

VIRTUAL TOURISM SPACE OF CITIES¹

ABSTRACT

Aim: The aim of the study is to present the concepts of virtual space functioning in literature and to analyse the quality and quantity of three forms of presentation of tourist spatial data, such as geoportal, virtual walk (excursion) or a video.

Methodology: The paper uses descriptive and comparative methods.

Results: On the basis of the conducted research it was founded that the most represented form of tourist information is a virtual tour. Among the analysed cities, Kraków has the largest number of virtual tours.

Discussion: The obtained results allowed us to state that geoportals and virtual walks allow for greater interaction with the user and provide great freedom of choice of content. Thus, they are a good tool for promoting cities. However, they cannot replace the penetration of real tourism space. There is a large dispersion of materials on the web, which increases the time of obtaining information by a potential tourist.

KEYWORDS: *virtual tour, geoportal, video, tourist space, tourist promotion.*

INTRODUCTION

Virtual city tours are becoming more and more common. It is a presentation of real places to the Internet user in such a way as to provide him with the feeling of real presence in a given space. Thanks to the development of GIS techniques and modern solutions in the field of photogrammetry, it has become possible to provide intensive feed to spatial databases. An increasingly common purpose of their use is to present tourist information via the Internet in the

form of geoportals, virtual walks or videos. In the developing community 2.0 there is a growing demand for these forms of creating virtual space. Therefore, these Internet studies are used in tourism promotion of cities.

The aim of this article is to present the terms related to the tourist space and selected forms of presentation of tourist spatial data (geoportal, virtual walk – virtual tour, film) and selected ways of creating virtual reality. The study also shows that virtual walks, accessible to the public via the Internet, are an important element of tourism promotion of cities, which makes their creation advisable. The intermediate objective is to analyse the quality and quantity of the three forms of tourism presentation.

CONCEPT OF TOURIST SPACE

This article contains a number of concepts, the explanation and description of which will serve to achieve the main goal of the paper. The first group of issues focuses on concepts related to tourism space. The second relates to online forms of presentation of tourist information. Most of all, tourist geoportals, virtual walks and videos were taken into account. It is appropriate to move away from the definition of geographical space which, in the view of K. Dziewoński (1967) is a measurable space, including the natural elements of the earth's surface and the permanent investment of this surface resulting from human activity. From the geographical space, on the basis of functional criteria, other subtypes of space are distinguished. One of them is the tourist space which S. S. Lisowski (2003) defines it as a collection of objects that determine the satisfaction of human needs. The said author develops the idea, adding that tourism space understood in this way is at the same time a part of non-physical space and it should be treated as a carrier of meanings for the subject and a collection of objects as a centre of social relations. To conclude, it should be said that the tourist space is a part of a non-physical space, understood as a collection of objects in relation to a known and acting subject, in this case a tourist.

B Włodarczyk (2009) proposed four levels of understanding of tourism space. The terminological substantive scope of cognitive planes of tourist spaces was taken from the study by S. Liszewski (2006), however, he defined four types of spaces in a different way. Włodarczyk was the first to distinguish

a real (actual) tourist space, understood as the sum of places visited by tourists. It is of a discontinuous nature and is determined by the interests and opportunities of the tourist. The perceptual-mental space is conscious, experienced, remembered and assimilated. It is a collection of ideas created on the basis of previous experience. Virtual space is unreal, but theoretically possible to exist or existing, but not in the place of the e-tourist. It may be falsified as a result of unfair promotional practices. S. Tanaś (2008) adds that it is connected with cognition without the need to change the place of residence. R. Jędryczka (2010), a space that connects images from the real world (real space), recorded with a camera or a photographic camera, with the virtual world, calls space (reality) mixed. The last space indicated by Włodarczyk is a spiritual (symbolic) space, being a product of mind, thoughts and feelings. It is a resultant of real, virtual and perceptual-mental space, but it has no formal boundaries. It is an expression of the system of tourist values connected with his tourist activity.

