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Table of Contents

Marek Ćwiklicki

Editorial: Social and Public Policy Challenges in the City-and-Health Context 5

Dwijendra Nath Dwivedi, Abhishek Anand

The Text Mining of Public Policy Documents in Response to COVID-19:
A Comparison of the United Arab Emirates and the Kingdom of Saudi Arabia 8

Maciej Nowak

The Spatial Management System in Poland: The Categorisation of the Problem
from the Perspective of the Literature on the Subject 23

*Dominika Dusza, Maciej Furman, Małgorzata Gałzka-Sobotka,
Iwona Kowalska-Bobko*

Evaluating Opportunities to Implement Hospital-Based Health Technology Assessment
(HB-HTA) in Selected Hospitals in the Kraków Municipality 35

Michał Kudłacz, Anna Karwińska

The Specificity of Urban Sprawl in Poland: The Spatial, Social,
and Economic Perspectives 50

Marek Ćwiklicki

Editorial: Social and Public Policy Challenges in the City-and-Health Context

Conditions appearing in our society due to problems related with the COVID-19 pandemic limit the existing phenomena regarding social, spatial, and economic challenges, which eventually modify the way how the public policies are implemented. The use of new technology for monitoring citizens; the need for younger people to replace older people at work more quickly; harmonising the implementation of directives, recommendations, and guidelines for handling the pandemic at the national level and at the international level; the spread of fake news – all of these recent actions impose the necessity for governments to adapt (Anderson, Mckee, & Mossialos, 2020). These tasks deal with transferring data and using data stored online due to social distancing (Subbian et al., 2021). Responses to challenges posted by COVID-19 also impact the need for research to help to deliver solutions for public policies.

The reactions towards stopping a virus diffusion require agility and resilience (Mazzucato & Kattel, 2020). One way to deal with the consequences of the pandemic is to recognise problems faced by public servants (Schuster et al., 2020), but also social entrepreneurs (Ćwiklicki & Sienkiewicz-Małyjurek, 2020). Studies in some of CEE countries pointed to a late response related to the above-mentioned capacity (Nemec, Drechsler, & Hajnal, 2020). Understanding what is happening in different public services enables one to prepare for the next unexpected crisis. In this volume, the following

public sector areas refer to health care and urban studies.

What needs to be mastered can be demonstrated around the key topics of public policy (Dunlop, Ongaro, & Baker, 2020). The first one refers to policy design and instruments. As different countries applied different countermeasures, the question about their effectiveness arises. The suggestions regarding the choice of criteria as to which intervention is the best in a given situation are expected (Kędzierski et al., 2020).

The next topic deals with policy learning and evaluation. The results of undertaken actions should be implemented in the next public interventions (Powell & King-Hill, 2020). However, the understanding of delivering feedback and of the impact of learnt lessons learnt for decision-makers is still required.

The theme of public service and street-level bureaucrats (SLBs) constitutes another theme. SLBs are directly involved in delivering public services, which impacts their current practices (Alcadipani et al., 2020). Knowledge about their daily adaptation is necessary for serving the public in a better way. It also calls for other forms of public service delivery, such as co-creation (Ratten, 2020).

The next subject concerns organisational capacity. The implementation of public interventions must be matched with the existing resources and possibilities of public administration. However, as Dunlop, Ongaro and Baker (2020) point out, it is also about possessing the new capacities

and linking them with the final results of public intervention (success vs. failure). Consequently, public governance appears as a way of transferring plans into actions. The different mode of governance can be associated with the efficiency of public interventions related to COVID-19. Institutional setting expressed by collaboration with different organisations calls for a new co-creation (Anafo, Owusu-Addo, & Takyi, 2021). However, governance modes are not neutral. They are also connected with the next topic, namely administration traditions.

Administration-related traditions are about aligning public intervention with national culture (M. Gupta, Shoja, & Mikalef, 2021) and administrative regime. At the level of inter-institutional coordination mechanism, a multi-level governance is considered, which is the final issue listed by Dunlop, Ongaro and Baker (2020). This is a theme more applicable to the European Union, but also, to some extent, to the USA. The relations among institutions from different levels shows the configuration of diversified public administration decentralisation, which can be linked to intergovernmental relations.

The exploration of the issues presented above can be found in the papers included in this issue of *Public Governance*.

In the first article, Dwijendra Nath Dwivedi and Abhishek Anand present the key topics covered in government documents regarding the COVID-19 response in two Arabic countries. The text-mining of public policy documents has demonstrated that Latent Semantic Analysis reveals key clusters centred around themes such as ‘digital’, ‘international travel’, ‘vaccine trial’, ‘economic recovery’, and ‘precautionary guidelines’. Applied methodology allowed the authors to spot the difference in the public policies pattern in a large amount of data existing in different government announcements, updates, guidelines, etc.

Maciej Nowak discusses the Polish spatial management system and concludes that the relationship between research and practice regarding inclusions from international experiences is weak. Spatial management system can be linked with

responses towards COVID-19, especially at the local government level (Nowak & Blaszkę, 2020). As spatial statistics were used to implement restrictions, this system constitutes a substantial part of health geography (Franch-Pardo et al., 2020).

In the third paper, Dominika Dusza, Maciej Furman, Małgorzata Gałazka-Sobotka, and Iwona Kowalska-Bobko examine the Hospital-Based Health Technology Assessment. The evaluation of new technology adaptation is crucial for the dissemination of health-related innovation. However, since special units for such an assessment do not function in Polish hospitals, the approaches differ and some common best practices are required.

Michał Kudłacz and Anna Karwińska demonstrate the trends of urban sprawl in Poland, pointing to its key features, but also presenting their similarities to the USA’s and the UK’s experiences. This goes in line with the spatial management system covered in Maciej Nowak’s paper. Metropolisation leads to the integration of disjointed urbanised regions (Cardoso & Meijers, 2021). A study in urbanised states in India showed their impact on escalating the COVID-19 pandemic (R. Gupta et al., 2020).

Papers in this issue refer to two different, although interconnected, matters, namely city and health. These intermingle in the urban health system. Such a system has a bigger potential for mobilisation and undertaking countermeasures. Urban strategies against COVID-19 increase city resilience (Capolongo et al., 2020), and as such affect the whole society.

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Dwijendra Nath Dwivedi, Abhishek Anand

The Text Mining of Public Policy Documents in Response to COVID-19: A Comparison of the United Arab Emirates and the Kingdom of Saudi Arabia

Abstract

Objective: The objective of the paper is to analyse publicly available government policy documents of the United Arab Emirates (UAE) and the Kingdom of Saudi Arabia (KSA) in order to identify key topics and themes for these two countries in relation to the COVID-19 response.

Research Design & Methods: In view of the availability of large volumes of documents as well as advancement in computing system, text mining has emerged as a significant tool to analyse large volumes of unstructured data. For this paper, we have applied latent semantic analysis and Singular Value Decomposition (SVD) for text clustering.

Findings: The results of the analysis of terms indicate similarities of key themes around health and pandemic for the UAE and the KSA. However, the results of text clustering indicate that focus of the UAE' documents is on 'Digital'-related terms, whereas for the KSA, it is around 'International Travel'-related terms. Further analysis of topic modelling demonstrates that topics such as 'Vaccine Trial', 'Economic Recovery', 'Health Ministry', and 'Digital Platforms' are common across both the UAE and the KSA.

Contribution / Value Added: The study contributes to text-mining literature by providing a framework for analyzing public policy documents at the country level. This can help to understand the key themes in policies of the governments and can potentially aid the identification of the success and failure of various policy measures in certain cases by means of comparing the outcomes.

Implications / Recommendations: The results of this study clearly showed that text clustering of unstructured data such as policy documents could be very useful for understanding the themes and orientation topics of the policies.

Keywords: text mining, COVID-19, public policy, information extraction, topic modelling, text clustering

Article classification: research paper

JEL classification: D78, E61, I18, L38

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Introduction

The 2019 Coronavirus disease outbreak (COVID-19) was one of the most significant global challenges of this century for humankind. The pandemic has significant effects on public health, economics, politics, and society (Cheng et al., 2020). Most governments have responded to the COVID-19 outbreak by adopting proactive lockdown measures and conducting robust education campaigns. The containment measures have resulted in a widespread economic collapse with significant impacts on output and employment, and a serious impact on all industries as a result of the sharp drop in consumption. The most developed countries have seen their positive economic growth dip into the red with marked rises in unemployment and an increase in social inequalities (Carracedo et al., 2020). In such a scenario, governments should play a central role in managing the crisis and recovering the economy.

In response to the COVID-19 pandemic, the governments published a lot of information in public through government websites as well as other sources. However, the huge volume of documentation from multiple sources of information can be difficult to track. Hence, it is vital to identify how an analysis can be done quickly and efficiently on the available literature to understand the key themes for COVID-19 and government policy priorities to counter the pandemic. A large number of research papers and case studies have already appeared in major international journals and publications, where researchers have used text mining techniques to identify the process and framework for rapidly performing reviews of large volume of coronavirus studies and publications, and to classify the key research themes for COVID-19 (Cheng et al., 2020).

In recent years, the responsibilities of public health policy have grown beyond reduction and control of infectious diseases, and public health policies have been implemented to tackle other emerging threats like tsunamis and SARS (Shi et al., 2009). In this context of growing

importance of public health policy, there is a need to understand the public health policy regarding COVID-19 and various other policy measures taken by the government to counter the pandemic. However, due to large volume of texts and documents available on COVID-19, it is difficult to apply traditional methods of data analysis to understand the key themes of public policy. Hence, we use text mining approach, which helped us analyse unstructured data and focus on two neighbouring countries, namely the UAE and the KSA. The reason behind selecting these two countries is that they share strong political and cultural ties as well as they had a similar peak for COVID-19 cases in 2020. It is therefore interesting to examine how both countries have approached the pandemic through public policy. The purpose of this paper is to analyse public policy texts and documents available through government sources in the UAE and the KSA in response to the COVID-19 pandemic, and then understand the key themes using the above-mentioned text mining approach. The aim of the research is to respond to the main question:

- What are the important themes that emerge from the United Arab Emirates' and the KSA's public policy documents in the context of the COVID-19 pandemic?

Taking into account the above primary research question, the secondary research question for this study is:

- What are the similarities and differences between the public policy approaches of the United Arab Emirates and the KSA with regard to addressing COVID-19, based on the results of textual exploration?

The data for the analysis was extracted from the public websites of the two countries. Public policies published on the websites of the National Department of Disaster Preparedness as well as other websites were considered suitable for text analysis. For this paper, we consider 108 documents for the UAE and 76 documents for the KSA, published between March 2020 and November 2020. We have used the text mining technique,

which has gained significant prominence in recent times for analysis of textual documents due to its ability to handle large amounts of data – also unstructured data – which traditional data mining techniques are not capable of.

Text mining has become a significant research field especially after the arrival of big data tools, which can deal with unstructured data. Text Mining is the process of finding new information that had previously been unknown, automatically extracting information from different written or published sources (Gupta & Lehal, 2009). While text mining is similar to data mining, there is a significant difference. Namely, data mining tools are designed to handle structured data from databases, whereas text mining can work with unstructured or semi-structured datasets, such as emails, PDF files, word files, and HTML files. Topic modelling is a text search tool widely used to detect semantic structures hidden within a body of text. It analyses an enormous collection of documents and groups the words into a group of words in order to identify subjects based on the similarity approach.

Two of the most popular methods for topic modelling include Latent Semantic Analysis (LSA) and Latent Dirichlet Allocation (LDA). LSA analyses the association between a set of documents and their terms using a grouping approach assuming that similar terms and documents will be grouped together. LDA, on the other hand, assumes that each document comprises of a small number of topics and that each word can be attributed to one of the topics contained within the document. The LDA method is an improved Probabilistic Latent Semantic Analysis (PLSA), pioneered by Hofmann (2001), which assumes that each subject is generated by a word probability distribution. For our research, we have used the LSA method, which typically operates on the term-by-document matrix and uses a well-known mathematical matrix decomposition technique called Singular Value Decomposition (SVD) to break down the original data into linearly independent components (Chakraborty et al., 2013).

The results of our analysis indicate the similarity of the approaches of the UAE' and the KSA's

governments on the basis of published papers and selected themes. First, we analysed the key terms for the UAE and the KSA by word frequency distribution and word cloud, and the results indicated few common terms for the two countries. Second, the paper also analysed clusters produced by text mining for the United Arab Emirates and the KSA, and some of the clusters highlighted common themes in both sets of corpus. Third, we used topic extraction to identify key topics for the UAE and the KSA from the documents, and we found common topics between the two sets of documents. Overall, it can be concluded that, based on the textual analysis of the literature published by the UAE' and the KSA's governments, there are similarities in key terms and themes.

The remainder of this document is structured along the following lines. Section 2 presents the literature review, highlighting the evolution of topic modelling and also showcasing some of the key research outcomes and different methods applied in this area. Section 3 presents the database and analytical methodology, and Section 4 demonstrates the main results of the research. Finally, Section 5 outlines the most significant findings.

