepts of the geoinformation society, cybercartography, spatial information systems and digital maps. Given that the associated problems have not only a technical dimension, but also an interdisciplinary one, the author introduces the axiological pyramid (data-information-knowledge-wisdom) – often referred to in geo-information studies – as an attempt to solve the law subsumption problem within the construct of civil law (including copyright). The idea of bringing together views and structures developed in different fields is of growing importance, as it allows synthesis of findings and assists in determining the direction of further analysis, despite its origins in different fields of science.

[2] T. Scassa, D.R. Fraser Taylor, *Intellectual Law and Geospatial Information: Some Challenges*, WIPO Journal 1/2014, p. 84-85.

A dogmatic method is avoided in favour of a social-technical method,[3] viewed through the prism of the socio-psychological perspective of research into the actual functioning environment of the technology of digital mapping. This, in fact, is the basis for understanding the essence of this phenomenon, as well as of the widespread use of maps and GPS. It allows one finally to appreciate that the digital map is not only a product of new technology, but also a cultural development in its own right.

Today, there are almost no Internet users unfamiliar with the so-called practice of 'tagging' and 'geotagging',[4] even if they could not describe them by their technical names. A description of Internet users' new behaviours justifies why 'apart from formal analysis of the existing legal institutes it is essential to analyse the behaviours from a functional angle based on comparison of their actual functions with the roles ascribed to them officially or socially, as well as to analyse these functions relative to the functions of the other institutes of the system'[5].

Chapter II focuses on the development of copyright legal doctrine as it relates to the analogue map. It outlines the historical conditions and the gradually evolving scholarly understanding of granting copyright protection to maps, based on examples from the Anglo-Saxon and selected continental systems. It is not possible to commence legal research on the digital map concept without considering, at least in general terms, the doctrine and jurisprudence that have already been developed in this area in relation to analogue maps. The reflections confront the practical dimension of analogue mapping (the so-called *grammar of cartography*), to re-trace, reconsider and describe the creative elements of the map. These considerations seek to portray maps as official material along with a number of accompanying doubts related to the intersection of copyright law and geodetic and cartographic law. Also considered is the Polish National Geodetic and Cartographic Resource (PZGiK), along with its legal status. It is important to note here that this resource grants a licence to use public geographic data collected within its scope of duties.

Chapter III then turns to the digital map, applying a broader perspective on the principles and methods of its creation and constituent elements. This chapter makes a deeper investigation of the creation of an analogue map and, from this standpoint, moves from the grammar of analogue cartography to the grammar of digital cartography, in order to determine the changes taking place in technology and their consequent implications for copyright. To that end, it provides practical illustrations of existing digital maps. Due to the multiplicity and diversity of real-world incarnations of the concept of the digital map, the author focusses upon

[3] Z. Ziembiński, *Metodologia nauk prawnych. Przewodnik dla studentów studium dla pracujących*, Poznań 1972, p. 39-43.

[4] See Chap. I, 3.2.

[5] Z. Ziembiński, *Szkice z metodologii szczegółowych nauk prawnych*, Warsaw-Poznań 1983, p. 98.

three specific models of map: 1) geopoportal.gov.pl created as a result of the implementation of the INSPIRE Directive, which is an example of a *public model*; 2) OpenStreetMap (OSM) which, being the work of volunteers, is an *open-private model*; 3) the maps created by the private entity ExpertGIS on a commercial basis, therefore referred to as a *closed-private model*. This chapter ends with an attempt to determine the copyright protection status of the components and sources of the map, such as raster data, vector data, geographical names, so called 'map traps' and even the actual communications signals from satellites and other remote observation systems collecting data for mapping purposes.

The reader may be surprised by the absence of Google Maps in this discussion, due to the high levels of familiarity with that product. However, the main goal of the study is to depict the digital map as a new construct from the point of view of copyright. As a result, its scope has been limited to the three simplest and most representative examples, found in the models mentioned above. As the structure and the legal nature of Google Maps is far more complex, deepening the analysis by an additional description of this project would blur the fine-grained picture of the problems outlined and make their scope even more vague.

Chapter IV sets out to determine whether or not the digital map can be qualified as any of the previously known categories of works of authorship under copyright. Again, using the examples of geportal.gov.pl, OSM and ExpertGIS maps, this chapter asks whether any of these maps can be classified as a work of joint authorship, a collaborative work, a collective work, a database, an open work or a multimedia work. Finally, it asks whether the digital map is an example of an emerging new category of work of authorship.

Research on the presented legal structures was conducted by the author by applying the comparative method. The goal that led to the selection of the referential systems was to show in a concise manner the existing legislative methods in distinctively different legal systems. Hence, the author does not refer to the same legal systems in each of the Chapters, but instead chooses to describe individual solutions that are within the range of acceptable legal concepts,[6] in order to avoid too superficial or too extensive a comparative analysis. The selection of the described legal solutions was made based on the knowledge of the best-known solutions commonly discussed in the literature of geoinformation. The author does not aim to synthetize the described issues, but to demonstrate problems, arising in geoinformation societies, which appear to be of a very similar, if not identical, nature, regardless of country. Thus, the author seeks functionally equivalent rules or proposes her own for adoption. The author also avoids analysis of non-Polish law at the descriptive level, by making a grammatical and functional interpretation.

[6] Z. Ziembiński, *Szkice*..., p. 23-26; I. Szymczak, *Metoda nauki o porównywaniu systemów prawnych*, RPEiS 3/2014, p. 43- 47.

In the interpretation process she focuses on the search for examples of studied norms of non-Polish law with significant impact on jurisprudence. Bearing in mind that many of the issues associated with maps have yet to see adequate legal regulation, suitable solutions are at this point postulated and used as the basis for the author's research in the hope of identifying the overarching principles and values that should be followed by law-makers when regulating future issues of intellectual property in the fields of geoinformation and space.

This monograph illustrates the legal state of play operational as of 30th June 2017.

3) the results of these analyses can be presented (visualized) in a descriptive (tabular) or graphical form (maps, diagrams, graphs, drawings)[120].

Regardless of the differences in definition of GIS, it should be noted that the features of these systems that distinguish them from non-GIS systems are their ability to analyse the data. Specifically, GIS should not be confused with Computer-Aided Design (CAD) systems, which are software for automatic mapping or for imaging[121].