There are two types of relations between the indicated categories of tourist space. Direct, which show close relations between specific types of spaces and indirect, having little influence on the final shape of the dependent dimensions. It should also be mentioned that it is possible to temporarily distinguish the indicated categories of cognitive tourist spaces. In the time continuum of development of tourist space, the said author was the first to distinguish virtual space. This is due to the fact that virtual space serves to build ideas about real space, which the author placed in the continuum in the next place. The spiritual and perceptual-mental space together occupies another place.

When concluding the discussion on the meaning of particular types of spaces, it should be noted that real space is used as the basis for all devastations. Other dimensions are its derivatives.

INTERNET-BASED FORMS OF PRESENTATION OF TOURIST INFORMATION

The development of the information society and the universal access to modern technologies have resulted in a new form of participation in tourism. The creation of virtual space, i.e. enabling quasi-exploration by tourists, may

take place using several forms of presenting tourist data and publishing them on the Internet. These include exploring the virtual spaces of cities through geoportals (including 3D geoportals), virtual walks and electronically accessible videos, which are appropriate for the geoinformation societies that make extensive use of geoinformation infrastructure (Pilarska, 2015).

From the point of view of potential tourists, the Internet is a current, cheap and easily accessible source, presenting the current tourist offer. B. Sawicka (2012) quotes research which shows that Poles are increasingly looking for information about tourism services through a global network. In particular, they are interested in news about places worth visiting (86% of respondents), read opinions about the services offered (78%) and compare prices (71%). This data should not be underestimated and many institutions are responding to the growing expectations of tourists. These include both individual entities (e.g. museums, open-air museums, sacred buildings, etc.) and local and regional authorities, whose aim is to present a more comprehensive tourist offer of a given administrative unit.

Due to the growing popularity and availability of the Internet and the multitude of data available on it, users of the global network have the ability to develop their own cartographic presentations. According to D. Gotlib and M. Kukułka (2011) the demand is also increasing for building appropriate mechanisms enabling the recipients to perform correct geovisualizations. One of the dynamically developing forms of the Internet cartography, thanks to which the user has the opportunity to create his or her own presentations, are geoportals. In 2007, a directive of the European Parliament and of the Council was adopted in the European Union, which defined the term. According to Article 11(1) of that document, a geoportal is to be understood as a website or an equivalent website providing access to the following services:

- 1) searches (searching for spatial data sets and services on the basis of the content of the corresponding metadata and enabling the content of the metadata to be displayed);
- 2) viewing (displaying, navigating, zooming in and out, moving or overlapping spatial data patterns, displaying legendary information and any relevant content of metadata);

- 3) downloading (downloading copies of entire spatial data sets, parts of sets and, where possible, direct access);
- 4) transformation (transformation of spatial data sets to achieve interoperability);
- 5) services enabling the launch of spatial data services.

Geoportals differ in terms of functionality, availability of metadata, proposed organisational and technical arrangements, the thematic scope of the data to be made available and compliance with the recommendations of the abovementioned Directive. With the development of technology, another module of available map geocompositions appeared – namely 3D geoportals. This option enables navigation, which allows the user to move smoothly and precisely in three dimensions. M. Orłowska-Krzyżyk and M. Hoppe (2014) report that 3D solutions are based on numerical terrain models. They shall constitute the basis for the presentation of the other spatial data. The two-dimensional layers can be presented in the three-dimensional version by uplifting them from the stored attribute value. The aim of each geoportal, regardless of the way the data is presented, is to provide the user with spatial information prepared in a way that ensures effective cartographic transmission in graphic, text, video and audio form (Gotlib, Kukułka 2014).

Another form of spatial data presentation is virtual walks, also called virtual tours. These terms can be treated synonymously. Studies on and explanations for this issue are mainly available on the Internet. K. Młynarczyk (2010) understands them as multimedia presentations containing high quality panoramas, thanks to which it is possible to see a given place as close to reality as possible. The viewer can look around, admire the perspective and specific details, move between specific locations, zoom in or out and move in selected directions. The purpose of this form of geopresentation is to give the user the impression of being in a given place. Thanks to the use of multimedia solutions it is possible to attach voice and text effects.