Literature review

The problem related to text mining has been addressed in the past. However, in recent years there has been a lot more focus on text mining due to advancement in computing and the development of capabilities to handle unstructured data. In order to manage the explosion of electronic document archives, new techniques or tools are required to deal with organising, searching, indexing, and reviewing large collections of data in a time efficient manner (Alghamdi & Alfalqi, 2015). As a generalisation, there are two broad approaches to process text, namely Natural Language Processing (NLP) and statistics-based programmes such as topic modelling (Hofmann, 2001). Unlike NLP methods that identify parts of speech and grammatical structure, statistical models such as topic models rely heavily on the „bag of words”

(BoW) hypothesis. In BoW models, the collection of textual documents is quantified in a document-term matrix (DTM), which counts the occurrence of each word (columns) for each document (rows). In the case of most topic models – such as LDA – the DTM is one of two model inputs, along with a number of topics (Wesslen, 2018).

For most document collections, DTM is often very large and sparse. This makes it difficult to use this matrix directly in clustering or in any other algorithms. Therefore, the idea is to reduce the dimensionality of the data while retaining the meaningful information. This has been one of the early motivations for topic modelling. Deerwester et al. (1990) presented one of the first topic models using latent semantic analysis (LSA) and Singular value decomposition (SVD), in which a large DTM is decomposed into a set of about 100 orthogonal factors, from which the original matrix can be approximated by linear combination. They assumed the presence of some underlying latent semantic structure and used statistical techniques to estimate this latent structure.

Hofmann (2001) used unsupervised learning technique called Probabilistic Latent Semantic Analysis (PLSA) by means of adding a probabilistic component to the LSA model and assuming that each topic is generated by a word probability distribution. The advantage of PLSA is that standard statistical methods can be applied for model fitting, model selection, and complexity control. For example, one can assess the quality of the PLSA model by measuring its predictive performance, e.g. with the help of cross-validation. Blei et al. (2003) extended the PLSA model of Hoffman to build the LDA model, which includes a second probability component for the document level. LDA is a three-level hierarchical Bayesian model, in which each item of a collection is modelled as a finite mixture over an underlying set of topics. Each topic is, in turn, modelled as an infinite mixture over an underlying set of topic probabilities (Madhoushi et al., 2015). Using these probability distributions, any word can be rank-ordered by each topic in order to

determine what the most common word is used when referring to each topic.

The significance of topic modelling lies in detecting the patterns of word-use and then connecting documents which have similar patterns. Essentially, the documents contain a mixture of topics and each topic is a probability distribution over words (Alghamdi & Alfalqi, 2015). Asmossen and Moller (2019) presented a framework to leverage the thematic modelling technique in order to conduct an exploratory literature review of a broad collection of papers. The framework proposed by them enables a large volume of documents to be reviewed in a transparent, efficient, and reproducible way using the LDA method. In general, there are two approaches to document-processing: supervised learning and unsupervised learning. Supervised learning involves the manual coding of a collection of documents prior to conducting an analysis, which requires considerable time to achieve the outcome. On the other hand, unsupervised learning methods, such as topic modelling, do not have the pre-requisite to manually code the documents, which makes it possible to save a lot of time for an exploratory review of a large collection of papers.

Gotipati et al. (2018) used topic modelling and data visualisation to analyse student feedback from seven undergraduate courses taught at the Singapore Management University. They assessed rules-based methods and statistical classifiers for extracting the topics. Mei et al. (2007) used text mining to analyse sentiments of the users on Weblogs, and proposed a probabilistic mixture model called Topic Sentiment Mixture (TSM), where words are sampled by a mixture model of background language, topic language, and two sentiment language models. They present a mechanism for extracting sub-topics, assigning each sub-topic with a positive or negative feeling and evaluating how opinions about a topic change over time. Al-Obeidat et al. (2018) proposed a sandbox for extracting subjects by means of analysing feelings for extracting subjects and their associated feelings in a database. They used LDA for the extraction

of subjects as well as the „bag-of-words” feeling analysis algorithm, where polarity is determined according to the frequency of occurrence of positive/negative words in a document.

Benedetto and Tedeschi (2016) highlight common approaches to analysing feelings in social media streams and related problems with the help of cloud computing. Big data is divided into four features, namely four V’s of big data – volume, velocity, variety, and veracity. Volume is the largest amount of data that needs to be stored and handled. Velocity is the frequency of the incoming data. Variety describes different types of data, while veracity refers to the reliability and accuracy of available data.

Text mining in general, and topic modelling in particular, has gained even more prominence in recent post-COVID-19 times, as there has been a plethora of research papers, documents, government publications, and social media information related to the topic. Cheng et al. (2020) presented an overview of the coronavirus literature using a text mining technique, and identified the research themes as well as representative literature for each theme. They used the LDA approach to analyse 7,909 scholarly articles from 1,461 journals. Carracedo et al. (2020) identify current research themes related to COVID-19 as well as their impact on the business community using the Text Mining methodology. Goel et al. (2021) aim to analyse the COVID-19 situation in India and explain possible impacts of policy changes and technological changes. They analysed data, including publications from government sources and media reports, with a focus on policy and technological responses. Sharma et al. (2020) reviewed Twitter data from a hundred NASDAQ companies and provided important insights on key post-COVID-19 supply chain issues that the companies are facing. Using text mining tools, they extracted those themes from Twitter data that concern problems encountered by companies as well as strategies adopted by them. They observe that businesses face many challenges in the post-COVID era due to the mismatch between demand

and supply, technological gaps, and the lack of a resilient supply chain.

This paper contributes to the literature on text mining by providing an approach to analysing huge volumes of material in the field of public policy at the national level. At the same time, it also enhances public-policy-related literature by applying the text mining approach in order to discover themes across public-policy documents, which is extremely useful when dealing with huge volume of documents.

Data and methodology

Data for this paper has been taken from public government websites of both countries. Public policy as published on national disaster response ministry and other news sites has been taken as such for text analytics. Various government departments had been publishing the action documents as a part of the COVID-19 response on their websites. We have extracted all such text documents for concerned ministries in the UAE and the KSA. The time frame for extracting the policy documents was March 2020 to November 2020. The list of all the websites which have been the prime source for the documents is provided in the Appendix.

Topic extraction discovers keywords in documents that capture the recurring theme of the text and as such is widely used to analyse large sets of documents for identifying the most common topics in an easy and efficient way. In terms of methodology, we have applied latent semantic analysis and Singular Value Decomposition for text clustering. Clustering divides observations in a dataset into different clusters or groups so that the observations within a group are similar and the observations between the groups are dissimilar. In the text-mining context, clustering divides the collection of documents into various groups based on the presence of similar themes. The algorithm generates clusters based on the relative positioning of documents in the vector space. LSA (also known as Latent Semantic Indexing, or LSI) is a dimensionality reduction technique that typically

operates on the term-by-document matrix by way of using a mathematical matrix decomposition technique called Singular Value Decomposition (SVD), which breaks down the original data into linearly independent components. A term-document matrix is a mathematical matrix that describes the frequency of terms that occur in a collection of documents. In a document-term matrix, rows correspond to documents in the collection, while columns correspond to terms.

Mathematically, a full SVD does the following: Consider that A ($m \times n$) is the term-by-document matrix with $m > n$ (more terms than documents) where the entries in the matrix are real numbers (such as the presence or absence of a term, entropy weight, etc.) SVD computes matrices U , S , and V so that the original matrix can be re-created using the formula $A = USV^T$. In this formula, the following is true:

- U is the matrix of the orthogonal eigenvectors of the square symmetric matrix AA^T ;
- S is the diagonal matrix of the square roots of the eigenvalues of the square symmetric matrix AA^T ;
- V is the matrix of the orthogonal eigenvectors of the square symmetric matrix $A^T A$.

The fundamental idea of applying classical data-mining techniques to topic modelling relies on transforming text data (unstructured) to numbers (structured). This numerical representation of the text takes the form of a spreadsheet-like structure called a term-by-document matrix. In this matrix, dimensions are determined by the number of documents and the number of terms in the corpus (Chakraborty et al., 2013).

Results and discussion

In this section, we compare the topic modelling results for the UAE and the KSA.

Terms by document report

Both Table 1 and Table 2 show the frequencies of the most relevant terms for the UAE and

the KSA. Here, we present top ten relevant terms in order to focus on the key themes which appeared in the documents from the UAE' and the KSA' sources.

From Table 1 and Table 2, one can discover that some of the top terms for both the UAE and the KSA are common, including 'COVID-19', 'health', and 'August', which indicate common themes across documents from both countries. However, in terms of differences, the UAE has the 'announce' verb occurring frequently, while it does not feature

Table 1. Top ten terms for the UAE

Term	Frequency	# Documents
COVID-19	51	36
+ announce	37	36
June	23	18
health	20	12
government	19	16
+ test	19	13
August	18	16
new	18	15
+ pandemic	16	16
+ resident	16	10

Source: Government policy documents listed in the Appendix.

Table 2. Top ten terms for the KSA

Term	Frequency	# Documents
COVID-19	34	31
coronavirus	23	23
health	23	18
ministry	19	17
pandemic	14	14
August	14	13
July	13	13
September	13	12
international	13	9
+ vaccine	13	7

Source: Government policy documents listed in the Appendix.

in top ten terms for the KSA. Similarly, the KSA has ‘vaccine’ as a top ten term in their documents, while it does not feature in top ten terms for the UAE.

Word cloud

A word cloud (also known as a tag cloud or word art) is a simple visualisation of data in which words are shown in varying sizes, depending on how often they appear.



Figure 1. Word cloud of the UAE’s documents
Source: Government policy documents listed in the Appendix.



Figure 2. Word cloud of the KSA’s documents
Source: Government policy documents listed in the Appendix.

For the UAE, the largest words are ‘UAE’, ‘June’, ‘Abu Dhabi’, ‘Dubai’, ‘announced’ and ‘Health’. The documents considered for the UAE show that there are a lot of announcements made by the UAE government, focusing on Dubai and Abu Dhabi, two main cities of the UAE. For the KSA, the largest words are ‘COVID-19’ and ‘Saudi Arabia’, which is expected. The other larger words – ‘ministry’, ‘health’, ‘pandemic’, ‘July’, ‘August’, and ‘announced’ – demonstrate similar focus for the KSA to that seen for the UAE. One noticeable difference is that for the UAE, the largest month word is ‘June’, whereas for the KSA it is ‘July’ and ‘August’, which could imply that the UAE took many measures in June, whereas the KSA did the same in July and August.

Top clusters and their descriptions

Using the default settings (low SVD resolution and maximum cluster) for the SAS Text Miner, we get 9 clusters for the UAE and 11 clusters for the KSA. By default, the SAS Text Miner uses 15 descriptive terms that best describe each cluster. Table 3 and Table 4 both describe the clusters for the UAE and the KSA.

As can be seen from Table 3, the largest cluster for the UAE is cluster ID 6 containing 19% of total documents, which is related primarily to digital platforms. For the KSA, the largest cluster is cluster ID 6 containing 14% of total documents, and it is related primarily to international travel. If SVD resolution is set too high, then only 5 clusters are generated, as shown in Table 5 and Table 6 for the UAE and the KSA respectively. We have also given a name to each cluster based on the key terms in the cluster; it represents the key theme for the terms in that cluster.

For the UAE, the largest cluster is related to ‘Digital’; it represents 31% of total of the UAE documents, whereas for the KSA the largest cluster is ‘International Travel’, which represents 28% of total of the KSA’s documents. Interestingly, the theme of the largest cluster in both cases (low SVD resolution and high resolution) is same for

Table 3. Descriptive terms for clusters for the UAE

Cluster ID	Descriptive Terms	Frequency	Percentage
1	enter +Emirate Abu Dhabi +development local support +hour +effort spread three +bank +extend +leave +solution	14	13
2	clinical +'clinical trial' +inactivate cnbg iii +trial +vaccine Dhabi-based g42 phase world artificial group intelligence 'artificial intelligence'	7	6
3	+reopen +mall +sector +shop +allow economic capacity department +business June Dubai +begin +permit five people	6	6
4	adgm +fee percent +space +company +partnership +incentive +customer retail +include continue financial +aim +introduce april	9	8
5	period +month +fine three +leave +country August June 'coronavirus pandemic' +conduct +effect +extend +facilitate +permit +flight	9	8
6	affairs social tra +service authority +platform +bank public +resident ministry +guideline management website UAE +launch	20	19
7	recovery package economy +entity billion +business +include support economic government +support +day April week 'coronavirus pandemic'	14	13
8	+passenger travel Arab Emirates United number +citizen +restriction +test +country October million per coronavirus precautionary	14	13
9	+result negative +test +require +technology +'COVID-19 test' +disease +identify +solution present medical Dhabi +app. help Abu	15	14

Source: Text clustering on the government documents listed in the Appendix.