Due to the multiplicity of attempts to define the concept, which add little value to legal considerations, the author intends purely to flag the existence of this diversity. From now on, the concept of GIS will be used in the narrow sense of the meaning. For present purposes, R. Klimko's proposed definition of GIS becomes extremely useful: a 'modern research tool for collecting, storing, analysing, processing and imaging data about objects, phenomena or processes occurring in the natural environment, of **which an integral part is visualization in the form of a geographic map**. It operates based on procedures and algorithms, using computer systems. Manners and methods of data processing, as well as the objectives of the systems differ considerably (GIS / AM, GIS / CAD, GIS / IMAGE, GIS / STAT)'[122]. Many similar observations have been made in the literature of cartographical sciences but to cite these extensively would distort the volume of the study while bringing little benefit to the strictly legal analysis[123].

It is also worth mentioning in passing that the concept of visualization, which will arise frequently in this study, has its own legal definition in Poland. According

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[120] J. Kwiecień, *Systemy*..., p. 10.

[121] J. Urbański, *Zrozumieć*..., p. 11; As noted by G. Myrda, the basic difference between CAD and GIS is that the first is used to create a model of a single object, and the latter allows for the presentation of a certain set of objects; thereof; *GIS czyli mapa w komputerze*, Gliwice 1997, p. 16-17. N. de Lange makes a similar comment as to the distinction between the GIS, CAD and simple databases, where data is not allocated to pictures. See. N. de Lange, *Geoinformatik in Theorie und Praxis*, Berlin Heidelberg 2006, p. 325-326.

[122] R.J. Klimko, *Podręczny Leksykon terminów kartograficznych i geodezyjnych*, Słupsk 2003, p. 51. Author's own emphasis.

[123] See how F. Fonseca describes GIS in a twofold way giving at the same time a very interesting reference to a map: 'SDI came to be seen in two different ways. First, it came to be seen as an automated map distribution system. In this case, the implementation of an SDI focuses on a map production and distribution of existing sources on an 'as-is' basis. A second view is to see SDI as an enabler for understanding space. In this case, SDI not only delivers maps, but disseminates spatial data with associated quality control, metadata information, and semantic descriptions'. The author further notes that although it is important that the user receives the tools to support its own creations, such as digital maps or analysis, considering the overall GIS functions, including cataloguing, archiving, search and retrieval, the essence of GIS lies in the source files. Thereof, *Spatial data Infrastructure* [in:] S. Shekar, H. Xiong (eds.), *Encyclopedia of GIS*, New York 2008, p. 213.

## 3.2. From geoinformation society to geosociety

While it has been accepted for many years that we find ourselves in an information society[128], it has more recently been suggested we are in fact now in a *geoinformation society*. This term describes a society largely depending on and using geoinformation services available through geoinformation infrastructure (or spatial data infrastructure). According to Strobl, the idea of the geoinformation society is based on three assumptions: 1) the Internet is a 'store' where you can purchase any required information, 2) navigation technologies are essential for finding locations, and 3) communication technologies merge these two into one[129]. Strobl indicates that the determinant of this concept is the ability to consolidate most of these elements into a specific 'place' and to create an Internet architecture by applying geographical references[130] (known as giving geo-references)[131] enabling a specific

[128] For the purpose of this discussion the definition introduced by R. Kluszczyński seems to be the most suitable. It assumes that the information society is a 'social organization, which exists and develops by dint of open access to information and has a real possibility of initiating processes of communication through interactive media', thereof, *Społeczeństwo informacyjne. Cyberkultura. Sztuka multimediów*, Cracow 2002, p. 21-22. Similarly consider K. Krzysztofek and M. Szczepański, who note that it is 'a society in which the information is widely used in everyday, social, cultural, economic and political life. This is a society equipped with well-developed communication and information processing tools', thereof, *Zrozumieć rozwój. Od społeczeństw tradycyjnych do informacyjnych*, Katowice 2002, p. 170 et seq. Cf. Many other definitions of 'information society' and 'information society service' referred to by M. Jankowska, M. Pawełczyk, *The right to geoinformation in the information society* [in:] thereof (eds.), *Geoinformation. Law and practice*, Warsaw 2014, p. 30-36.

[129] J. Strobl, *Georeferenced Internet Communications in a Geoinformation Society* [in:] E. Buhmann, U. Nothelfer, M. Pietsch (eds.), *Trends in GIS and Virtualization in Environmental Planning and Design*, Heidelberg 2002, text available at http://www.kolleg.loel.hs anhalt.de/studiengaenge/mla/mla_fl/conf/pdf/conf2002/04strob.pdf, as of 30 October 2017.

[130] This concept began to appear more and more often along with development of the geographic information systems, and works by assigning specific geographical coordinates to points. In surveying, sometimes interchangeably with it, the term 'calibration' is being used. This is defined as the process of converting scanned raster maps to digital raster maps with specific coordinates in the contemporary frame of reference. Concepts such as "raster data" or "digital map" will be explained in Chapter II. Cf. A. Affek, *Kalibracja map historycznych z zastosownaiem GIS, Źródła kartograficzne w badaniach krajobrazu kulturowego*, Prace Komisji Krajobrazu Kulturowego 16/2012, p. 49. See R. Laurini, D. Thompson, *Fundamentals*..., p. 37-43.

[131] Georeferencing is sometimes also referred to as geocoding. Besides assigning information to the coordinates on the map it is understood broadly as geo-positioning of certain issues by features of people living in the region, e.g. age or sex, cf. M. Kappas, *Geographische Informationssysteme. Das Geographische Seminar*, 2001, p. 13.

item to increase in functionality[132]. Geolocation references also allow bridging of the gap between the real and the virtual (digital), and, increasingly importantly, an intermingling of these worlds with each other[133].

In this context, one should bear in mind that the *location-based services*, services based on the processing of geographic data[134], connect location, often the position of a mobile device, to other information in such a way that the combined information possesses added value[135]. Both interest and concern surround Google's attempt to create a 3D world based on existing maps, intended for use later in the virtual gaming environment[136]. This project is facilitated by the activity of Internet users who contribute by adding their own series of notes or pictures, and by co-creating metadata. Notably, there is sizable interest among players in playing a game set in a virtual world that is an exact copy of their actual neighbourhood. The above-mentioned interpenetration of both the real and virtual worlds became a mainstream reality at the beginning of July 2016 when Niantic in cooperation with Pokémon Company introduced the game Pokémon GO, a game based on technology location and augmented reality (a so-called Location-based augmented reality mobile game)[137].

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[132] J. Strobl, *Georeferenced*...

[133] J. Strobl, *Georeferenced*...

[134] Cf. P. Koralewski, *Usługi oparte na przetwarzaniu danych geograficznych*, Internetowy Kwartalnik Antymonopolowy i Regulacyjny 1/2012, p. 58 et seq.