The methods of visual communication have developed to such an extent that simple solutions are no longer sufficient for users. The attractiveness of virtual walks is increased by the use of three-dimensional visualization

solutions, similarly to geoportals. This makes it possible to realistically reproduce the external appearance of objects. This attractiveness can be further enhanced by textualising, for example, buildings. A multitude of techniques and the development of modern technologies make the spatial database, combined with a realistic image, a new three-dimensional map. This makes it possible to navigate in real time in the field, view from different scales and select observation points. Three-dimensionality broadens the scope of spatial perception of users, awakens their curiosity and, as a result, may lead to a decision to take a trip.

The two forms of virtual presentation of spatial data described above are distinguished by interactivity. It is up to the user to decide what to look at, from what perspective and approximatly. This possibility is not provided by a video that has been previously edited according to the visions of others. Despite these disadvantages, videos still remain one of the most popular forms of communication. Currently, the purpose of videos goes beyond television. Their reception is widespread on the Internet via computers, laptops and other mobile devices. The video has become a carrier of information and knowledge, used by an increasing number of companies, authorities and facility managers.

Modern urban centres and other territorial units should be viewed as business entities, especially if the subject of discussion is to be their promotion and marketing. Cities (communes, districts, voivodships), like companies, operate on a competitive market and fight for customers. In the context of this article, the client is a tourist. Thanks to technological solutions related to the development of new media, distribution of tourism products becomes easier, which may translate into an increased number of visitors to a given centre. One of the instruments of promotion of urban centres is videos promoting their touristic values. For the purpose of this study, it was considered that this type of video is a multimedia promotional message addressed to potential buyers (tourists) in order to stimulate them to consume the offered tourist product, which should translate into encouraging them to visit the place promoted by the video. The indirect objective is to create, maintain and consolidate in the recipients of the message a positive opinion about the presented city. A promotional video

may contain educational elements that expand the recipients' knowledge, e.g. the location of specific objects, their history, etc.

The growing popularity of characterized forms of the Internet messages about tourism makes it possible to get to know more and more places without a physical change of place. The user has more and more freedom in choosing the virtual tourism space he would like to explore. The advantage of all these forms is that virtual tourism can become an alternative for people who, for certain reasons, cannot reach a given place (financial, social, health, etc.). K. Stepaniuk (2011), referring to J.M. Dewaillu (2004), states however that virtual sightseeing should be considered as complementary to the phenomenon of tourism taking place in the real world. Virtual consumption of tourist products does not fully meet the tourist needs of the Internet users. Nevertheless, it is a good tool for tourism promotion, which is increasingly used by urban centres. At the stage of planned (imaginary) travel it allows to get acquainted with the place which can be a real area of the tourist reception. In turn, in the phase of experiencing a prolonged journey (after returning) they give a chance to relive experienced emotions again.

TOURIST CONTENT

Analysis of the scope of tourist content of the individual Internet forms of tourist information presentation was carried out on the basis of a search of the Internet resources for 8 cities with district rights which were selected on the basis of data compiled in the table "location of districts and cities with district rights (fifth quintile group) according to the number of nights spent by tourists in tourist accommodation facilities", in a publication by the Central Statistical Office (GUS) entitled "Turystyka w 2016 roku" (Łysoń, 2017). The choice was based on the number of nights spent by tourists at tourist accommodation establishments. The highest ranked cities were selected, i.e.: Warszawa, Kraków, Gdańsk, Wrocław, Poznań, Szczecin and Łódź and additionally (occupying further position) the city of Toruń. First of all, it was determined which of the Internet forms of presentation of tourist information, are most frequently used by the analysed cities. The results of the web resources search are presented in Table 1.

Table 1.