Table 4. Descriptive terms for clusters for the KSA

Cluster ID	Descriptive Terms	Frequency	Percentage
1	+distance authority +area learning +launch +aim +contract king riyadh June people +centre spread September ministry	4	5
2	+platform +school education learning +service remote virtual year +area +distance +prepare +company help March virus	5	7
3	+hospital +citizen +patient app medical +contract +register +resident electronic travel health international +return moh +curfew	9	12
4	'coronavirus disease' disease +'private sector' private +business +sector +extend government coronavirus august +conduct +continue +flight +payment three	6	8
5	+employee +increase remote public +authority +sector +month +country August +area +development +restriction +return help March	6	8
6	number +curfew October travel +development +flight +step moh +report June +start international +authority +citizen +increase	11	14
7	+payment +programme help +extend three +business +month +continue +initiative +recover +service September +start +work +effect	4	5
8	hajj +pilgrim +measure +restriction 'coronavirus pandemic' +doctor pandemic spread coronavirus year +report 'COVID-19 pandemic' +continue +return +step	10	13
9	+vaccine +trial vaccine +develop +work +country +prepare king disease +company +test COVID-19 Arabia people Saudi	7	9
10	+recover July +conduct +initiative people 'coronavirus pandemic' +test +effect Arabia ministry government +month June +flight +patient	9	12
11	digital launch 'COVID-19 pandemic' pandemic virtual +report +aim +initiative +prepare +resident +step moh riyadh +launch +company	5	7

Source: Text clustering on the government documents listed in the Appendix.

Table 5. Descriptive terms for 5 clusters for the UAE

Cluster Name	Cluster Description	Frequency	Percentage
<i>Digital</i>	launched tests operating prevention +department +development +identify health October Abu +platform +technology website national Dhabi	33	31
<i>International Travel</i>	allowed +enter +result entities flights July negative Dubai Abu Dhabi coronavirus +test affairs citizens guidelines	23	21
<i>Vaccine Trial</i>	cnbg clinical percent +fee group +vaccine Dhabi-based g42 iii inactivated companies phase world artificial intelligence	22	20
<i>Economic Recovery</i>	months fines period three Arab introduced affected united package +leave aimed banks incentives +pandemic +include	17	16
<i>Precautionary Guidelines</i>	measures precautionary ,precautionary measures' sectors +'precautionary measure' +country +measure +restriction +support countries COVID-19 +pandemic businesses help restrictions	13	12

Source: Description of text clusters after topic modelling for the UAE.

Table 6. Descriptive terms for 5 clusters for the KSA

Cluster Name	Cluster Description	Frequency	Percentage
<i>International Travel</i>	pandemic electronic ,coronavirus disease' disease extended flights government year +continue +effect +programme international travel coronavirus citizens	21	28
<i>Vaccine Trial + Economic Recovery</i>	private +'private sector' +sector +trial countries trials vaccine developing authority businesses +vaccine developed measures announced disease	17	22
<i>Digital + Education</i>	areas +distance distancing +increase learning launched dr. hajj public virus pandemic September 'COVID-19 pandemic' aimed education	17	22
<i>Digital + Test</i>	people app centers +center conducting recovered tests virus +company +platform +register +test +vaccine aimed health	11	14
<i>Government Services</i>	increased services +increase +step contracting October number launch moh July +month +platform conducted dr. tests	10	13

Source: Description of text clusters after topic modelling for the KSA.

both the UAE and the KSA. For the UAE, the theme is 'Digital', whereas for the KSA, the theme is 'International Travel'. The top 3 clusters for both the UAE and the KSA have similar themes, namely: 'Digital', 'International Travel', and 'Vaccine Trial', although rankings of these clusters are different for the two countries. The contribution of the top 3 clusters for both the UAE and the KSA is 72%, which implies that the major part of policy measures considered by both countries has been revolving around these three themes.

Topic extraction

A topic is a collection of terms that define a theme or an idea. Every document in the corpus can be given a score that represents the strength

of association for a topic. A document can contain zero, one, or many topics. The objective of creating a list of topics is to establish combinations of words that are of interest in the analysis (Chakraborty et al., 2013).

We have used the Text Topic Node in the SAS Text Miner in order to discover topics from a text. The node first calculates term topic weight as well as document topic weight. For example, if there are 10 topics extracted, there will be 10 term topic weights calculated for a single term. Similarly, there will be 10 document topic weights calculated for a single document. Term topic weights and document topic weights are then used to calculate cutoff scores for each multi-term topic. Term cutoff is the threshold that determines whether a term belongs to a topic, while document

Table 7. Topics table from the Text Topic Node results for the UAE

Category	Topic Id	Document Cutoff	Term Cutoff	Topic	# Terms	# Docs
Multiple	1	0.205	0.109	+test+resultnegativepresent+require	15	10
Multiple	2	0.207	0.108	+trial+vaccineclinicaliii+inactivate	14	9
Multiple	3	0.16	0.111	+launch+platformwebsite+incentiveapril	24	14
Multiple	4	0.173	0.111	researchvirus+identifymedicalcovid-19	18	10
Multiple	5	0.156	0.11	+residentpermitentryauthority+citizen	15	9
Multiple	6	0.19	0.109	+reopencapacity+sectordubai+allow	16	10
Multiple	7	0.197	0.103	adgm+feepercent+company+space	7	9
Multiple	8	0.21	0.108	healthministry+servicehealth+disease	15	12
Multiple	9	0.181	0.106	+monththreepreperiod+leave+fine	10	8
Multiple	10	0.164	0.109	arabunitedemirates+reporteconomic	13	9
Multiple	11	0.193	0.11	billioneconomysupportdubaipackage	19	13
Multiple	12	0.174	0.111	+app.+companydigitalfreeartificialintelligence	19	12
Multiple	13	0.177	0.11	people+enter+emirate+hourjune	18	9
Multiple	14	0.159	0.11	managementcrisisoctober+spacecommittee	17	7
Multiple	15	0.16	0.11	+customer+bankfree+service+platform	16	8
Multiple	16	0.167	0.11	precautionary+measure+precautionarymeasureaffairs	17	10
Multiple	17	0.173	0.109	+day+restriction+measurecontinueweek	14	9
Multiple	18	0.145	0.111	dhabiabudemententeconomic+shop	15	11
Multiple	19	0.17	0.11	economicseveralrecovery+support+sector	14	9
Multiple	20	0.168	0.11	+passenger+flightdubaijune+test	14	10

Source: Text topic extracted from the documents listed in the Appendix for the UAE.

Table 8. Topics table from the Text Topic Node results for the KSA

Category	Topic Id	Document Cutoff	Term Cutoff	Topic	# Terms	# Docs
Multiple	1	0.229	0.139	+vaccine +trial +develop vaccine +country	8	8
Multiple	2	0.216	0.139	+sector private +private sector ministry +announce	9	5
Multiple	3	0.208	0.141	+launch+distance+aimauthoritylearning	9	6
Multiple	4	0.221	0.139	+flightinternationaltravel+restrictionseptember	7	6
Multiple	5	0.197	0.14	+curfewjune+authority+returnnumber	7	8
Multiple	6	0.193	0.141	numberoctobermohministrylaunch	10	8
Multiple	7	0.207	0.14	hajj+pilgrimcoronaviruspandemicpandemicpublic	10	8
Multiple	8	0.196	0.139	+test+centerjuly+conductsaudi	7	7
Multiple	9	0.205	0.14	coronavirusdiseaseaugstdiseasespread+citizen	7	7
Multiple	10	0.204	0.141	+hospital+patientmedical+citizenapp	12	9
Multiple	11	0.206	0.14	education+schoollearning+platform+service	11	6
Multiple	12	0.201	0.141	+servicehealthministryhealthjune	11	6
Multiple	13	0.18	0.141	kingdom+measuredigitalgovernment+initiative	12	9
Multiple	14	0.207	0.141	three+programme+payment+extend+month	12	6
Multiple	15	0.175	0.141	+employee+increase+increaseremote+restriction	12	8

Source: Text topic extracted from the documents listed in the Appendix for the KSA.

cutoff is the threshold that determines whether a document belongs to a topic. Table 7 and Table 8 both show the results of topics extraction for the UAE and the KSA respectively. Only the top five weighted terms for each topic are shown in the Topic columns.

As presented in Table 7 and Table 8, there are 20 terms extracted for the UAE and 15 topics extracted for the KSA. Most of the topics and terms extracted for the UAE and the KSA have similarities between them. Topic Id 1 for the KSA refers to vaccine and trial, which is similar to topic Id 2 from Table 7 for the UAE, indicating a broad focus of both governments on clinical trials for a COVID-19 vaccine. The KSA's Health Ministry announced its collaboration with the CanSino Biologics, a Chinese vaccine company, after they had successfully conducted phase I/II trials within China; they also conducted a vaccine trial on a sample population in the KSA (Raja et al., 2020). The KSA also collaborated with Russia on the Gam-COVID-Vac-Lyo, a COVID-19 vaccine

currently being developed in Russia. On the other hand, the UAE approved a vaccine developed by Chinese state-owned Sinopharm in December 2020.

Topic Id 2 from the KSA and topic Id 19 from the UAE indicate government measures for reviving economy by supporting private sector. The UAE' initiatives to counter the spread and impacts of the pandemic are coordinated through the UAE' National Emergency Crisis and Disaster Management Authority (NCEMA). These initiatives are multi-sectoral and involve increasing health sector capacity, reviving the private sector through economic incentives, and supporting residents through various programmes and measures. The UAE implemented the 'Targeted Economic Support Scheme' in March 2020 in order to provide support to private companies in the UAE through a series of reliefs. Saudi Arabia was among the first countries to implement early precautionary measures to prevent COVID-19 or to mitigate its impact when it arrives. A national committee was formed in early 2020, consisting

of the government ministers for Health, Education, FDA, Interior, and many others in order to fight against the pandemic. The KSA's government also announced a set of support packages in 2020, targeting the private sector and totalling almost \$61 billion. In addition, the SAMA (Saudi Central Bank) has been in a continuous dialogue with local commercial banks to support those sectors that are highly impacted by the ongoing pandemic (KPMG Report, November 2020).

Topic Id 8 from the UAE and topic Id 12 from the KSA show the involvement of the Health Ministries of both countries in dealing with the pandemic. Although the UAE has a robust public health system, the pandemic has highlighted the need for improvement in the existing system. The UAE has only 1.3 hospital beds per 1000 persons, which is much lower than countries such as South Korea (11.5) and the KSA, which has 2.7 (UN Report, 2020).

A close look at the extracted topics also highlights the focus of both governments on moving to digital platforms. This can be reflected through topic Ids 3 and 12 for the UAE, whereas for the KSA, the corresponding topic Ids are 10 and 13. Digital solutions and technology have played a significant role in providing essential services after the implementation of strict mitigation regulations as a result of the pandemic. The UAE's Ministry of Community Development (MOCD) has switched to using digital channels for government services. The UAE's Ministry of Education has implemented distance learning from March 2020 for all public/private schools as well as higher educational institutions, ensuring a safe and successful learning process. The KSA's government has also accelerated digital transition as a result of COVID-19. The KSA's government and private sectors developed and launched approximately 19 apps to manage public health services. Learning processes in Saudi Arabia also continued with the use of an established electronic learning infrastructure with a promising direction towards a wider adoption in the future (Hassounah et al., 2020).

Both the UAE and the KSA have also responded to air travel situation through different policy measures, as highlighted by topic Id 20 for the UAE and topic Id 4 for the KSA. Travel and tourism both constitute an important industry in the UAE, contributing 11.5 percent of its GDP. This industry was severely impacted in the wake of the pandemic restrictions on travel. Compared to 2019, the most considerable fall of scheduled departure flights in the UAE occurred on June 1, 2020, and equaled the decline of 82% (Aburumman, 2020). The UAE's government regularly updated the information for travellers on the Ministry's website as well as through other communication channels in terms of the restrictions and requirements for travelling to the UAE. Saudi Arabia took proactive measures to restrict the travel from China and other countries impacted by COVID-19 as early as February 2020, i.e. even before the first case was reported in March 2020.

In terms of differences in the topics extracted for two countries, there are few noticeable differences. There is a mention of artificial intelligence (AI) in one of the topics (topic Id 12) for the UAE, which could imply focus of the UAE's government on using AI for public policy. The UAE's government launched the 'UAE strategy for Artificial Intelligence', which played a vital role in containing the spread of COVID-19 in the UAE. For the KSA, there is a mention of 'Hajj' and 'pilgrim' in one of the topics (topic Id 7), indicating the KSA's government's response to the Hajj travel for 2020. Only around 100 pilgrims attended the Hajj in 2020 compared to the usual attendance of more than two million people. International travellers were restricted from the Hajj in 2020 and the worshippers were either foreign residents of Saudi Arabia or Saudi nationals (CNN, 2020). Another differing topic was 'banking related topic' (topic Id 15), which was present only for the UAE. The UAE has more banks and digital customers than the KSA. The UAE has around 50 banks in total, whereas the KSA has around 30 banks that are operational in the country.