[135] P. Koralewski, *Usługi*..., p. 58 fn. 1; this thesis is commonly found in the literature. Similarly, J. Strobl writes that 'services, and location services for that matter, can be potentially connected to any application logic providing added value or even serving as the core enabling component', thereof, *Georeferenced*...

[136] D. Terdiman, *Google tools to power virtual words*, CNET, 9 October 2007, text available at http://www.cnet.com/news/google-tools-to-power-virtual-worlds/, as of 30 October 2017.

[137] In brief, the game's idea is to catch and train Pokémon. The game makers put Pokémon mainly in public places, where players gather and with the help of cameras inbuilt in mobile devices collect various forms of intangible assets known as Pokémon. The game, however, since it was released is of a controversial legal nature in particular as to the right to privacy of both players (the player, for he agrees to the terms of use of the application granting the game manufacturer access to all of his data stored on the device, as well as granting permission to use the camera in the device) and holders of former public places converted to houses and apartments. This second type of violation is strongly associated with errors copied from licensed maps, where the nature of these objects does not reflect reality. Cf. L. Hudson, *How to Protect Privacy While Using Pokémon Go and Other Apps*, The New York Times, 12 July 2016, text available at: http://www.nytimes.com/2016/07/14/technology/personaltech/how-to-protect-privacy-while-using-pokemon-go-and-other-apps.html?_r=0, as of 30 October 2017; A. Robertson, *What can you do when Pokémon Go decides your house is a gym?*, The Verge, 12 July 2016, text available at http://www.theverge.com/2016/7/12/12159422/pokemon-go-turned-house-into-gym-augmented-reality-privacy, as of 30 October 2017.

2) the use of special systems of signs (so-called cartographic symbols),
3) the selection and generalization of presented phenomena[160].

A map understood in that way can be distinguished from two further kinds of map: thematic and basic geographical. One of the subcategories of the basic geographical map is a topographic map of an area. In the literature we find such terms as 'plan', which is used analogously to the term 'map', though often to refer to an illustration of a smaller geographical area. Although the different genres of map are to some extent a secondary issue from the perspective of copyright analysis, different kinds of map are shown in order to give a better understanding of the abstract model of a map and of the features that make it a cartographic work. The author simply makes two observations related to the genres of maps, presenting her findings in a graphical manner.

## Finding no. 1

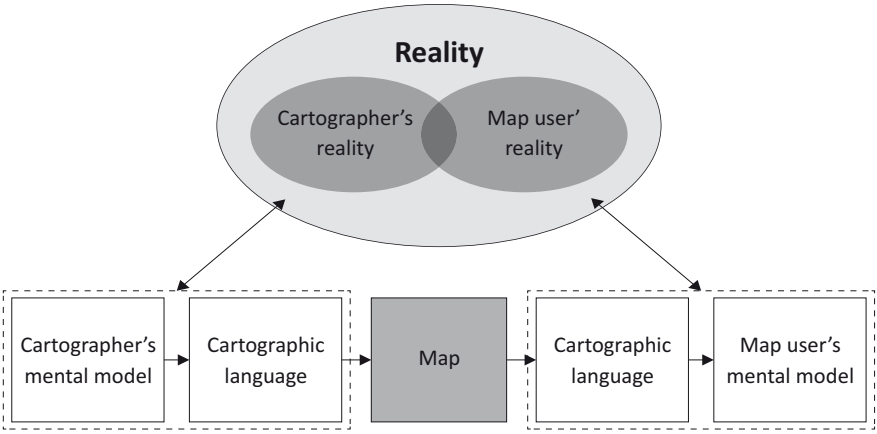


*Fig. 1. Theoretical model of drafting, producing and reading a map by A. Kolacny*

This drawing by Kolacny[161] allows for a better understanding of the communication between the maker and user of the map (an author and a reader). As generally known, to a certain extent mapping rules are fixed, which means that the mapmaker is left less scope for creative thinking and a receiver /other creator knows in advance what to expect from the work. The sphere of intersection of the fields 'cartographer's mental model' and 'user's mental model' is an area which will probably not be copyrightable. A good example of that is the base map.

[160] K.A. Saliszczew, *Kartografia*..., p. 10.

[161] A. Kolacny, *Cartographic Information – a fundamental concept and term in modern cartography*, Cartographic Journal 6/1969, p. 47-49.

**Finding no. 2**

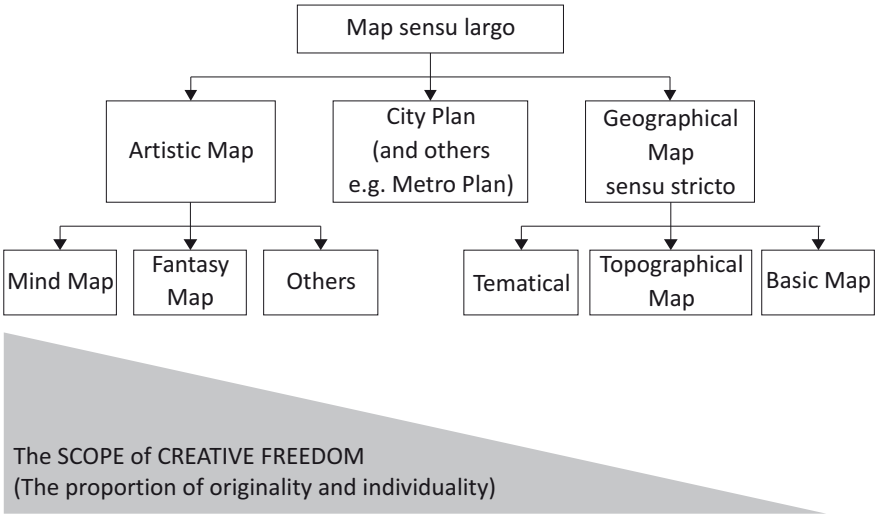


*Fig. 2. Genres of maps in the light of the scope of the creative freedom of the author (own analysis).*

Analysis of the different genres of map in copyright law allows us to group the considerations on maps into several categories in relation to which examining copyright protection gives different, albeit predictable results. The subject of our further investigation and analysis will be mainly geographical maps, including topographic and thematic types, although the findings may apply to other categories of maps and works.

The diagram presented above shows that the greatest creative freedom will be enjoyed by the author of an artistic map, while in the case of a basic map the number of creative features will be very limited. The most interesting cases are those involving thematic and topographic maps, where the selection of creative elements can vary in intensity.

The above assumptions form the starting point of this study, as they explain how the creation process of digital topographic and thematic maps affects copyright protection and the legal classification of the work. In fact, a further question arises in the light of the above findings as to how far the definitions and types of analogue map are applicable to a digital map. Applying findings on analogue maps directly to digital maps may prove to be an oversimplification.