Internet-based forms of presentation of tourist information

City	Virtual tours	Videos		Geoportals/Spatial Information Systems/Internet Urban Plans
		promotional-sightseeing	reconstructions	map services / map profiles / tags/ portals with tourist content
Warszawa	33	6	3	5
Kraków	145	11	4	4
Gdańsk	4	11	individual objects/areas	2
Wrocław	9	7	2	3
Szczecin	12	4	1*	5
Poznań	13	15	individual objects/areas	2
Łódź	2	5	individual objects/areas	3 (including SITUR**)
Toruń	17	7	1	1+Toruń 3D***

Explanatory notes:

* information about the commencement of works on the website:<http://szczecin.naszemiasto.pl/artykul/spacerkiem-po-starym-szczecinie-ruszaja-prace-nad-filmem,3185199,art,t,id,tm.html>, (accessed: 10.06.2018).

** Tourist Information System (System Informacji Turystycznej).

*** Toruń 3D – a separate geoportal.

Source: Own elaboration based on <http://www.qtvr-poland.com>, <http://wirtualnykraj.pl>, <http://www.wirtualnastrefa.pl>, <http://www.360poland.eu>, <https://www.youtube.com/user/warszawapl>, <https://www.youtube.com/user/wwwkrakowpl>, <https://www.youtube.com/user/gdanskpl>, <https://www.youtube.com/user/Wroclaw2016tv>, <https://www.youtube.com/user/WroclawVita>, <https://www.youtube.com/user/umszczecin>, <https://www.youtube.com/user/PoznanPL>, <https://www.youtube.com/user/LodzTube>, <https://www.youtube.com/user/mojTorun>, <http://www.mapa.um.warszawa.pl>, <http://obserwatorium.um.krakow.pl>, <http://mapa.gdansk.gda.pl>, <https://www.geoportal.wroclaw.pl>, <http://geoportal.szczecin.pl/mapa>, <http://geoportal.szczecin.pl/index.php/dane-przestrzenne>, <http://195.216.117.150/sip>, <http://www.mapa.lodz.pl/index.php?strona=mapy>, <http://przegladarka.log.lodz.pl/situr>, <http://mapa1.um.torun.pl/geoportal/f?p=MAPA:113>, <http://3d.torun.pl/imap>, <http://szczecin.naszemiasto.pl/artykul/spacerkiem-po-starym-szczecinie-ruszaja-prace-nad-filmem,3185199,art,t,id,tm.html>, <http://www.krakow.wawel.pl>, <http://warszawa.naszemiasto.pl/artykul/warszawa-1935-niezwykly-film-o-przedwojennej-stolicy-w,2785978,art,t,id,tm.html>, <https://wawalove.wp.pl/warszawa-1935-wola-powstal-niesamowity-film-o-przedwojennej-warszawie-wideo-6178744746796673a>, http://www.muzeum.torun.pl/strona-350-ksiega_torun_3d.html, <https://geoforum.pl/news/7666/architektura-starego-wroclawia-w-3d>, <https://www.youtube.com/watch?v=cePBnRgFnm0>, <https://www.youtube.com/watch?v=HHYo8HBTHVA>, (accessed: 10.06.2018).

As it can be seen in Tabel 1, the most popular online form of presenting tourist information is a virtual tour. The query does not indicate that the number of virtual trips depends on the number of monuments, museums or, more generally, on the perception of a given city as more or less attractive for tourists, in the opinion of potential tourists (the example of Wrocław – 9 trips). It can be assumed that this is to a large extent a function of a city's promotion strategy, financial outlays on promotion or human capital involved in the creation of virtual trips. However, in order to clarify the results of the query, additional studies should be carried out.

Analysing the results of the survey in terms of using the video as a tourist information carrier, it should be pointed out that the analysis includes only those official promotional materials (available on official Youtube channels of the offices of the analysed cities), which are an attempt to create a thematic series, presenting only the physical space of the city in a complementary way and creating a brand and a coherent image of the city (the criterion of a tourist product). The criterion of so-called “virtual sightseeing” was also taken into account (the video is a tour of the city). Due to the large number of videos on these channels, “playlists”, which are linked to the slogans “tourism”, “promotional materials/films” and which contain promotional slogans in their titles, were analysed.