Conclusion

Impacting the countries around the world, COVID-19 has caused the most severe pandemic of this century and has presented an uphill task for the governments to contain the pandemic and revive the economy through various public policies. In response to the pandemic, a large number of policy documents, announcements, updates, and guidelines have been published by governments. However, the huge volume of documents and publications makes it difficult to understand the key themes of government policies in an analytical way. By applying topic modelling and text clustering on those documents published by the UAE and the KSA which are related to government policies on COVID-19, we illustrated the fact that these techniques could help to analyse large volumes of data, as well as they could also facilitate the process of comparing key themes across countries through this analysis.

We used the LSA method for text mining and topic modelling. We compared the results for the UAE and the KSA by first comparing the key terms. We then uncovered hidden themes in the documents through text clustering and compared the clusters for the UAE and the KSA. We observed that the UAE and the KSA had similar themes in terms of government policy measures. For the UAE, the largest cluster is related to 'Digital' (31% of the total of the UAE's documents), whereas for the KSA, the largest cluster is 'International Travel' (28% of the total KSA's documents). Finally, we performed topic extraction analysis in order to identify key topics from the policy documents of the UAE and the KSA respectively. Most of the topics extracted for the UAE and the KSA have similarities between them. Some of the common similar topics revolve around 'Vaccine Trial', 'Supporting Private Sector', 'Health Ministry', 'Digital Platforms', and 'Travel Restrictions'. Both governments announced and initiated various measures throughout 2020 in order to tackle COVID-19. There are few differences in topics for the UAE and the KSA. For the UAE,

there are topics of 'Artificial Intelligence' and 'Banking', which are not found for the KSA. For the KSA, there is a mention of 'Hajj', which is due to the presence of Mecca and Medina in Saudi Arabia.

This study contributes to text-mining literature by providing a framework for analysing huge volumes of policy documents at the country level. Currently, there is a gap in research in terms of using topic modelling in general and LSA in particular for the text mining of policy documents. This paper can help to understand the key themes in the governments' policies and can also help to identify success and failure of policy measures in certain cases by means of comparing the outcomes. In the era of digitisation and social networking, it is of immense importance to utilise advanced text mining algorithms to understand the themes in a fast and efficient way. This would enable governments and policy makers to adapt to the changes and tackle unprecedented challenges such as COVID-19 in an effective manner.

There are several limitations to this study. First, it does not cover all data related to the topic, as it is not possible to explore all the related articles because of time and access-rights issues. Second, we used one method of topic modelling only – namely the LSA – and we did not investigate how it compares with other methods. Third, the study does not take into consideration the difference in the quality of public policy documents of the UAE and the KSA, which may vary. Lastly, the study uses the SAS tool for the analysis, which is not a free software. However, the approach and methodology can be easily replicated using a free software such as R. In the future, this study could be enhanced by considering the most recent data and also extending its scope over social media data in order to validate the findings from this analysis. This study provides a bird's-eye view of the response of the two countries to the COVID-19 crisis based on the text mining of public policy documents. In the future, the research hypothesis could be made more specific in order to address a particular section or topic for the analysis. The study can

also be expanded by considering other approaches of topic modelling, in particular LDA, and then comparing the outcome with the present analysis.

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 - Ministry of Foreign Affairs <https://www.mofaic.gov.ae/>
 - News and Media: <https://www.khaleejtimes.com/>
 - News and Media: <https://english.alarabiya.net>
 - News and Media: <https://gulfnews.com>
 - News and Media: <https://www.meed.com/>
 - News and Media <https://www.arabnews.com/>
 - News and Media <https://www.reuters.com/>
 - Ministry of Health and Preventions: <https://www.mohap.gov.ae/>
 - News and Media: <http://wam.ae/>
 - News and Media: <https://www.jdsupra.com/>
 - News and Media: <https://www.aljazeera.com/>
 - National emergency crisis and disaster recovery: <https://www.ncema.gov.ae/>
 - Privately owned security services company: <https://www.garda.com/>
 - Community platform for real estate: <https://bldgtmrw.com/>
 - News and Media: <https://www.cnn.com/>
 - The National Emergency Crisis and Disasters Management Authority's platform: <http://www.weqaya.ae/>
 - News and Media: <https://www.caixinglobal.com/>
 - Ministry of Health KSA initiative: <https://covid19awareness.sa>
 - News and Media: <https://www.bbc.com/>
 - International Monetary Fund: <https://www.imf.org/>
 - Ministry of Health KSA: <https://www.moh.gov.sa/>
 - Saudi Arabia Monetary Authority: <http://www.sama.gov.sa/>
 - News and Media: <https://www.atlas-mag.net/>
 - News and Media: <https://thearabweekly.com/>
 - The Saudi Data and Artificial Intelligence Authority: <https://sdaia.gov.sa/>
 - Integrated encyclopedia: <https://mhtwyat.com/>
 - Johns Hopkins Aramco healthcare: <https://www.jhah.com/>
 - Saudi Press Agency: <https://www.spa.gov.sa/>

Appendix

Various government entities and media reports citing government actions as the COVID-19 response have been taken from the following websites:

Maciej Nowak

The Spatial Management System in Poland: The Categorisation of the Problem from the Perspective of the Literature on the Subject

Abstract

Objectives: The article aims to distinguish institutional assessments of the Polish spatial management system's weaknesses in the literature on the subject, as well as place them in the context of the international discussion and the historical context.

Research Design & Methods: The article diagnoses the defects of the spatial management system in Poland, published in 2010–2020, which were confronted with the current theses concerning spatial management systems in Europe and those related to the spatial management system in the Polish People's Republic before 1989. Based on this, the recurring problems and the key challenges for the Polish spatial management system have been identified.

Findings: One can consider the correctness of the assumption that the system in spatial management (considering historical and social conditions and differences, etc.) was less developed than the current one, adopted in Poland after 1989. On the other hand, the solutions adopted in some Western European countries can be considered as much better-prepared than those in Poland (the basis for such a thesis is the enormous spatial chaos generating serious costs, which was indicated in the Polish literature on the subject to a much greater degree than in other countries).

Implications / Recommendations: There should be a wider interdisciplinary connection and coherence of the expressed assessments, as well as a wider consideration of Western European countries' experience.

Contribution / Value Added: The article offers a critical analysis of the literature on the subject concerning spatial management in Poland, proposing new research directions and referencing the literature from the Polish People's Republic, as well as literature on spatial management systems in other European countries.

Keywords: spatial management system, local spatial development plans, spatial policy in Poland

Article classification: review article – original literature review

JEL classification: R11

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Introduction

The issues of the sphere related to spatial planning and development (spatial policy) are the subject of numerous analyses, including scientific ones, and as such cover various disciplines. Despite the passage of time (and more advanced research in various directions), the current spatial planning system provokes extremely critical opinions. The details of such assessments differ, but the general tendency is similar: the spatial order is insufficiently protected in the present spatial management system. The above translates into varied and vast costs.

This article aims to distinguish institutional assessments of the Polish spatial management system's weaknesses in the literature on the subject as well as place them in the context of the international discussion and the historical context. This will be achieved by means of presenting key assessments, expressed mainly in recent years, from the perspective of:

- the represented thematic sphere (legal / urban-architectural / geographical / related to public management, public policy science, and/or institutional economics);
- their scope (referring to the entire spatial planning system / its selected segments / specific detailed issues);
- the suggested solutions (systemic, i.e. those including the concept of a comprehensive amendment to the currently applicable provisions; or fragmented).

Particular attention was paid to the local context, which is vital to the spatial planning system. For this categorisation to be presented in a broader context, selected analyses of the spatial management system were discussed, including previous solutions in Poland's spatial management system as well as current problems in other European countries' spatial management systems. These two issues constitute a crucial point of reference for further considerations. For this article, an attempt was made to characterise the most important problems diagnosed in the literature in both cases.

It should be emphasised that this approach to the problem is a continuation of considerations on the optimal role of individual spatial policy tools (important from the perspective of public management and public policy science). The scientific discussion is also to be practical in the author's opinion.

In the first part of the article, the key theses of literature concerning the assessment of European countries' spatial management system as well as Poland's spatial management system before 1989 are distinguished. The publications containing a comprehensive broad assessment of individual systems are selected. Then, the literature on the current spatial management system in Poland is verified. Three groups of publications have been distinguished here. All publications containing a comprehensive interdisciplinary analysis are analysed. In the author's opinion, the most important and original publications are those containing a comprehensive and sectoral assessment of the spatial management system from the perspective of one discipline.

Selected problems of the spatial management system in the Polish People's Republic (before 1989)

The spatial management system in the years 1944–1989 in Poland was subject to numerous changes. The key provisions for spatial planning and development after 1944 can be classified in the following way (Table 1):

In the 1940s, spatial planning was considered as separate, but simultaneously inseparably connected with economic planning (as understood at that time, i.e. in the communistic, economic, and political-system vision). The latter was to demonstrate to the "national propriety" (before 1989) goals and means of implementation, as well as to spread the processes over time. Spatial planning, in turn, was only about answering the question "where?" In the literature on the subject from the 1970s and the 1980s, there were more in-depth assessments of the spatial solutions of that time, although in line

Table 1. Changes in the spatial management system in the Polish People's Republic (1944–1989)

Year	Characteristics of regulation
1946	Poland's act on spatial planning was passed, containing a three-tier planning system based on plans created at the national, regional, and local levels. The planning structure was hierarchical and there was an obligation to adopt local plans at the local level (which was periodic).
1961	The act on spatial planning was passed, introducing a uniform planning system. Spatial and economic planning was reflected in the requirement to incorporate economic plans into spatial plans and align the target periods of spatial and economic planning. Investments had to be coordinated with the state of spatial development. The three-tier approach to plans was maintained as well as their timeline. Meanwhile, the scope of social discussion on spatial planning was limited.
1970	Several changes were introduced, including the possibility of drawing up simplified spatial development plans for rural communes as well as defining new urban standards for residential areas in cities.
1984	Another act on spatial planning was passed; it introduced a wider protection of agricultural and forest land, limiting the possibility of developing areas not covered by plans. Local plans were divided into general and detailed. Plans for functional areas were also introduced.

Source: Own study.

with earlier approaches (see Secomski, 1966). When performing one of the most comprehensive analyses of spatial planning during the Polish People's Republic, Nowakowski (2013) drew attention to the specificity and differences of the conditions at that particular time. He also pointed out that since the 1970s, a gradual scientific development of issues related to spatial planning has been noticeable. The issues most frequently appearing in the analysed context are indicated below, along with the references of individual authors with regard to tools of spatial policy. These are the following:

- no actual application of local plans (first-stage plans at first and then detailed ones), so a significant part of them was of limited effectiveness, or even “on paper only” (Malisz, 1981; Pańko, 1978);
- frequent changes to the formula of plans (Mrzygłód, 1971);
- insufficient flexibility of plans and the lack of actual integration of development policy tools, as well as the need for independence of local authorities (Malisz, 1984; Jakobsche, 1985; Pańko, 1978);
- a threat related to spatial conflicts (Secomski, 1972; Regulski, 1982);
- the lack of sufficient solutions guaranteeing an effective environmental protection linked

to both industrial and individual activities (Kozłowski, 1983).

In retrospect, it can be seen how some problems diagnosed at that time were resolved eventually (for example by adding provisions guaranteeing a wider protection of the environment and nature). Nevertheless, the problems that occur today are also noticeable. They come down to the need to ensure the effectiveness of the implementation of planning provisions (especially in the field of realisation), as well as ensure the flexibility of spatial planning and an effective resolution of spatial conflicts.

Selected problems of the spatial management system in European countries

The issues related to Poland's spatial management system should be related to the spatial management systems in European countries in the same period, i.e. 1944–1989. The literature of both topics is extensive. In this article, its review is intended only as a reference for the following parts. Therefore, only those publications that provide a comprehensive assessment of spatial management systems are included. Nevertheless, in this case,

one has to be cautious with far-reaching analogies. Newman and Thornley (1996) differentiated families of spatial planning systems, distinguishing between British, Germanic, Napoleonic, and Scandinavian ones. The differences boil down to, among other things, the role of local plans (sometimes they are typically regulatory acts, while sometimes only coordinating acts), the degree of detail in generally applicable regulations, and the interdependence of various public authorities. This classification must be subject to numerous additional reservations (Zakrzewska-Półtorak, 2016) and to the dynamics of changing conditions. In the literature on the subject devoted to this issue, the fact of differentiating countries not only from the perspective of the political system but also taking into account the economic, cultural, and social conditions is explicitly noted (Reimer, Getimis, & Blotevogel, 2014; Booth, Breuillard, Fraser, & Paris, 2007; Nadin & Stead 2008; Nadin, 2012; Reimer & Blotevogel, 2012). A simple juxtaposition of formal and legal solutions is also problematic (e.g. comparing local plans in different countries), as a simple action in this area carries the risk of major simplifications.

Considering the above barriers, it is worth enumerating the key problems and challenges related to European spatial management systems that are highlighted in the literature on the subject. In this context, in many cases, attention is drawn to the fact that spatial-policy tools are not fully effective in dealing with the expansion of settlement and the phenomenon of urban sprawl (Blotevogel, Danielzyk, & Münter, 2014; Geppert, 2014). The scale of this problem varies – sometimes it is related to the statement of spatial chaos, while at other times, it refers only to providing the developed areas with a new function (Blotevogel, Danielzyk, & Münter, 2014). Another recurring issue is spatial conflicts and the not fully defined role of individual actors (Nadin & Stead, 2014; Maier, 2014). Attention is also paid to the problem of the effectiveness of individual planning regulations, especially local plans.