In 1988, Robinson, Sale and Morrison queried whether the data collected in a database using a 'method of recording spatial characteristics of objects in the form of numerical data encoded on magnetic tape or disk' could in fact be considered a map. They pointed out that a database could possibly be at most a specific kind of map. They

Member States and may be used for their own purposes by these Member States and by persons and bodies under their jurisdiction, free of charge'. With regard to the ownership of data, the ESA introduced a special regulation applied to the programmes undertaken by ESA[307]. As a rule, the resulting reduced data shall be the property of the Agency[308].

In turn, the Convention for the Establishment of a EUMETSAT[309], operational as of 19th June 1986, sets forth in Article 8 paragraph 1 that 'EUMETSAT shall have worldwide exclusive ownership of all data generated by EUMETSAT's satellites or instruments. The Convention also refers in general terms to the data policy[310], which is a subject of more detailed regulation made in the consolidated document *Basic Principles of EUMETSAT Data Policy*[311]. It comprises, among other elements:

1) Implementing Rules for Meteosat Data and Products[312],
2) Implementing Rules in the EUMETSAT Principles on Data Policy – Access to Meteosat DCP Channels[313],
3) Implementing Rules for SAF Deliverables[314],

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307 Cf. Article V of the ESA Convention.

308 Article III point 2 sentence 2 of the ESA Convention.

309 Currently, it has 30 signatories, Poland is a member of ESA since 2009. As clearly indicated in KPRSK 'Since 2009 it has been actively represented in all bodies of EUMETSAT, which are designed to initiate and opinion all activities related to the strategy, the existing programs, maintaining the continuity of the satellite service and its users, the development of the scientific basis of satellite remote sensing data and distribution policy. Poland through its representatives in these groups has an impact on all program and financial aspects of the organization of EUMETSAT'. Satellite observation in meteorology is nowadays developed with the help of such satellite systems as: MTG, EPS-SG, JPSS, Sentinel, Jason. Referred to as: EUMELSAT Convention.

310 Article 8.3 in relation to Article 5.2 (b) vii of the EUMETSAT Convention.

311 Referred to as: EUMETSAT Principles. Currently operational EUMETSAT Principles are the consolidated and updated version of the Principles (adopted by the Resolution EUM/C/98/Res.IV) and approved by the Resolution EUM/C/57/05/Res. III.

312 Referred to as: IRMDP; originally adopted as Annex I of Resolutions EUM/C/98/Res. IV and EUM/C/99/Res. VI, amended in Annex I of Resolution EUM/C/70/10/Res. III, EUM/C/80/14/Res. IV and EUM/C/85/16/Res. II. According to the definition set forth in this document 'Meteosat Data' is 'all HRI Data and High Rate/Low Rate SEVIRI Data generated by the Meteosat First and Second Generation satellites'.

313 Referred to as: IREPDP; originally adopted in Annex I of Resolutions EUM/C/98/Res. XI and EUM/C/00/Res. IV, and amended by Resolutions EUM/C/70/10/Res. V, EUM/C/72/11/Res. IX and EUM/C/76/12/Res. VI. This document defines 'Meteosat DCP Channels' as 'Dedicated Meteosat Channels of communication operating at a ratio frequency for meteorological data collection'.

314 Referred to as: IRSD; as adopted in Resolution EUM/C/97/Res. I at the 33rd meeting of the EUMETSAT Council on 19 – 20 March 1997 and amended by EUM/C/98/Res. X adopted at the 40 meeting of the EUMETSAT Council on 25-27 November 1998.

Galileo and EGNOS programmes. To that effect, agreements shall be concluded with third parties, whenever appropriate, with regard to existing ownership rights'. Moreover, we read in Article 6.2. of the Regulation that 'the Commission shall ensure, through an appropriate framework, the optimal use of the assets referred to in this Article; in particular, it shall manage the intellectual property rights relating to the Galileo and EGNOS programmes as effectively as possible, taking into account the need to protect and give value to the Union's IPR, the interests of all stakeholders, and the necessity of harmonious development of the markets and of new technologies. To that end, it shall ensure that the contracts entered into, under the Galileo and EGNOS programmes, include the possibility of transferring or licensing intellectual property rights arising from work performed under those programmes to third parties'.

The Green Paper mentions five services provided by Galileo that can be used in a variety of sectors. These are: *the open access service*, addressing mainly the mass market; *the commercial service*, for professional users requiring outstanding performance and guarantees; *the safety-of-life service*, for applications where human life is at risk, hence requiring integrity information; *the search and rescue service* to localise distress events and initiate rescue operations; *the public regulated service*, for security of governmental and Community entities[339]. Also, Recital 5 of the 1285/2013 Regulation emphasises that 'since the Galileo and EGNOS programmes are at an advanced development stage leading to systems in an exploitation phase, a specific legal instrument is required to meet their needs, particularly in terms of governance and security, to satisfy the requirement for sound financial management and to promote the use of the systems'. It was also the Committee of Regions that noted that, in its opinion, 'new technologies bring with them new risks. That is why it is essential to continue work, for example, in the areas of the prevention and defence against deliberate attacks and to examine carefully issues of accountability (public and private)'. The above shows also that the issue of the liability of public and private bodies needs further analysis[340]. The most important issue from the perspective of this book, intellectual property rights, is addressed in Recital 5.6. of the Green Paper, which states: 'the revenue potential of satellite navigation lies in the user segment, with the number of users likely to

[339] *Green Paper*..., p. 4. According to Decision no 1104/2011/EU of the European Parliament and the Council of 25 October 2011 on the rules for access to the public regulated service provided by the global navigation satellite system established under the Galileo programme (OJ L.2011.287.1 as of 4 November 2011) the 'PRS participant' means the Member States, the Council, the Commission and the EEAS as well as Union agencies, third countries and international organizations, in so far as such agencies, third countries and organizations have been duly authorized. See also N. Frischauf, *Satellite Navigation* [in:] Ch. Brünner, A. Soucek (eds.), *Outer Space in Society, Politics and Law*, Wien New York 2011, p. 131.

[340] Recital 10 of the Opinion of the Committee of Regions, ibidem.

increase substantially. Patents may cover inventions relating to the methods used by GNSS receivers for capturing and demodulating the signals and for the related processing algorithms. They can also cover signal content and the chipsets to be built into GNSS receivers. The protection given by copyright may also be relevant in certain areas, particularly in **signal processing and signal content** [emphasis mine – M.J.]'[341]. There is concern as to the scope of copyright application, especially **whether signal processing and signal content fall under the scope of the protection granted by copyright**. The Green Paper thus raises the question of whether the current IPR rules are adequate to ensure that innovators will be able to benefit from their activities while allowing users to enjoy these innovations[342]. **The above questions can be rephrased in order to raise the research question in this book, whether the satellite signal or the satellite images and their content are copyrightable and whether they constitute a work of authorship (if so, then of what kind?), and what the relevant rules of sharing them might be**[343].