Despite a significant number of promotional videos of selected cities published on the Youtube website, taking into account all the above criteria, the summary in Table 1 indicates that the video as the Internet form of presentation of tourist information does not convey a uniform image of the tourist space of the city. An example of such a statement is the promotional videos of Toruń, with loosely related slogans, e.g.: „Toruń porusza”, „Toruń miastem sportu”, „Toruń miasto festiwalu” and „Żyj pasją w Toruniu – roztańczone miasto”. A similar image is sought by Wrocław („Wroślove – Symfonia miejska”, „Wrocław – Europejska Stolica Kultury 2016”).

An exception, however, are videos concerning the space of Poznań and Kraków. Video titled: „Kalejdoskop” is a promotional axis of Poznań with the main motto “POZnan* Eastern energy, Western style”. The message of the videos analysed is coherent: the tourist space of Poznań is a combination of history and modernity, filled with young, educated people. Kraków also tries to create his own brand with the use of “Kraków Experience 2016”.

Despite the diversity of promotional videos of the analysed cities, a thematic triad of sightseeing can be distinguished in the videos: historical space of the city, economic space and student space – presenting the cities as leading university centres (modern campuses).

An important element of every channel created on Youtube is a welcome video, auto-replayed right after the entrance of the channel. Welcome video is one of the elements of building the image on the Youtube service. As shown in Tabel 2 not all cities use the full potential of this element. However, it should be pointed out that some cities also use a welcome video to promote important social campaigns or events.

Table 2.

Welcome video on official Youtube channels of the analysed cities

City	Welcome video	Number of views	Likes	Dislikes	Possibility of adding comments
Warszawa	„Warszawiacy się nie boją”	4368	80	136	Disabled
Kraków	„Kraków na liście UNESCO”	51183	623	19	Enabled (36)*
Gdańsk	No video	-	-	-	-
Wrocław	„Made in Wrocław – wideo podsumowanie”	621	4	-	Enabled (0)
Szczecin	„Myśli niepodległe: Agnieszka Skrzypulec. Codziennie Polskę tworzymy”	102	-	-	Enabled (0)
Poznań	„Film promocyjny miasta Poznania”	90	4	2	Enabled (0)
Łódź	„Aj!wju Łódź...”	541376	5600	500	Enabled (396)
Toruń	„Toruń porusza”	23049	266	14	Enabled (2)

Explanatory notes:

**number of comments.*

Source: Own elaboration based on <https://www.youtube.com/user/warszawapl>, <https://www.youtube.com/user/wwwkrakowpl>, <https://www.youtube.com/user/gdanskpl>, <https://www.youtube.com/user/Wroclaw2016tv>, <https://www.youtube.com/user/WroclawVita>, <https://www.youtube.com/user/umszczecin>, <https://www.youtube.com/user/PoznanPL>, <https://www.youtube.com/user/LodzTube>, <https://www.youtube.com/user/mojTorun/>, (accessed: 22.08.2018).

Within the channels, special thematic “playlists” are created, which act as promotions and attract Youtube users, e.g.: „Warszawa Chopina”, „Kraków 360°” (collected 360° videos), „Gdańsk wg” (includes videos „PUNKt Gdańsk”, by Wojtek Mazolewski), „Poczytaj mi Wrocław”, „Vlogerzy o Poznaniu”, or mentioned before the example of Szczecin: „Myśli niepodległe. Codziennie Polskę tworzymy”. The analysed channels also include films or playlists promoting green areas, e.g. „Zielona Warszawa”, „Zielona Łódź”.