In this context, one can also differentiate the most important challenges and directions of changes that are being discussed with regard to European spatial management systems nowadays. These are:

- the issue of further Europeanisation of spatial policy, also translated into local planning (Reimer, Getimis, & Blotevogel, 2014; Davoudi, 2016; Cotella, 2018);
- the issue of combining the local planning with development policy, ensuring that local planning is correlated with various other spheres (also sectoral) (Dimitrovska-Andrews, 2016; Dovenyi & Kovacs, 2016; Nadin, Stead, Zonneweld, & Dąbrowski, 2018);
- the use of more and more developed informal institutions in spatial policy (Blotevogel, Danielzyk, & Münter, 2014);
- the development of participation and monitoring in spatial management systems (Geppert, 2014; Lingua & Servillo, 2014; Nadin & Stead, 2014; Stead & Nadin, 2011);
- developing an optimal planning style (Reimer, Getimis, & Blotevogel, 2014; Maier, 2014; Nadin, Stead, Zonneweld, & Dąbrowski, 2018).

Assessment of the spatial management system in Poland in the 2000s – classification of the literature on the subject

The reference point for the selection of literature on the subject in this article is the Act of 2003 on Spatial Planning and Development. Of course, the “spatial management system” is a much broader concept, covering various processes, not only those related to specific legal regulations. Nevertheless, in the current formula, it is the poorly designed regulations that reflect the weaknesses of the entire system most visibly. The literature from 2010–2020 was considered. Critical analyses had appeared earlier (at least since 2005), but a longer time is required to prepare the more comprehensive ones, i.e. those associated with data collection and

observation of specific processes. It is not about presenting all the publications (or their mutual evaluation) at the indicated period of time.

The basic classification of publications containing an in-depth assessment of the spatial management system should be made. The author of the article distinguishes it as follows:

- a) comprehensive interdisciplinary studies containing analyses and conclusions related to the entire spatial management system;
- b) analyses covering the entirety (or majority) of the spatial planning system, but from the perspective of one discipline only;
- c) analyses covering selected spheres/problems in the spatial management system.

So far, no such classifications have been carried out in the Polish literature. Other classifications are also possible, e.g. tailored to specific thematic issues. However, this one is optimal from the point of view of the goal of this article.

Comprehensive analyses of the spatial management system in Poland in the 2000s

First, the focus was on analyses directly relating to the spatial management system (point *a* in the previous section). Reference should be made to the assessments contained in the Concept of Spatial Development of the Country (*Koncepcja Przestrzennego Zagospodarowania Kraju*, 2011). Without a detailed analysis of this document, one should pay attention to its objective No. 6 – namely “restoring and consolidating the spatial order”. In the light of problems such as excessively chaotic and expansive buildings, the exclusion of a significant part of land from use, low quality of public spaces, and gaps in the planning acts system, the authors of the Concept are certain that there is a need for a comprehensive reform of the spatial management system (conclusions contained in the stance of the Main Committee on Urban Planning and Architecture [Pol. *Główna Komisja Urbanistyczno-Architektoniczna*] of November 26, 2010, were similarly formulated). In the first report prepared

in the analysed period, Olbrysz and Koziński (2011) drew attention to the costs of uncontrolled urbanisation as the basic problem of the spatial management system, indicating that the costs associated with designating too large areas for housing development in local plans amount to 129 billion PLN. In turn, Kowalewski et al. (2013) found the existence of a long-term crisis of spatial management in Poland. In their opinion, spatial planning does not fulfil its role, because it does not effectively regulate the settlement, urbanisation, and investment processes. On the one hand, the key problems include insufficient planning coverage of the country (especially in large cities and transport corridors), while on the other hand, they revolve around the adoption of local plans for areas with limited investment and areas for which development is unrealistic. In addition to the costs related to the excessive allocation of land in local plans for housing development, the authors drew attention to, among other things, the costs of damage to buildings and technical infrastructure, the maintenance costs of technical infrastructure, as well as the costs of commuting and the “speculative bubble” on the real estate market. Therefore, they recognised “the monitoring of urbanisation processes” as a key element in changing the system. One can also cite here cyclical analyses of the state and conditions of planning work in communes, which in 2012 were included in a compact publication within one year (Śleszyński, Komornicki, Solon, & Więckowski, 2012). Based on comprehensive analyses of conditions related to the conduct of spatial policy, the authors indicated that the planning system does not ensure the protection of the spatial order, and the procedures related to the work on planning acts are too slow. They suggest restoring large-area local plans with simplified requirements, or increasing the role of studies on the conditions and directions of spatial development as the directions of solutions. The continuation of all included threads was part of the report on spatial chaos. In its synthesis, Śleszyński, Kowalewski and Markowski (2018)

confirmed and refined (based on a much broader research material) earlier diagnoses about the costs of spatial chaos, simultaneously indicating that they amount to 84.3 billion PLN annually for the whole country. Among the postulates related to the system reform of spatial management, the authors pointed to the need to ensure equal access to spatial resources. This includes, among other things, a coherent system of praxeological and regulatory planning, a reform of public institutions, and wider protection of the spatial order. Besides, a reference was made to another team's study, postulating the creation of integrated development planning (Markowski & Drzazga, 2015), which included, among other things, postulates for a wider protection of the existing land use and land development, adopting local plans for areas constituting a functional whole, a rational tax system and fees related to spatial planning, and limiting the role of administrative decisions in the spatial management system.

Thus, comprehensive and interdisciplinary analyses are mutually convergent. They contain in-depth research leading to comprehensive conclusions as a basis. From the formal and legal perspective, they do not resolve any doubts (related to whether and how individual proposals can be implemented). Nevertheless, their key value is a detailed demonstration of those fundamental problems in the spatial management system that need to be counteracted.

A completely different role is played by comprehensive analyses (prepared from the perspective of one discipline only) of the spatial management system (i.e. analyses included in point *b* of the classification in the previous subsection – this group also includes comprehensive analyses of the conditions for the operation of local government units or public authorities, covering the sphere of the spatial management system, and also comprehensive drafts of new laws). The condition for including publications in this group is a reference to the entire spatial management system, and it being related to its assessment (therefore, comments to the act

on spatial planning and development were not included in this group). One of the key views was expressed (in a series of publications) by Markowski (2010). The author associated spatial planning with the theory of imperfect markets. Considering the context of public interest (related to public goods) and distinguishing the problem of urban sprawl, the author emphasised the need for a broader integration of development policies as well as flexibility in planning. The conclusions by Drzazga (2018) are similar, as this author indicates that systemic solutions in planning must be preceded by an assessment of how the chosen intervention methods will affect the activities of economic operators (solutions to the problem of the inefficiency of public authorities in the spatial management system are also included here (see Nowak, 2017)). In turn, Parysek (2017) enumerated eleven weaknesses of the Polish system of spatial planning, among which special attention should be paid to non-conceptual and non-systematic selectivity, formalisation, particularism, and improvised actions. It is worth comparing these theses with the comprehensive expertise of Wierzbowski (2014), who highlights in detail inconsistencies in all regulations related to the spatial planning. Some positions contested not so much the regulations in force as the way they were applied (Ney, 2011). From a similar perspective, foreign authors recognise that the most problematic elements of the system are about too many decisions on building conditions as well as too weak social participation in planning processes (Cotella, 2014). It is also possible to distinguish analyses which translate – as in system reports – the diagnosed problems into the scope of the protection of the spatial order (Zawadzka, 2017). The solutions to the above problems vary. While there is no doubt about the effective power of merely changing the regulations, proposals for bigger changes in the scope of competences of individual public administration bodies can be found (Gorzym-Wilkowski, 2017). From a legal perspective, Izdebski (2013) called for a redefinition – especially concerning the current

regulations – of the right to the environment, the right to housing, the right to the city, and the right to good space. Comprehensive (and staged) legal changes were proposed by Zachariasz (2015). They would include a broader (more in-depth than currently) balancing of interests in planning, the introduction of the principle of implementation of settlement projects in already built-up areas, the replacement of the current compensation rules related to the adoption of local plans with general principles contained in the Civil Code, the removal of the decision on development conditions, and carrying out a comprehensive verification of approved local plans. The proposal also includes the introduction of specialist acts, thus modifying the formula of the current special acts.

Analyses concerning specific sectors in the spatial management system

Analyses covering selected sectors related to the spatial management system should be presented separately (a classification proposal is included below). There are more of these types of studies previously mentioned. The degree of development and their substantive value also vary. This article is not about a comprehensive list of these publications or about selecting the most valuable ones. Publications dealing with individual problems were also omitted. In this case, the point is to present the direction of the debate on the spatial management system with the help of specific examples. The focus was on publications that deal with the sector more extensively (i.e. in monographic terms). Here, one can distinguish:

- legal analyses;
- analyses conducted as a whole from one perspective, different from the urban and legal sphere;
- interdisciplinary analyses.

Assessments of a specific sector or a wider issue of the spatial development system from a legal perspective are usually included in publications aimed at a comprehensive analysis of the institution. The consequence of such an analysis is the formulation of specific diagnoses. These can be formal and technical diagnoses

(Rokicka-Murszewska, 2019), diagnoses which include the role of administrative courts (Dziedzic, 2012), or diagnoses relating to topics important from the urban perspective. Examples of important issues taken up within various disciplines include public interest (Woźniak, 2018), the scattering of buildings (Bąkowski, 2018; Fogel et al., 2014), social participation (Szlachetko, 2017), or the role of special investment laws also in the spatial management system (Bąkowski, 2020). A broader monographic approach also makes it possible to refer to the urban perspective, detailed to varying extents. The strongest advantage of this type of publication is the diagnosis of specific weaknesses of individual spheres of the system from the legal perspective, along with the indication of the directions of solutions. It is also important to present a formal and legal framework in this respect, which would be difficult to cross under any reforms. A weaker element is the lack of full intuition (despite making every effort) of the overall conditions related to the urban perspective (which, on a side note, is not an objection to specific authors, but, rather, a natural consequence of representing a specific discipline).

It is also possible to distinguish comprehensive analyses related to the spatial management system, also representing other thematic spheres. Among them, one can acknowledge those related to the economic consequences of urban development (Budner, 2019; Lityński, 2019), environmental protection (Chmielewski, Śleszyński, Chmielewski, & Kułak, 2018), nature protection (Giedych, 2018), monument protection (Tomczak, 2018), real estate appraisal (Krajewska, 2017), or the sphere of public policy science (Anioł, 2019; Zybala, 2019). Such analyses contain valuable diagnoses related to the undertaken areas, very often pointing to negative practices and their consequences. However, the proposed conclusions do not always fully comply with the legal framework – both the one in force and the one possible to develop.

Interdisciplinary analyses usually include a specific (important from the perspective of the spatial management system) issue from the

perspective of a variety of authors, also representing different disciplines. In such cases, however, the problem lies in the lack of the sufficient coordination of the arguments put forward. The optimal direction seems to be a better combination and unification of these perspectives; attempts in this regard have already been made by Nowak (2020) as well as Nowak, Śleszyński and Ostrowska (2020).

Problems and challenges of the Polish spatial management system – compilation and comparison

Based on the conducted analyses, the problems and challenges concerning the spatial management system that are currently being diagnosed in the literature on the subject have been compared with the problems and challenges identified

in the literature on the subject in European countries, as well as the literature on the subject in times of the Polish People's Republic.

Table 2 shows that despite differences, some similar diagnoses can be found in each case. One can consider the correctness of the assumption that the spatial management system (considering historical and social conditions and differences, etc.) was less developed with regard to the current system in Poland. On the other hand, the solutions adopted in some Western European countries can be considered as much better-prepared than in Poland (the basis for such a thesis lies in the enormous spatial chaos which generates serious costs, which was indicated in the Polish literature on the subject to a much greater extent than in other countries). With the full awareness of the need to nuance such an approach, it can be assumed that in the analysis of all cases (i.e. Poland's spatial

Table 2. Key problematic issues concerning the assessment of the spatial management system in the literature on the subject

Selected literature on the determinants of spatial policy in		Literature on the subject concerning the contemporary system of spatial management (in Poland since the 1990s)	
European countries (currently)	Polish People's Republic (1944–1989)	Comprehensive approach	Sectoral approaches
<ul style="list-style-type: none"> – problems with shaping the spatial settlement policy by tools and solving problems caused by urban sprawl; – effective development of functions of specific areas; – the development of informal institutions; – combining spatial policy/urban planning with (economic) development policy; – optimal role of individual actors in spatial policy; – the development of social participation and monitoring in spatial policy. 	<ul style="list-style-type: none"> – no application of local spatial development plans; – lack of planning flexibility and integration with other spheres of development; – the problem of spatial conflicts; – spatial planning versus environmental protection. 	<ul style="list-style-type: none"> – costs of uncontrolled urbanisation and spatial chaos; – the lack of a proper regulation of settlement processes by spatial-policy tools; – weak legal regulations; – poor social participation; – serious spatial conflicts; – the lack of a sufficient integration of development spheres. 	<ul style="list-style-type: none"> – the ineffectiveness of specific solutions, e.g. in the field of planning fees, forms of nature protection, or the protection of monuments and cultural heritage; – the lack of integration of different points of view in the spatial management system (in particular the lack of connection between the legal and urban spheres); – the lack of an adequate definition of the public interest in the spatial planning system.