As a part of the public debate covering some of the most important issues related to EU space activities, the government of Poland gave its opinion that analysis of the state of IP law protection as applied to the space sector is very badly needed, especially bearing in mind that the users' access to innovations is relatively cheap[344].

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[341] *Green Paper...*, p. 13.

[342] *Green Paper...*, p. 14.

[343] As noted by A. Grabolle, it is often the case that the questions are not new at all; they just need gauging of the technical aspects in making the interpretation of law. As he described it, 'old wine in new wineskins'. The question is, if, in the case of our analysis, the situation is similarly easy. Thereof, *Produkthaftungsrechtiliche Risiken des Verlegers beim Vertrieb von Informationsprodukten via Internet*, PhD dissertation (unpublished) submitted at the Faculty of Law at the University of Vienna, Vienna 2002, p. 7-8. At the same time Svantesson, reasonably claims that 'From a practitioner's perspective, geo-location technologies highlight the increasing need for lawyers to be technology-savvy. As far as, for example, e-commerce is concerned, a lawyer needs to be up-to-date with technological solutions, such as geo-location technologies, before legal solutions can be identified and evaluated'. D.J.C. Svantesson, *Private International Law and the Internet*, Alphen aan den Rijn 2016, p. 350.

[344] The standpoint of the European Committee of the Council of Ministers of Poland as of 2 March 2007, available at http://www.piit.org.pl/documents/10181/20765/6227.pdfhttp://www.piit.org.pl/documents/10181/20765/6227.pdf, as of 30 October 2016. The change in realities affecting the state of IPR corresponds to the changes in the telecommunication sector. However, the latter has been elaborated to a much lesser extent. In the report of the Polish Supreme Audit Office it was noted that 'There has been no legislative process so far aimed at normalizing issues related to IT security of the state. Neither has an inventory been conducted of provisions scattered in different legal acts related to cyber security, nor has the desired directions of changes in legislation been defined. The tenets of the normative act defining the structure of the national system of protection of cyberspace and its participants have not even been prepared. The tasks of state entities associated with IT security were scattered, and the ones in operation were inaccurate, inadequate or in general

Annex'. The preliminary conclusion is that the agreement dwells mostly on technical operability, a theory very much supported by the wording of article 2 (1). The agreement neither defines legal interoperability, nor does it explicitly refer to it. Only Article 5 (1) regulating the standards and certification refers to it, though indirectly: 'the Parties agree to consult with each other before the establishment of any measures: establishing, directly or indirectly (such as through a regional organization), design or performance standards, certification requirements, *licensing requirements*, technical regulations or similar requirements *applicable to civil satellite-based navigation and timing signals or services, augmentations, value-added services, global navigation and timing equipment, civil satellite-based navigation and timing signals or service providers, or value-added service providers* [emphasis mine – M.J.]'.

## 4.6. The draft of the Convention on Geoinformation

The problems arising from the common use of geoinformation, rarely a subject of detailed analysis, have been brought to further attention by the *International Bar Association* (IBA), which, within its Computers and Databases, Space Law and Communication Law Standing Committees, began in 2011 to work towards designing a draft of the International *Convention on The Regulation of Geoinformation*[351]. They are run in cooperation with the *Initiative on Global Geospatial Information Management* (UN-GGIM), whose task is also to gauge the extent of problems related to geoinformation. The drafting of the convention was heavily influenced by the works that preceded the publication of the *International Charter on Space and Major Disasters*. The wording of the draft of the Convention allows us to infer that in the first instance it is addressed to the members of the Council of Europe, and also that the document of the Convention shall be deposited with the Council. In the Preamble of the draft of the Convention it is stated that one shall recognise the contribution the Council's work has made to international law-making, especially in the areas connected with the use of information society technologies. It was also stressed that 'acquisition of and access to Geoinformation should therefore generally be facilitated in order to advance the welfare of all States and peoples' and that 'the data gathered for Geoinformation and the Geoinformation itself can be altered by integrating it with other information and transforming it over various data processing architectures and that tools which allow correction and enhancement in this connection can also facilitate falsification, loss, degradation or hindrance of access, which can lead to disruption of increasingly interdependent information systems'. Moreover, it was noted that 'other risks may arise in relation

[351] http://www.ibanet.org/About_the_IBA/Special_Projects_Fund/Projects.aspx, as of 30 October 2017.

# 3. Limitations of the digital map creation process

## 3.1. Limitations resulting from attempts to map reality exactly

The digital map is a subject of very frequent use which leads to many implications in the public arena. As accuracy and quality of maps begin to play the main part in decision-making it is increasingly becoming the subject of legal analysis. The issue that arises is the issue of the liability of providers of maps and software, but that goes beyond the scope of this paper. Interestingly, however, due to the technical, scientific and utilitarian nature of the maps, the attribute of accuracy becomes the one that has been regulated by issuing technical standards. This can reflect the freedom of creativity and individuality of the map maker.

On the one hand, art history provides us with many examples that prove that an accurate representation of the real world does not have to negatively affect the copyright qualification of the work. An example of this is J. Vermeer's painting 'View of Delft', made between 1658-1661, for the creation of which the author reportedly had to use a prototype of a camera obscura. As demonstrated previously in this work, the author of the map will make appropriate choices related to the presentation itself, quantity of data and quality of its representation. These choices can make the work creative. On the other hand, modern digital maps are based on the principle of completeness of data that is respectively collected and uploaded to the map. By storing them in databases, the effect of a less cluttered visualization of the work is achieved. All this juridically makes the digital map become a different work of authorship in features and qualifications compared to the analogue map. The collection and storing of data in the system begins to resemble more crafts than art. In the literature, it is sometimes argued that *the map is given artistic nature only at the stage of rendering*[24]. Increasingly it can be questioned how the categories of 'accuracy' and 'quality' and the guidelines relating to them will affect the process of creating map substrate. If we look at it through the prism of the communication concept of C. Shannon that this author dwelled on in her previous book[25], the negative noise giving room for creating a work of authorship will be the margin of inaccuracy, which will make the map different from others at a higher level of generalisation. As noted by D. Fairbairn who paraphrases the current standpoint

[24] This author opposes this opinion, as she believes that there is some room for creative freedom at the stage of creating the vector data themselves. This room can, however, be so small that, with every case, *casu ad casum*, it may lead to different qualifications.