Another group of videos are reconstructions of the historical space of cities. In this category MM Interactive’s projects for the city of Kraków are particularly outstanding. The following publications with videos about the nature of “guided tours of the viewers” have been published: „Kraków 1000 lat temu”, „Wawel 1000 lat temu”, „Wirtualna rekonstrukcja Krakowa – okres romański”, „Wirtualna rekonstrukcja Wawelu – okres romański” (<http://www.krakow.wawel.pl>). „Miasto Ruin” (<https://www.youtube.com>), „Warszawa 1935” (<http://warszawa.naszemiasto.pl>), „Warszawa 1935 Wola” (<https://wawalove.wp.pl>), „Księga Toruń 3D” (<http://www.muzeum.torun.pl>), „Cyfrowa rekonstrukcja 1000-letniej historii Wrocławia” (<https://geoforum.pl>), „Wrocław 1562 wg planu Weinerów” (<https://www.youtube.com>) are also videos of virtual nature that reconstruct the space of cities. The Internet resources for other cities include only reconstructions of individual objects.

As can be seen from Table 1, the transmission of tourist content by means of geoportals is based on the creation (in accordance with the nomenclature used in geoportals, spatial information systems and the Internet plans of the analysed cities) of: “map services”, “map profiles”, “bookmarks” or “portals” with tourist content (which are thematic layers) within existing geoportals, spatial information systems or interactive city plans. Typically, this layer is made up of public facilities. Thematic maps most often include cycling maps and maps of monuments. However, the projects of Toruń and Łódź are an exception. For the city of Toruń there is a geoportal called “Toruń 3D”, containing 3D models of buildings with the possibility of moving between them. A similar possibility is offered by the Wrocław Spatial Information System as part of the “iMap3D” map. Łódź has a separate Tourist Information System (SITUR) for it, which contains not only a detailed inventory of tourist facilities, but also a description of cyclical events and events in the city’s space.

Due to the fact that the virtual tour, according to the results of the search, is the most frequently represented form the analysed forms of presentation of touristic information, in the following paragraphs it should be discussed in more detail.

At present, there are four Polish websites that offer the possibility of virtual sightseeing of our country. These are: QTVR-Poland (<http://www.qtvr-poland.com>), Wirtualny Kraj (<http://wirtualnykraj.pl>), Wirtualna Strefa (<http://www.wirtualnastrefa.pl>) and Wirtualne zwiedzanie: 360° dookoła Polski (<http://www.360poland.eu>). Table 3 shows the number of virtual tours in these services for the cities analysed in the article.

Table 3.

Number of virtual tours published on the websites of Polish portals offering virtual tours

City	qtvr-poland.com	wirtualnykraj.pl	wirtualnastrefa.pl	360poland.eu	Total
Warszawa	7	17	–	9	33
Kraków	24	99	–	22	145
Gdańsk	4	–	–	-	4
Wrocław	7	2	-	-	9
Szczecin	11	1	-	-	12
Poznań	10	1	2	-	13
Łódź	2	-	-	-	2
Toruń	14	2	1	-	17
Total	79	122	3	31	235

Source: Own elaboration based on <http://www.qtvr-poland.com>, <http://wirtualnykraj.pl>, <http://www.wirtualnastrefa.pl>, <http://www.360poland.eu>, (accessed: 10.06.2018).

As can be seen from Table 3, QTVR-Poland and Wirtualny Kraj offer the highest number of virtual tours for the analysed cities. However, quantitative differences between these services can be misinterpreted as they offer different virtual tour designs. QTVR-Poland offers sets of several 360° panoramas that can be switched between each other to give you the impression of a sightseeing

experience. Wirtualny Kraj offers virtual tours in the form of an application, thanks to which it is possible to access dozens of locations. In this way, an e-tourist is given the opportunity to create over a dozen tours of a given city.

Wirtualna Strefa for the analysed cities offers virtual tours of hotels and restaurants and Wirtualne zwiedzanie: 360° dookoła Polski offers a sightseeing tour in the form of single 360° panoramas. In Wirtualne zwiedzanie: 360° dookoła Polski there are also 4 “virtual tours” (term used by the authors of the website), for other locations, which from the formal point of view constitute a thematic catalogue of selected panoramas.

Table 4.