Source: Own study.

management system before 1989, after 1989, and spatial management system in European countries), attention was paid to similar issues. It is necessary to distinguish the following: the context of limiting spatial conflicts (which can also be understood as a broader diagnosis of individual actors' role in the spatial management system), limiting urban sprawl, integrating spatial policy with other development policies, and deepening the social participation. Therefore, it can be assumed that the indicated problems constitute a broader challenge that cannot be fully resolved by means of a specific planning practice, and even less by means of specific legal regulations. It seems important to respond flexibly to the emerging challenges, which should be facilitated by informal institutions in planning (for more on this subject, see also Mikula, 2019) as well as by increasing the emphasis on the need to use methods related to co-management in the spatial management system (these, however, are included in certain bases, guaranteeing the protection of the spatial order).

The list of key diagnoses of the Polish spatial development system leads to several conclusions. In the years 2010–2020, comprehensive analyses covering most scientific disciplines were carried out. The costs of spatial chaos, legal inconsistencies, as well as environmental, natural, and cultural needs were diagnosed in detail. As a rule, most of the conclusions of such analyses are mutually consistent and compatible. On the other hand, the key postulates relating to the optimal directions for further analyses include:

- a better interdisciplinary connection and coherence of the expressed assessments, as only this guarantees the effectiveness of solutions implemented in practice;
- a link between scientific research and practical action. In various spatial management systems in Europe (e.g. France and the UK), it is solved in a much better way than in Poland. In the Polish system, despite some formal possibilities, the link between science and practice is still too weak;

- a wider consideration (and adaptation to the spatial management system in Poland) of the experiences of Western European countries. In this case, it is not about copying all solutions, but, at least, about expanding the discussion on informal institutions and models of social participation (as indicated above – also a wider implementation of concepts related to public co-management), and even about a more detailed consideration of individual conditions for the integration of development policies (which is strongly associated with an interdisciplinary approach to analyses).

Concluding remarks

The postulated directions for further research and analysis should be derived from different perspectives and in various ways. There is no doubt, however, that at the present stage, many comprehensive and sectoral diagnoses have already been developed and – if the legal and socio-economic conditions do not change radically – there will be no need to prepare further ones (the COVID-19 pandemic can be an element partially affecting the spatial management system, but it does not necessitate the extensive modification of previous conclusions, e.g. those concerning the costs of spatial chaos, or a wider emphasis on selected issues related to green infrastructure, energetic transition, transport, or the development of public spaces).

Obviously, the problem lies in implementing the proposed directions of changes (both at the national and regional levels as well as in local planning practice). There is a serious risk that the diagnosis will continue to receive limited response from public authorities at various levels. However, this must not be a reason to call into question the purposefulness of discussions and analyses. Apart from the issues already pointed out, it seems crucial to base local spatial policies on analyses. These analyses should also be carried out on the local scale, but the above-mentioned publications should inspire them. These publications

are currently rarely noticeable (which is also a separate problem of the spatial management system) and less often used in specific activities. It is also important and necessary to implement the latest public governance concepts to spatial management systems.

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Evaluating Opportunities to Implement Hospital-Based Health Technology Assessment (HB-HTA) in Selected Hospitals in the Kraków Municipality

Abstract

Objectives: Hospitals are the entry point for newly implemented innovative health technologies. Hospital-based health technology assessment (HB-HTA) has been developed to facilitate the use of new health technologies in hospitals. The purpose of this study was to evaluate opportunities to implement HB-HTA in selected hospitals located in the Kraków municipality in Poland.

Research Design & Method: We used shortened version of a questionnaire from a project called “Implementation of the Hospital-Based HTA (HB-HTA) – Hospital Assessment of Innovative Medical Technologies”. The participants were hospital managers working in three hospitals located in Kraków: the Ujastek Medical Centre Limited Liability Company (LLC), the Brothers Hospitalers of Saint John of God Hospital LLC, and the University Hospital in Kraków. The survey was conducted and made available online.

Findings: Each of the participating hospitals had implemented new medical technologies. Applications for the implementation of innovative medical technology had been considered by the hospital directors; however, departmental heads were required to act as the lead applicants. Two out of these three hospitals had developed both an application template for the implementation of innovative technologies and a formalized path for their examination. The main source of financing new technologies is the hospitals’ funds. Before implementing the technology, hospitals had consulted the following agencies: the National Health Fund, the Ministry of Health, medical technology manufacturers or producer organisations, medical voivodeship consultants, and other hospitals. The financial consequences of the medical technologies implementation were analyzed.

Implications / Recommendations: The hospitals define innovative medical technologies in a correct way. There are no separate HTA units in any of the hospitals. The surveyed hospitals have the capability to implement HB-HTA.

Contribution / Value Added: The implementation of HB-HTA processes in the analysed hospitals may require the hospital managers to broaden knowledge about this area. The implementation of HB-HTA procedures in hospitals may have positive economic effects on the entire health care system.

Keywords: HB-HTA, hospitals, Kraków, budget, innovative medical technologies

Article classification: pilot study

JEL classification: D25, H41, O22, R1

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Introduction

According to the European Network of Health Technology Assessment (EUNetHTA), HTA is a multidisciplinary process that summarises all information on the consequences of using a given health technology in a systematic, transparent, and impartial manner (Sampietro-Colom et al., 2016).

The first aim of HTA is to ease decision-making in the field of proper health technology reimbursement, and it is based on robust scientific research and economic analysis under the conditions of a given health care system. HTA helps to answer specific questions related to the likely value of health technologies (Sampietro-Colom et al., 2016). Furthermore, it helps to optimise the use of available resources for health care in order to obtain health outcomes of the greatest value. Owing to the work of HTA experts, funds for medical technologies could be allocated effectively. Independent evaluation makes it possible to minimise the misuse of public funds in health care (Halmesmäki, Pasternack, & Roine, 2016).

Nowadays, HTA is widely used to make and support coverage decisions in many countries around the world. Most member states of the European Union have national HTA agencies and they operate on the basis of their own HTA analytical and decision-making frameworks (created independently). The main goal of these agencies is to shape an evidence-based reimbursement policy and assist stakeholders in the health care system (Cicchetti et al., 2008).

Literature review

Following the example of other European countries, Poland introduced the HTA process to support reimbursement decision-making processes in 2005, mainly for pharmaceuticals. Initially, the Agency for Health Technology Assessment and Tariff System (*AOTMiT*) was established as nationwide HTA, with responsibility for creating HTA guidelines. The *AOTMiT* is an opinion-giving and advisory body working on behalf

of the Minister of Health and as such is responsible mainly for the evaluation of pharmaceutical technologies whose manufacturers are applying for reimbursement (Lach et al., 2017). The agency's most important tasks include: the preparation of reports on the evaluation of health care services; the preparation of verification analyses for the evaluation of pharmaceuticals, foodstuffs for particular nutritional uses, and medical devices; and issuing opinions on draft health programmes for ministers and local government units (Sowada et al., 2019).

HTA is not always related to drug technology and operation within national HTA agencies; it is also conducted at the hospital level. Hospitals are usually the entry point for new technologies. They can replace or complement the existing technology, which is why policymakers need to know their value in relation to the current standard used in the hospital. Hospital-Based Health Technology Assessment (HB-HTA) aims to facilitate managers' decision-making regarding the introduction of new medical technologies in hospitals (Grenon, Pinget, & Wasserfallen, 2016). HB-HTA covers the processes and methods used to create HTA reports in and for hospitals.

HTA activities at the hospital level provide answers to managers' questions regarding the effects of implementing new technologies after taking into account the specific organisation of work in the hospital. Thus, the HTA process must be adapted to hospital conditions and take into consideration the hospital's limited resources. HB-HTA measures and evaluates the impact of an individual's performance on clients (patients), the hospital, and the society as a whole (Sampietro-Colom et al., 2015).

The following categories of the units of HB-HTA are distinguished:

1. Independent groups. This is the first stage of an individual's development within HB-HTA. They operate informally in a hospital to provide support during decision-making.
2. Integrated HB-HTA (integrated units). These are small units comprising a limited number

of employees. These units are embedded in a system of institutional cooperation that includes universities and research centres. Thus, they engage a network of experts in various fields to support their actions.

3. Standalone HB-HTA units. These units operate mainly inside hospitals, which is why any influence from national or regional HTA organisations is limited. These are more established HB-HTA units, operating on the basis of formalised and standardised procedures.
4. Integrated specialised HB-HTA (integrated specialised units). These units are integrated with the regional or national HTA. Their activities must be formally subject to cooperation with a national or regional HTA agency, but may retain a certain level of autonomy. They are characterised by a high level of formalisation, also in terms of the division of employee duties (Kowalska-Bobko et al., 2020).

Each country has its own specificity in how medical technology is organised; therefore, a variety of solutions in this area are being implemented around the world. Countries differ with regard to the type of HB-HTA units, the level of formalisation, the features of activities, and the type of employed professionals. Differences are also significant in funding sources and healthcare actors involved in shaping HB-HTA.

In Europe, Spain is considered as the country with the most developed system of Hospital-Based Health Technology Assessment. HTA is well-known by Spanish doctors and managers due to the long tradition of Spanish national/regional HTA agencies. For several years, Spanish regions have been justifying investment decisions as being in line with HB-HTA methodology. However, rather than being an obligatory action for all regions, it is about good management practice implementation. The current role of HB-HTA units in the health technology management in Spanish hospitals is organised in a different way and depends on the advancement on the hospital health technology assessment system in a given

facility or region (Sampietro-Colom et al., 2017; Bernal et al., 2018).

In Finland, there are no regulations binding hospitals to incorporate HB-HTA guidelines; therefore, using HB-HTA methodology is voluntary. Among institutions promoting good practices with regard to HB-HTA one can highlight the HTA National Agency, the FinoHTA, and the authorities of fifteen hospital districts. The National Agency is responsible for coordinating tasks, collecting databases, and developing methodology. Districts define the area of assessment, formulate the assessment, and watch over the process of technology implementation. Although the majority of Finnish hospitals are familiar with HB-HTA, not all of them apply these principles. Currently, there is a need to implement the mini-HTA approach, especially in university hospitals. This will help to standardise the criteria for implementing new medical technologies and enable cooperation between those hospitals which decide to adopt such criteria. In order to disseminate HB-HTA on a larger scale, it is necessary to adjust the methods of health technology assessment to the needs of a given hospital environment, as well as to establish cooperation with clinicians from various fields of medicine (Roine & Pasternack, 2017; Halmesmäki, Pasternack, & Roine, 2016).

In the literature, there is no detailed information about Austrian HB-HTA units. Therefore, it is difficult to estimate the impact of the functioning of these units on the Austrian health care system. Available resources indicate that reports on new technologies have had a positive impact on hospital managers' decisions to invest in these technologies. Austrian HB-HTA practices were incorporated locally, i.e. at the hospital level. The results of the HB-HTA reports helped in making decisions regarding the implementation of a given medical technology. It should be noted that HTA made it possible to limit the implementation of technologies without evidence-based medicine support, and it reduced expenditures on ineffective medical technologies (Sampietro-Colom et al., 2015).

Materials and methods

Hospitals are the entry point for new medical technologies. It is, therefore, important that the technology assessment process is embedded in a hospital setting and takes its specific features into account. Currently, no hospital in Poland has an HB-HTA official unit. The aim of the current study was to analyse the processes of implementing new medical technologies in three hospitals located in the Kraków municipality: the Ujastek Medical Centre LLC; the Brothers Hospitallers of Saint John of God Hospital LLC; the University Hospital in Kraków.

The research tool was a shortened version of the questionnaire used in the project “Implementation of the Hospital-Based HTA (HB-HTA) – Hospital Assessment of Innovative Medical Technologies”, co-financed by the National Centre for Research and Development. This was under the Strategic Programme of Scientific Research and Development, known as the ‘Social and economic development of Poland in the conditions of globalising markets’, or ‘GOSPOSTRATEG’ (Narodowe Centrum Badań i Rozwoju, 2017). The project manager approved the use of this research tool. The questionnaire consisted of 2 open-ended questions and 14 closed questions. For the purposes of the research, medical technologies were divided into three groups: diagnostic procedures, therapeutic procedures, and organisational systems supporting

the provision of services. The aim of the survey was to obtain knowledge about hospitals’ methods and criteria for implementing innovative medical technologies.