[25] M. Jankowska, *Autor*..., p. 93.

there is also some room for creativity. It is obvious that most of the creative freedom is enjoyed by the person who renders data by means of a computer program. In practice, however it will not be the visualisation that will be disputed in court. It will be the copied vector (or occasionally raster) data that is made available after being rendered and visually changed by means of another piece of software.

# 5. Copyrightability of selected elements of the digital map

## 5.1. Why should input works and data get copyright protection? – an introduction to the issue

Beyond doubt, the map in the form illustrated above is a result of significant investment of money and time, therefore there is motivation to protect it by any available means and mechanisms. Among these there are the measures of: intellectual property law, unfair competition and contracts (and also the *Non-Disclosure Agreements, NDA*). Although the producers and distributors often point to IPR protection, contractual clauses are often drafted in an intuitive way, and the very idea of granting copyright protection to a digital map as a whole, or to its portions, is strongly criticized. There are also many legal ambiguities caused by this state of doctrine[78]. Therefore, before moving on to discussing the map as a whole in the light of copyright law, it is worthwhile to summarize the state of law literature and jurisprudence with regard to the singular components of the map. It must be noted that the work never falls under copyright protection as a whole *per se*, but its portions or components are examined in every case. One may have observed by now that a digital map consists not only of small elements, but also of independent works, which all in all adds up to the significance of proving the legal interconnections of the elements and works. Legally speaking, these will be the criteria of originality and individuality that will be proved with regard to every piece of this kind of work.

There is a standpoint in the literature that analogue maps should be denied copyright protection for the simple reason that they are believed to be either the resemblance of the real word, or the compilation of factual data, in which originality is dubious[79]. The migration of the map from its analogue to digital form makes these doubts ever bigger. While choice, selection and arrangement are the criteria that readily make the analogue map copyrightable, these factors might be disputable with

[78] K. Janssen, J. Dumortier, *The Protection of Maps*..., p. 196.
[79] K. Janssen, J. Dumortier, *The Protection of Maps*..., p. 196.

the *Red Book* is not an isolated case. There was another case, *Greysheet* of 1999, where the court found a collection of coin valuations creative due to the association with it of processes of valuation[90]. It should be noted that, in the case of both the *Red Book* and the *Greysheet*, the courts found the collections creative and granted them the protection specific to compilations, but declined to grant protection to the individual values[91].

Although it is true that copyright grants protection to forms of expression, and not to the facts expressed by them, the case of maps proves that sometimes the items of these two categories become entwined and mixed to the extent that simple assumptions fail[92], and the results of copyright analysis give no satisfactory conclusion. It proves that for good reason US copyright law defines it as 'metaphysics of law', because many issues seem to be just unsolvable, and in attempting to decide a case an intuitive analysis might be of help, not necessarily a purely legal one[93]. Let us discuss how this kind of reasoning translates to components of the map and their copyrightability. This author turns mostly to US case law, which contrary to the European one, deals with paper maps, much more frequently, and more recently, digital ones also.

## 5.3. Copyrightability of vector data

As this author tried to prove in point 4.4. of this chapter, it is possible that a true representation of the real world will occur in many ways, and therefore will meet the criteria of originality and individuality. This is where US case law comes in with a number of findings on copyrightability of the vector layer, or its paper counterpart. These cases, due to a similar subject of dispute will be presented jointly. There was an interesting state of affairs that constituted the basis of the ruling in the case *Rockford Map Pub.* v. *Dir. Service Co. Of Colorado* of 1985[94]. The plaintiff, Rockford Map, created a cadastre map containing information on location, size and ownership of land parcels. Rockford Map started with aerial photographs from the Department of Agriculture, traced the topographical features from the

[90] *CDN Inc.* v. *Kapes*, 197 F.3d 1256 (9th Cir. 1999).

[91] See S. Fishman, *Copyright*..., margin no. § 7.03[2] and the literature given there.

[92] A map escapes simple assumption, as in the case *American Dental Association* v. *Delta Dental Plans Association*: 'Einstein's articles laying out the special and general theories of relativity were original works even though many of the core equations, such as the famous $E = mc^2$, express 'facts' and therefore are not copyrightable' (126 F.3d 977 (7th Cir. 1997)).

[93] S. Fishman, *Copyright and the Public Domain*, 2015, margin no. § 7.02[2], see also *Folsom* v. *Marsh*, 2 Story 100, 9 F. Cas. 342, 344 (C.C.D. Mass. 1841).

[94] Court of Appeals US, 768 F.2d 145 (7th Cir. 1985).

the cartography of the StreetSmart map originated from their earlier New York City Unfolds map and a Manhattan map they had created for Macy's Department Store. While they knew plaintiff's map employed these two conventions at the time they designed their StreetSmart map, defendants insist these salient features plaintiff contends were copied had been in use for many years, predating plaintiff's Streetwise maps'. While the court assumed in the first place that these two maps shared similarities, it examined whether they were substantial. Interestingly it pointed out that 'although both maps use clarified street grids and purple to depict water, the other colors used are entirely different: yellow and aqua for Streetwise Manhattan; peach, lavender, blue, and green for StreetSmart. The proof shows, in addition, that Richard Edes Harrison created an atlas for Time, Inc. in 1943 that showed the oceans in purple. NASA also has used the color purple for water as has the National Oceanic and Atmospheric Administration. The Hagstrom City Slicker Maps, one of the largest map companies in the United States, used purple in 1993 to depict water in New York City and in its other city maps. With regard to the use of a clarified street map, the New York Metropolitan Transportation Authority bus and subway maps employ a similarly colored street grid, as do City Slicker Maps and Gousha Fast Maps. Streetwise admitted the clarified grid system used by both plaintiff and defendant was in common use and, quite obviously, purple water and clear street grids are cartographic conventions that have been used since 1943'. For these reasons the Court of Appeals affirmed the district court's dismissal of the plaintiff's copyright infringement claim.

Recently, the district court of Northern District of California decided a case related to Google Maps Google, *PhantomALERT, Inc.* v. *Google Inc.*[100]. Judge J.C. Spero issued an order granting a motion to dismiss the plaintiff's claim on 8 March 2016 [101]. In 2015, the plaintiff, PhantomALERT, Inc. filed a copyright infringement claim against Google Inc. and Waze, Inc. alleging that they infringed upon its right to the *points of interest* (referred to as POIs) and the *driving conditions*[102] by copying them. The plaintiff alleged that it created a GPS-based navigation application for mobile phones and GPS devices to notify drivers about driving conditions, such as traffic conditions, dangerous road segments, road hazards, and traffic enforcement monitors, such as speed cameras. As a matter of fact, and as noted by the court, 'PhantomALERT applied for a copyright registration with the United States Copyright Office covering its App source code and its Points of Interest database as

[100] Sign. 15-cv-03986-JCS, N.D. Cal. 8 March 2016.