Thematic scope of virtual tours available on the websites of Polish portals offering virtual tours

City	Comprehensive elaborations	Individual objects		Areas and routes	Other
		Tourist attractions	Tourist development facilities		
Warszawa	1	9	7	11	18
Kraków	2	25	23	16	16
Gdańsk	-	3	-	1	-
Wrocław	-	3	2	2	-
Szczecin	-	5	-	5	1
Poznań	-	8	2	2	-
Łódź	-	1	-	1	-
Toruń	-	8	-	6	-
Total	3	62	34	44	35

Source: Own elaboration based on <http://www.qtvr-poland.com>, <http://wirtualnykraj.pl>, <http://www.wirtualnastrefa.pl>, <http://www.360poland.eu>, (accessed: 10.06.2018)

The dominating theme of virtual excursions are single objects, which are a category of tourist attractions (monuments, museums, exhibitions), as shown in Table 4. Among this category the most numerous are the monuments (50

objects). The remaining 12 tours covered museums (8 located in Kraków) and two exhibitions (Poznań). Kraków has the largest number of excursions for historical buildings (17). In the category of tourist development facilities (hotels, restaurants, sports facilities, pubs with restaurants, music clubs), 24 trips were developed for hotels, including 9 located in Kraków. In Warszawa, 3 excursions were devoted to sports facilities: „Holmes Place Premium Club”, „Ursynowskie Centrum Sportu i Rekreacji”, „Wodny Park przy ulicy Merliniego 4”. Different views of the old town, market square, main and historic streets dominated in the group of “areas and routes”. Other facilities include „Szczecińskie Podziemne Trasy Turystyczne”, „Puszcza Bukowa” (a fragment of the Szczecin Landscape Park „Puszcza Bukowa”) and „Nowa Huta”. The „other” category includes facilities belonging to higher education institutions, including the most represented facilities of the Jagiellonian University in Kraków. Moreover, it was in the above category, among others „Orange Balon Station” (with a panoramic view of Warszawa) and „Central Cemetery in Szczecin”.

As can be seen from Table 4, only for 2 analysed cities comprehensive elaborations have been prepared, i.e. those which are not only a catalogue of a few to several 360° panoramas but also have the character of the Internet application with numerous multimedia functions, e.g. narration, music, animation, etc.

SUMMARY

The paper shows that each of the forms of the Internet presentation of spatial data on tourism selected for the analysis has both its advantages and disadvantages. The main disadvantage of the videos is the lack of interaction between the Internet users and the presented material. Moreover, videos are not comprehensive elaborations. Virtual walks and geoportals, thanks to their built-in interfaces, provide the Internet users with a choice of interesting content. They are also characterised by a greater variety of content.

The search for the Internet resources has shown that the most represented form of tourist information is a virtual tour. The city of Karków has the largest number of virtual excursions. Among the analysed portals, the largest number of virtual tours is offered (simultaneously in the form of a comprehensive application) by *Wirtualny Kraj*. Virtual excursions mainly promote individual facilities in the

space of individual cities. A video as an online form of tourist presentation was best used in the promotion of Poznań, Karków and Gdańsk. Among the analysed cities, only Łódź has a Tourist Information System (SITUR).

In conclusion, virtual city tours should not replace the actual penetration of real tourism space. In the opinion of the authors of the article, online materials are not able to provide an experience to the accompanying tourists who have decided to make a physical journey. Nevertheless, it seems that the indicated forms of presentation of tourist information are a good form of promotion. Municipal authorities should ensure that the geoportal, virtual tours and videos are concentrated in one place, e.g. on the city portal. The large dispersion of materials on the web makes it difficult for users to access them from multiple sites. This increases the time of obtaining information and reduces the effectiveness of reaching the desired data.

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Endnotes

- ¹ This paper is an extension and complement of the research undertaken as part of the oral presentation entitled “Wirtualna przestrzeń turystyczna miast”, delivered during XXXVII Ogólnopolska Konferencja Kartograficzna entitled „Kartografia w multimediach, multimedia w kartografii”, in Toruń, October 23-24, 2014 (Pilarska, Tomczykowska 2014).