Four hospitals located in the commune of Kraków were invited to take part in the pilot study. Consent to participate in the study was expressed by three medical entities: the Ujastek Medical Centre limit LLC – a hospital with the gynecology and obstetrics profile, located at 3 Ujastek Street in Kraków; the Brothers Hospitallers of Saint John of God Hospital LLC; and the University Hospital in Kraków, which is an Independent Public Health Care Entity. Hospitals were selected so that they differed both in the legal form (an independent public health care institution versus commercial companies) and in the founding authority/owner. The differences between hospitals also concerned the number of departments (one hospital with a large number of departments and two small ones were selected) and the degree of reference. These differences could have had a significant impact on the activities of HB-HTA in the hospitals.

After consent had been obtained, questionnaires were sent to representatives of each institution. The surveys were made available online due to the epidemiological situation in the country and in the world (the threat of COVID-19).

Table 1 presents basic information about the selected hospitals.

Table 1. Characteristics of the studied group of hospitals

	Ujastek Medical Center LLC	Brothers Hospitallers of Saint John of God Hospital LLC	University Hospital in Kraków
Legal form	Commercial company	Commercial company	Independent public health care institution
Ownership / Authority	Neomedic Group	Convent of Bonifrats	Jagiellonian University
Reference degree	III	II	III
Number of wards	2	5	31
Contract with the National Health Fund (NHF)	Yes	Yes	Yes
Paid services	Yes	Yes	Yes

Source: Based on information obtained from the hospitals’ official websites.

Results and discussion

All medical entities that participated in the study agreed to collect and process basic information about the hospital, including the unit responsible for implementing innovative medical technologies in the facility.

The first question concerned the definition of implementing innovative medical technologies. All three hospitals considered the definition of implementing innovative medical technologies to involve developing new medical technologies or improving the existing technologies in order to solve a health problem, increase the efficiency of provided services, reach new patient groups, and increase the efficiency of spending public funds. None of the facilities recognised the implementation of innovative medical technologies as the introduction of new medical technologies or fundamentally changed ways of organising services, resulting in better accessibility and quality of health services; nor did they provide their own definition of this process.

The second question asked participants to indicate the definition of innovative medical technology. Two out of the three surveyed units indicated the definition to be: new or significantly improved technology which was used for the first time in a given hospital. One hospital recognised innovative medical technology as a new or significantly improved technology that was first used in the domestic market. No hospital provided its own definition of innovative medical technology.

The third question concerned the areas in which innovative medical technologies are implemented

in the hospital. All three hospitals implemented new technologies in the therapeutic area. Two hospitals did not implement technology in other areas. One hospital implemented innovative technologies in all three aforementioned fields (diagnostic procedures, therapeutic procedures, and organisational systems supporting the provision of benefits) (see Table 2).

Questions four and five concerned the identification of those who apply and consider applications for the implementation of innovative medical technologies in the hospital. Each hospital indicated that the person applying for the implementation of new technology was a hospital employee. In two of the medical entities, applications were sent by a head of the department; in the third one, they were sent by a medical worker with the status of a manager or an expert.

Two hospitals reported that applications for the implementation of innovative medical technology are examined by hospital directors. The third hospital has an organisational unit that deals with examining such applications. Members of this unit include directors of the medical department, the department for infrastructure, and the financial department.

In each surveyed facility, the final decision on the implementation or rejection of innovative medical technologies is made by the hospital manager. None of the hospitals has a specially-appointed team to make decisions on the implementation of innovative medical technologies, nor do they use the founding body for this purpose. External institutions themselves (e.g. local governments) are not interested in the descriptions of the innovative

Table 2. Areas where innovative medical technologies are implemented in the surveyed hospitals

Areas of implemented medical technologies	Ujastek Hospital	Brothers Hospitallers of Saint John of God Hospital LLC	University Hospital
Diagnostic procedures	NO	NO	YES
Therapeutic procedures	YES	YES	YES
Organisational systems supporting the provision of benefits	NO	NO	YES

Source: Own elaboration.

technologies introduced by the hospital coming under their areas. All information on this is collected in Table 3.

One hospital had developed both an application template and a formalised application process for the implementation of innovative medical technologies. Thus, this unit had introduced an internal regulation process for the applications for innovative technologies. In the remaining hospitals, the examination of the applications for innovation was not regulated (see Table 4).

Question nine concerned sources of financing innovative medical technologies implemented in the hospital. The following sources were indicated:

- own funds (three hospitals);
- funds obtained under the implementation of European Union / EEA projects (one hospital);
- funds transferred by the local government (one hospital);
- research grants (one hospital).

Additionally, one medical entity indicated the resources of the Ministry of Health (health programmes) and the National Health Fund (pharmaceutical programmes) as a source of financing (see Table 5).

Another question related to the hospitals' consultation with other entities of the health care system during the process of assessing the potential benefits of innovative medical technologies. Hospitals reported consultations with: the National Health Fund, the Ministry of Health, manufacturers of medical technologies (e.g. medical equipment, pharmaceuticals) or producer organisations, provincial consultants, and other hospitals. In addition, one hospital reported consultations with other entities when the need arises, but these entities were not specified. One hospital held no consultations during the assessment of innovative medical technologies (see Table 6).

Table 3. Information about those responsible for the implementation of innovative medical technology in the surveyed hospitals

People responsible for:	Ujastek Hospital	Brothers Hospitallers of Saint John of God Hospital LLC	University Hospital
Applying for technology implementation	Head of the ward	Head of the ward	A medical employee with the status of a manager or an expert
Examining the application	Hospital manager	Hospital manager	A special organisational unit
Making a decision to implement/reject a technology	Director of the hospital	Director of the hospital	Director of the hospital

Source: Own elaboration.

Table 4. Information about the process of implementing innovative medical technologies in the surveyed units

Information about the technology implementation process	Ujastek Hospital	Brothers Hospitallers of Saint John of God Hospital LLC	University Hospital
Model application for the implementation of innovation	NO	NO	YES
Formalised path for processing application	NO	NO	YES

Source: Own elaboration.

Table 5. Sources of financing innovative medical technologies implemented in the surveyed hospitals

Sources of financing for new technologies	Ujastek Hospital	Brothers Hospitallers of Saint John of God Hospital LLC	University Hospital
Own funds	YES	YES	YES
Funds obtained as part of the implementation of European Union / EEA projects	NO	NO	YES
Funds transferred by the local government	NO	NO	YES
Research grants	NO	NO	YES
Other (additional) sources	NO	NO	the Ministry of Health and the NHF funds

Source: Own elaboration.

Table 6. Health care system entities consulted by the hospitals during the assessment of innovative medical technologies

Health care system entities	Ujastek Hospital	Brothers Hospitallers of Saint John of God Hospital LLC	University Hospital
the AOTMiT (HTA Agency)	NO	NO	NO
the NHF	NO	NO	YES
the Ministry of Health	NO	NO	YES
the Medical Research Agency	NO	NO	NO
Patient's associations and organisations	NO	NO	NO
Medical technology manufacturers or producer organisations	NO	NO	YES
Scientific societies	NO	NO	NO
Medical chambers	NO	NO	NO
Provincial consultants	YES	NO	NO
National medical consultants	NO	NO	NO
Other hospitals	YES	NO	NO

Source: Own elaboration.

All three surveyed hospitals analyse the financial impact of their implementation when assessing innovative medical technologies. Only one hospital investigates whether the innovation has been implemented in other hospitals in Poland, and another investigates its use in other countries. Two hospitals analyse the financing method of implemented innovation. All the analysed information is summed up in Table 7.

One hospital prepares a report on the assessment of implemented innovative medical technologies.

Two of the hospitals evaluate the effects of their implementation once it has been carried out (see Table 8).

The effective use of limited resources in the health care system is crucial for the proper functioning of the entire system. Policymakers often ask themselves how to reduce these already scarce resources without losing the quality of the provided services. One method that can help reduce financial resources is HTA performed at the hospital level. It is worth emphasising once again that

Table 7. Information analysed during the assessment of innovative medical technologies

Analysed information	Ujastek Hospital	Brothers Hospitallers of Saint John of God Hospital LLC	University Hospital
Implementation of innovations in other hospitals in Poland	NO	YES	NO
Implementation of innovations in other countries	YES	NO	NO
The financial effect of the implemented innovation	YES	YES	YES
The method of financing the implemented innovation	YES	NO	YES

Source: Own elaboration.

Table 8. Report on the assessment of the implemented innovative medical technologies and the evaluation of the effects of their implementation in the surveyed hospitals

Is the hospital developing...	Ujastek Hospital	Brothers Hospitallers of Saint John of God Hospital LLC	University Hospital
an assessment report?	NO	YES	NO
the evaluation of the effects of the implementation?	YES	YES	NO

Source: Own elaboration.

hospitals are the entry point for new medical technologies. Therefore, HTA analyses should be tailored to specific hospital conditions. HB-HTA helps managers make the right decision about implementing the most effective and profitable innovative medical technologies (Martelli et al., 2016). International reports of HB-HTA indicate the improvement of the implementation of new technologies in hospitals as well as the reduction of the costs associated with this investment (Granados et al., 2000).

As already mentioned, there are currently no hospital units for HTA in Poland, but in the era of rapid technological progress, especially in the field of medicine, hospitals are increasingly implementing new medical technologies. Therefore, they have already developed certain criteria that they use when making decisions about implementing innovations. These criteria are usually not systematised in any way and are mainly based on the experience, skills, and intuition of hospital management. The hospitals surveyed in the pilot

study also did not mention the creation of a separate unit responsible for HTA processes.

A study in Spain found the following obstacles for the establishment of HB-HTA: a wrong hospital strategy for the exploitation of assessment results; the lack of departments dedicated to the assessment, supervision, and quality control of Health Technology Assessment reports; technologies are not reassessed after licensing; the recovery of technology costs is not possible; resistance of hospital specialists to change and the need to raise their technical knowledge on HTA; inaccessibility of scientific resources; and physical and spatial constraints. The Spanish study's recommendation towards reducing the aforementioned problems involved: establishing an association for monitoring the HTA process; training personnel; making the use of technology assessments mandatory by putting down clear rules to help the decision-making process; and putting down rules which require the existence of assessment reports for every health technology which seeks a licence

to enter the hospitals (Mohtasham, Majdzadeh, & Jamshidi, 2017).

In the HB-HTA process, it is important to create final reports on the assessment of implemented innovative medical technologies. Reports of this type were prepared by one of the analysed hospitals. However, after the implementation of innovative medical technologies, the evaluation of the effects of their implementation was carried out in two of the surveyed hospitals.

The surveyed hospitals show great potential – be it larger or smaller – for the implementation of formal HB-HTA processes. Some elements of the HTA process had already been formalised and structured therein. However, there are many elements that need to be refined and applied whenever an innovative medical technology is considered in a hospital. It is important for hospitals to recognize both the need for and the benefits of structured assessment processes.

Two currently implemented initiatives can certainly contribute to this: firstly, the aforementioned research and implementation project of the Hospital Assessment of Innovative Medical Technologies in Poland (HB-HTA-PL), financed by the National Centre for Research and Development (NCBiR) under the GOSPOSTRATEG path (Kowalska-Bobko et al., 2020).

Secondly, the Operational Programme Knowledge, Education, and Development (POWER) 2014–2020, action 5.2 advocates pro-quality actions and organisational solutions in the health care system facilitating access to inexpensive, sustainable, and high-quality health services (Ministerstwo Zdrowia, 2018). As part of the POWER Programme, the following project is carried out: “Effective medical facility. Training programme for administrative and management employees to improve quality in health care”. The aim of this project is to improve the competencies of 130 administrative and management employees of medical entities, payer representatives (NFZ), and medical staff, as well as representatives of founding bodies of medical entities in the context of the proper functioning of the health care system in the field

of HB-HTA. These tasks will be carried out as part of full-time and postgraduate studies conducted by the Institute of Public Health of the Collegium Medicum of the Jagiellonian University. The implementation of the project will supplement the medical education of management staff and the experience acquired through seniority, which will improve the quality and effectiveness of services provided by medical entities. Such programmes should contribute to human resource development in shaping HB-HTA in healthcare facilities, as well as they should result in understanding hospital health technology as a tool to improve management techniques made by managers and stakeholders.

Among European HB-HTA projects, the most important one was the AdHopHTA project (Adopting Hospital-Based Health Technology Assessment), which collected information on hospital units in selected European countries (Austria, Denmark, Estonia, Finland, France Italy, Norway, Spain, Sweden, Switzerland, Turkey). The knowledge gained under the project was aimed at disseminating the values of economic and organisational analyses. The educational value was significant to these activities, as it was about indicating the benefits of implementing hospital health technology assessment. The task of that work was also to create the HB-HTA environment at the appropriate level (Sampietro-Colom et al., 2015).