[101] At the time of preparing this book the dispute was pending.

[102] *Point of interest* is a point in space, most frequently on the Earth's surface, which is relevant or useful in showing a different value from the perspective of using maps and GPS programming. It can be e.g. house, cinema, bus stop. As is pointed out, the minimum information contained in the POI includes the latitude and longitude. It usually contains the type (type of the object) and the name.

a result. As a rule, however, if two people enhance the same image and transform it into a usable satellite image, it will be different, e.g. the colours and their saturation will be different, sometimes the clouds will not be removed, etc. However, if the two people apply the same image correction tools and style, the outcome will be pretty much the same. At the same time, it should be noted that there are many tools and styles to choose from. Among others, for example there are at least 5 methods of removing clouds (as many as there are parameters). All of them require retrieving data from other sources. The simplest way of enhancing the picture is 'at a guess', but that rarely happens. Sometimes it is enhanced in this way – but the results are considerably worse than those achieved using other methods. Other methods are: using data in the satellite sensor (the new satellites have a special channel for the detection of clouds), using the weather model, which creates a simulation of clouds, to remove the clouds from the image, or just collecting and comparing data from weather stations – which is comparatively the best method. Map makers can also use image processing algorithms (to search for areas that may be either green or polluted, etc.). It would seem that the work of a human is essentially confined to the choice of colours and their saturation. If one should ever say that these margins allow for creative freedom to be applied, that suggestion should be clearly rejected. If a map maker is told to use a specific algorithm, and is given only general commands, for example, to prepare a colour image, the spectrum of his creative activity is considerably broad. He can create the image in ten or more different ways. For example, if he has a red picture, which he wants to turn into a colourful image he must create an image consisting of red, near infrared and further infrared by himself. If he uses only uncalibrated images – they will be more colourful than the calibrated ones. The latter tend to be darker and less accurate. If another author receives some guidance on how exactly the image should be adjusted he might create a very similar work. If not, his work will hardly be similar. Therefore, we can agree with J.D. Cromer who notes that 'a great deal of creativity may go into the manipulation of geospatial data in order to create images that are not only representative of the electromagnetic data received by satellites from the earth, but also visually pleasing'[122].

### 5.4.1. The concept of data in space law and its implications for copyright

The legal acts and legal literature on space law distinguish a few kinds of data. Given the fact that the question of their copyrightability has been discussed for a long time, a general classification of data should be made[123]. It should be noted at the same time that different kinds of satellites produce different kinds of data. There

[122] J.D. Cromer, *How on Earth Terrestrial Laws*..., p. 258.

[123] See A.J. Young, *Law and Policy in the Space Stations' Era*, Dortmund Boston London 1989, p. 168.

The main problem related to licences is the variety of contractual stipulations and the cross-border character of licences.

If the data is interoperable and the purchaser of the licence is going to join data in order to create a *value-added product,* one of the basic problems this can bring is data sharing, as it may not be uniformly regulated for the different data from different suppliers, often governed by the law of different jurisdictions. Besides, something that escapes the attention of the doctrine of copyright and space law is the interpretation of contracts, which might not give the foreseeable results, partly due to the lack of uniformity in drafting contractual provisions, and partly because of logical errors in defining concepts[179].

Moreover, there is a tendency for data suppliers to create a *quasi-proprietary* system of data protection based on the licencing system, whose main shortcoming is that licences establish subjective rights of an *inter partes* character. At the same time the data suppliers try to transform them into an *erga omnes* protection. As noted by M. Mejía-Kaiser 'contracting parties attempt to act as legislators to create whatever property protection they wish'[180]. The copyright regime is often misused by introducing copyright constructs to licences in order to 'force' protection of data. In addition, the licences granted for data are often transferable and non-exclusive, which implies even more that the copyright regime is being used here. As noted by C. Doldirina, some licences make reservations that ownership of the data or information medium belongs to the licensor. This is widely criticized. This author assumes however that these critics may be going too far, as from the Polish law perspective this is just some kind of 'reservation of the ownership of the sold thing', in other words of the medium[181]. If it can be agreed that data as an immaterial good, and medium as a physical object, are two different subject matters, it might be permissible to use Article 52 of PCA *per analogiam*, naturally with reference to the character of the licence stipulations. This is one more example of introducing a copyright concept in order to strengthen the protection of data. Moreover, suppliers of data in licencing terms very rarely introduce different kinds of data, as proposed in the ONZ document, hoping probably that in this way they will 'force' their model of data protection to be used with all kinds of data[182]. The other example is the introduction to licences of the fair use construct drafted according to copyright law.

Finally, the issue that raises the most concern is that licences use the term *derivative work*, which supposes that the data is processed or enhanced by the licensee. If it were translated to the language of space law, it might be assumed that this term corresponds to the term, processed data, or analysed information.

[179] See D. Howard, *Making*..., p. 46; cf. K.A. Adams, *A Manual of Style for Contract Drafting*, Chicago 2004, p. 20-46.

[180] M. Mejía-Kaiser, *Copyright Claims for METEOSAT*..., p. 309.

[181] C. Doldirina, *Intellectual property rights*..., p. 964.

[182] C. Doldirina, *Intellectual property rights*..., p. 965.

## 5.8. Copyrightability of a signal

Finally, it should be noted that a lot of spatial data is the data obtained from satellites (and drones) that send them in the form of a signal to ground equipment. From the point of view of intellectual property rights, this signal is a broadcast, so there is the legitimate question of whether conventions and national regulations designed to protect the rights to broadcasts also include satellite signals carrying data, or are limited only to radio and television programs. In fact, the conventions that include the regulations on neighbouring rights to the broadcasts were designed in the 1960s and 1970s, at a time when geo-information sciences and space law were also at a very early stage of development.

First of all, we should consider the International Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organizations of 26th October 1961, referred to as the Rome Convention[215]. This convention uses the term 'the broadcasting organization' but does not define this term. Article 2 paragraph 1 c) of the Rome Convention reads that protection is accorded by the domestic law of the contracting party in which protection is claimed for broadcasting organisations which have their headquarters on its territory, as regards broadcasts transmitted from transmitters situated on its territory.

Here, first of all, one can see that the convention is based on the technology of transmitting signals from Earth by satellite back to Earth, and the transmission of satellite data from the satellites itself is beyond the scope of its direct interest. Secondly, in accordance with Article 3 f) of the Rome Convention 'broadcasting' is defined as 'the transmission by wireless means for public reception of sounds or of images and sounds'. It becomes apparent here also that this definition is designed to protect the television and radio broadcasters, and not the producers of satellite data, where the public reception takes no place. On the contrary, the protection regime for satellite data is supposed to secure it against public access and to help establish the rules of access to it. Finally, thirdly, the catalogue of the broadcasting organisations rights, as listed in Article 13 of the Rome Convention, does not fit the practice of transferring and sharing satellite data. It sets forth that broadcasting organisations shall enjoy the right to authorize or prohibit: *(a)* the rebroadcasting of their broadcasts; *(b)* the fixation of their broadcasts; *(c)* the reproduction of fixations; *(d)* the communication to the public of their television broadcasts if such communication is made in places accessible to the public against payment of an entrance fee.

The other international act referring to signals is the Brussels Convention Relating to the Distribution of Programme-Carrying Signals Transmitted by Satellite

[215] JoL 1997 no. 125 item 800; M. Czajkowska-Dąbrowska [in:] *System prawa prywatnego*, (ed.) J. Barta, vol. XIII, Warsaw 2013, p. 988; M. Barczewski, *Traktatowa...*, p. 82, 88; K. Klafkowska-Waśniowska, *Prawa do nadań programów radiowych i telewizyjnych w prawie autorskim*, Warsaw 2008, p. 17.

signed on 21st May 1974, referred to as the Brussels Convention[216]. This convention defines 'signal' as 'an electronically–generated carrier capable of transmitting programmes' and 'programme' as 'a body of live or recorded material consisting of images, sounds, or both, embodied in signals emitted for the purpose of ultimate distribution' (Article 1, point i) and ii) of the Brussels Convention). According to Article 1 point viii) of the Brussels Convention 'distribution' is 'the operation by which a distributor transmits derived signals to the general public or any section thereof'. Without going into further detail, which is not possible due to the size of this book, it is notable that the Brussels Convention protects radio and television broadcasts and uses a very general nomenclature at the same time. In the legal literature, M.H. Pichler[217], divides the transfer of signal into 'Fixed-Satellite Service' (FSS) that cover the *point-to-point* transfer, and 'Broadcasting-Satellite Service' (BSS)[218]. In both doctrine and case law there is an established view that copyright and neighbouring rights only cover broadcasting in the narrow sense, in other words the technology BSS[219]. The FSS technology is understood as a transport of data with no legal relevance in the light of the IPR, and the fact that there is no intent of communicating it to the public strengthens this legal qualification. This interpretation is held to be compliant with the wording of Articles 11, 11*ter*, 14 and 14*bis* of the Berne Convention, with regard to the specific fields of exploitation mentioned there.

Article 97 et seq. of the PCA narrows the scope of the term 'broadcasting' to broadcasts that originate from radio or television organisations.

As early as in the 1980s it was noted that the IPR related conventions did not cover the unauthorized interception of the *point-to-point satellite transmission*[220]. *Without going into premises of protection under the Brussels Convention it suffices to note that in the literature of space law it was pointed out that this is not usable with regard to data protection, as all it protects is the signal understood as a carrier and not its content, in other words the technical data. As noted above, this convention will find no application to a signal transmitted from a satellite.*

*The signal as such was a subject of greater concern in the telecommunication conventions. It is worth mentioning the International Telecommunication Convention signed in Nairobi on 6th November 1982 that is not in force any more. According to Article 22 paragraph 1 of this convention the members were obliged take*

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216 M. Barczewski, *Traktatowa*..., p. 97; K. Klafkowska-Waśniowska, *Prawa do nadań*..., p. 26.

217 M.H. Pichler, *Copyright Problems of Satellite and Cable Television in Europe*, London 1987, p. 23-24, 30.

218 K. Klafkowska-Waśniowska, *Prawa do nadań*..., p. 72-74.

219 Cf. K. Klafkowska-Waśniowska, *Prawa do nadań*..., p. 53-80.

220 A.J. Young, *Law and Policy in the Space Stations' Era*, Dortmund Boston London 1989, p. 168.

lated to the fields of exploitation mentioned in paragraph 2[1] through a competent collective management organisation. In geodesy and cartography there is no such system of collective copyright management. It is also worth mentioning that an animated map is supported by an independent computer program, therefore, as to its morphology, the map is different from an audio-visual work of authorship. Even if it can be agreed that an audio-visual work is a typical collaborative work, it can be questioned as to what extent typical creative processes and arrangements made in film production can be translated to digital map production. It should be noted, however, that there are also opinions expressed in the legal literature in Poland that multimedia works should fall into the category of audio-visual works, if they bear a resemblance to them. This standpoint was taken by A. Wojciechowska[30].

# 5. The digital map as a digital database

For the past twenty years, there has been a search for legal protection for works that are distinctive through their interactive and digital character, in the regimes relevant for both databases, and *sui generis* copyright. The discussion has been renewed in the German and Polish literature, triggered by the debate regarding the introduction of a category of multimedia work to copyright theory[31]. According to the legal definition of a database, set forth in Article 2 Paragraph 1 Subparagraph 1) of the UOBD, a database is a collection of data or any other materials and elements arranged systematically or methodically, individually accessible by any means, including electronic means, where substantial investment, evaluated qualitatively and/or quantitatively, is required for its production, revision or the presentation of its contents[32]. This definition has also been accepted in copyright law, with the exception of 'substantial investment', which is the premise for obtaining *sui generis* protection only[33]. The first comment to make with regard to the digital

[30] A. Wojciechowska, *Autorskie prawa osobiste twórców dzieła audiowizualnego*, Kraków 1999, p. 67.

[31] Cf. M. Leistner, *Der Rechtsschutz von Datenbanken im deutschen und europäischen Recht. Eine Untersuchung zur Rechtlinie 96/9/EG und zu ihrer Umsetzung in das deutsche Urheberrechtsgesetz*, München 2000, p. 42.

[32] In German legal literature, it is assumed that a database, no matter whether of paper or a digital form, should meet the following criteria: 1) the database is identified as to its content, 2) the information is gathered in a particular manner, 3) the information can be accessed based on the given criterium of searching. Cf. M. Vogel [in:] G. Schricker, U. Loewenheim, *Urheberrecht. Kommentar*, München 2010, p. 1587.

[33] S. Stanisławska-Kloc, *Ochrona baz danych*, ZNUJ PWiOWI 82/2002, p. 33-34. J. Barta, R. Markiewicz [in:] J. Barta, R. Markiewicz (ed.) *Prawo autorskie*..., lex/el. 2011; D. Flisak, *Utwór multimedialny*..., p. 104.