Concluding remarks

The results of the conducted study allows for the following conclusions. Firstly, hospitals that participated in the pilot study defined innovative medical technologies and the process of their implementation in a correct way. New technologies were implemented in each of the analysed hospitals. In all three hospitals, technologies were implemented in the therapeutic area, and in one hospital also in the area of diagnostic procedures and organisational systems supporting the provision of health services. The person applying for the implementation of the new technology was the head of the department, a medical worker with

the status of a manager, or an expert. Applications for the implementation of innovative medical technology were considered by hospital directors or, in the case of one hospital, by an organisational unit that dealt with such applications. In one hospital (the University Hospital in Kraków), a template of an application for the implementation of innovative medical technologies was developed and an internal regulation for processing the applications was introduced. The examined hospitals did not have separate units or teams responsible for conducting HTA. It is possible to implement formalised HB-HTA processes in the analysed hospitals, but it will require broadening the knowledge of hospital managers in this area.

One limitations of the study is a small group of the respondents and the online form of the study. In-depth interviews with hospital managers instead of online surveys could add value to the research. Further, the drawn conclusions concerned three hospitals located nearby one another. This may not allow for accuracy when assessing the implementation of HB-HTA nationwide. An increase in the number of institutions participating in the study should be taken into account. It would be useful to broaden the study group to a dozen facilities from different regions and cities. The research should really be based on statistical features, as making conclusions based on statistical methods would have been more beneficial, because more information would have been revealed. However, using statistical methods was impossible at this time due to the small number of the respondents, hence the qualitative and descriptive character of the study. We therefore prescribe an attitude to health technologies evaluation which does not involve qualitative analyses of the current approach to innovations assessment. As researchers, we agree that a further study with more methodological tools will provide more information with concrete guidelines for health care actors and hospital managers.

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Appendix

Survey title:

The Implementation of Medical Technologies in Selected Areas in the Commune of Kraków

GENERAL INFORMATION

1. The questionnaire was prepared on the basis of the project “Implementation of the Hospital-Based HTA (HB-HTA) – Hospital Assessment of Innovative Medical Technologies”, co-financed by the National Centre for Research and Development under the Strategic Programme of Scientific Research and Development “Social and economic development of Poland in the conditions of globalising markets” (GOSPOSTRATEG).
2. The survey is dedicated to hospitals operating in the area of the Kraków municipality. The hospitals were selected so that they differ in their legal form (independent / public health care institution / commercial companies) and the creating authority/owner.
3. The aim of the survey is to obtain knowledge about the methods and criteria for implementing innovative medical technologies by hospitals.

INSTRUCTION

1. Due to the content of the survey questions, please fill in the questionnaire with the director of the hospital or a person authorised by them.
2. The survey consists of single-choice or multiple-choice questions and open-ended questions. For each question, the method of answering was indicated (*one answer to choose / one or more answers to choose from / open-ended question*).
3. The questions concern events related only to the implementation of innovative medical technologies in the last five years, i.e. from 2014 until the questionnaire was completed.
4. The survey concerns only innovations related to the provision of health care services. In the case of the purchase of medical equipment, the innovation IS NOT the purchase of equipment with similar or similar parameters (e.g. a purchase made due to the need to replace used equipment).
5. It takes about 10 minutes to complete the survey.
6. The survey consists of 16 questions.

DATA PROCESSING AGREEMENT

A lack of consent to data processing makes it impossible to complete the survey.

Acting pursuant to Art. 6 sec. 1 lit. a Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April, 2016, on the protection of individuals with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46 / EC (General Data Protection Regulation) (Journal of Laws UE. L 2016 No. 119, p. 1) in connection with Art. 12 sec. 1 of the Act of February 21, 2019, amending the Act on health care benefits financed from public funds and certain other acts (Journal of Laws of 2019, item 399), I consent to the collection and processing of the following data for the purposes of the research:

- basic information about the hospital;
- data on the unit responsible for implementing innovative medical technologies in the hospital.

[one answer to choose]

- Yes, I consent to the collection and processing of the above-mentioned data;
- I do not consent to the collection and processing of the above-mentioned data and I refuse to participate in the study.

BASIC INFORMATION ABOUT THE SURVEY

Pursuant to the Act of 27 August, 2004, on health care services financed from public funds (i.e. Journal of Laws of 2018, item 1510 as amended), medical technology includes: drugs, devices, diagnostic and therapeutic procedures used in specific indications, as well as organisational support systems within which health services are performed.

According to the definition of the Oslo Manual 2018, an innovation is: a new or improved product or process (or a combination thereof) that differs significantly from the previous products or processes of the unit – the hospital – and which has been made available to potential users (product) or put into use by the unit (process).

For the purposes of the survey, medical technologies were divided into three groups: diagnostic procedures, therapeutic procedures, and organisational systems supporting the provision of services.

I. SURVEY QUESTION

Hospital name:

1. According to you, the implementation of innovative medical technology can be defined as:

[one answer to choose]

- the introduction of new medical technologies or fundamentally changed methods of providing services, resulting in better availability and quality of health services
- developing new medical technologies or improving the existing technologies in order to solve a health problem, increase the efficiency of provided services, reach new groups of patients, increase the efficiency of spending public funds
- other – please provide your own definition of innovation

2. According to you, innovative medical technology is:

[one or more answers to choose]

- new or significantly improved technology that was used for the first time in a given hospital
- new or significantly improved technology that was used for the first time on the domestic market
- new or significantly improved technology that was used for the first time on a foreign market
- other:.....

II. INNOVATIONS IN THE AREA OF DIAGNOSTIC PROCEDURES, THERAPEUTIC PROCEDURES AND ORGANISATIONAL SYSTEMS SUPPORTING SERVICES

The questions in this part of the survey concern the implementation of new or substantially changed (improved) medical technologies in the area of diagnostic procedures, therapeutic procedures, and organisational systems supporting the provision of services.

3. In which of the areas are innovative medical technologies implemented in the hospital?

[one or more answers to choose]

- in the area of diagnostic procedures
- in the area of therapeutic procedures
- in the area of organisational systems supporting the provision of benefits
- innovative medical technologies are not implemented in the hospital

(NOTE: If you chose the LAST answer, please go to question no. 15)

4. Who is applying for the implementation of innovative medical technologies?

[one or more answers to choose]

- a hospital employee (please indicate the official position)
- the founding body
- an external company
- other (please specify):

5. Who considers applications for the implementation of innovative medical technologies?

[one or more answers to choose]

- an organisational unit that examines applications for the implementation of innovations
- various organisational units (please list which):
- the director of the hospital
- other (please specify):

6. Who ultimately makes the decision to implement or reject innovative medical technologies?

[one or more answers to choose]

- the director of the hospital
- a team set up for this purpose specifically
- the founding body
- other (please specify):

7. Has a template application for implementation of innovative medical technologies been developed in the hospital?

[one answer to choose]

- Yes.
- No.

8. Has the hospital developed a formal path for examining an application for the implementation of innovative medical technologies?

[one answer to choose]

- Yes – an internal regulation has been introduced, pursuant to which the application for the implementation of innovation is processed.
- No – examination of the application for innovation has not been regulated.

9. What are the sources of financing innovative medical technologies?

[one or more answers to choose]

- the hospital's own funds
- funds obtained under the implementation of European Union / EEA projects
- funds transferred by the local government
- research grants
- other (please specify):

10. Please enumerate the innovative medical technologies that have been considered in the hospital over the last five years.

[open answer]

.....
.....

11. When assessing innovative medical technologies, does the hospital consult:

[one or more answers to choose]

- the Agency for Health Technology Assessment and Tariffs
- the National Health Fund
- the Ministry of Health
- the Medical Research Agency
- patient associations and organisations
- manufacturers of medical technologies (e.g. medical equipment, drugs) or producer organisations
- scientific societies
- chambers for associating medical professions
- provincial consultants
- national consultants
- other hospitals
- other:
- Not applicable – the hospital does not conduct consultations.

12. When assessing innovative medical technologies, does the hospital analyse:

[one or more answers to choose]

- whether the innovation was implemented in other hospitals in Poland
- whether the innovation was implemented in other countries
- what the financial effect of implementing the innovation will be
- what the method of financing the implemented innovation will be
- other:

13. Is there a report on the evaluation of implemented innovative medical technologies?

[one answer to choose]

- Yes.
- No.

14. After the implementation of innovative medical technologies, is there an evaluation of the effects of the implementation?

[one answer to choose]

- Yes.
- No.

15. Why is the hospital not implementing innovative medical technologies?

[one or more answers to choose]

- no need to implement innovation
- the lack of financial resources
- the lack of human resources
- the lack of knowledge about how to implement innovations
- the lack of knowledge about innovations that can be implemented
- the existence of legislative barriers
- other (please specify):

16. Comments to the survey:

[open question]

.....

Thank you for your participation in the survey.

Michał Kudłacz, Anna Karwińska

The Specificity of Urban Sprawl in Poland: The Spatial, Social, and Economic Perspectives

Abstract

Objectives: The purpose of this article is to show and highlight the selected development-related trends of urban areas in Poland, with particular emphasis put on the phenomena that constitute urban sprawl, and taking into consideration historical aspects of the urban sprawl.

Research Design & Methods: The object of the study was Poland. The important base of the analysis was the historical evolution of the urban sprawl in Poland. The main research method is a comparative analysis based on historical examples in order to show the “roots” of the development processes of the urban sprawl in Poland as well as their characteristic features.

Findings: As a result of the research, the authors have determined that the Polish urban sprawl is specific and results from historical changes, the mentality of Polish people, economic processes, and legal conditions (too liberal laws on spatial planning).

Contribution / Value Added: This research adds to knowledge about the circumstances of the phenomenon of the urban sprawl in Poland, its evolution, and – above all – the degree of the individualisation of the causes and consequences of the Polish urban sprawl, which will allow decision-makers to adopt appropriate tools to support local development.

Implications / Recommendations: Polish urban sprawl is specific due to the high degree of suburban urban chaos (disorganised, spontaneous development), which has negative economic, social, and environmental consequences. In connection with the consequences of urban sprawl, action should be two-fold: on the one hand, it is about organising stretched suburban areas, giving them new spatial, social, cultural, and economic values. Here, an important role is played by spatial and social planning: the search for axes crystallising the organisation of space, i.e. places around which development could concentrate, creating more focused and ordered areas. There is also a need for centres of social concentration that could create centres of social life. This role could be played by cultural institutions (e.g. libraries), educational institutions, or religious institutions. On the other hand, it is necessary to create conditions for a ‘return to the cities’ for those whose life situation has changed, e.g. if their children are of legal age and independent, or who grew up in the suburbs. The latter is very complex. It would be difficult to identify existing cities that have ‘recovered’ their inhabitants from suburban areas on a large scale. Infrastructural preparation is needed, i.e. some sort of the rebuilding of cities, especially their centres. What is needed is the development of services and recreational spaces as well as the creation of new opportunities and possibilities.

Keywords: urban sprawl, metropolitan area, spatial planning in Poland, urban development policy

Article classification: research article

JEL classification: R1-1, R5-2, R5-8

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Introduction

One of the most important contemporary spatial processes which affects the economic and social spheres is the so-called amorphous growth of the cities (urban sprawl). When characterising this process, it should be noted that it relates to an uncontrolled (by the authorities) drain of the social, economic, and cultural resources from the city core towards its surroundings which does not belong to the city in the administrative sense. This is a negative phenomenon from the point of view of a metropolis' authorities and it weakens the quality potential, including the financial quality, of a city centre. The purpose of this article is to show and highlight the selected development-related trends of urban areas in Poland, with particular emphasis put on the phenomena that constitute the urban sprawl. The authors' intention is to present the specificity of the Polish urban sprawl by means of referring to certain traditions (both at the conceptual level and at the practical-actions level) in spatial planning, the functioning of the society, and economy. Our thesis here is that, paradoxically, urban sprawl should not be given an unequivocally negative assessment, as it provides a response to important social needs and aspirations which, due to political and cultural circumstances, could not be met otherwise. Another significant thesis stated in this article concerns the main reason of the "Polish" urban sprawl, which – in the authors' opinion – is the passiveness and sometimes also helplessness of authorities on all levels. This is related to the particularity of interests and the lack of collaboration and coordination of actions both on the vertical plane and on the horizontal plane.

An important element of this article is to underline the likely consequences of the urban

sprawl for the social, economic, environmental, and cultural potential of these systems in Poland. The paper is, to a large extent, of a theoretical nature; it is an attempt to answer questions about the causes of the amorphous sprawl as well as about the scope of the impact of this process on the potential of urbanized centers.

The first part of the article is a historical analysis of the phenomenon of urban sprawl, with particular emphasis put on its evolution process and the way of understanding the suburban space along with the way of its development. In the second part, the authors analyse the problem of the urban sprawl in contemporary Poland. The Polish urban sprawl has a number of characteristic features resulting from the legal framework and the historical conditions alike. The whole analysis ends with a relevant conclusion.

The outline of the history of urban sprawl in Poland

Urban sprawl can be defined as a 'cultural response' to specific needs and aspirations of various social groups. Forming the wealthier strata of society, the middle class is looking for new opportunities to pursue their aspirations and, to some extent, the processes of suburbanisation that are associated with these new social expectations.

However, it should be noted that the real living conditions in the suburban areas still do not meet those high expectations. Also important is the fact that Poland is going through a period of "acute crisis" in planning; therefore, it is difficult to carry out important tasks in order to reconcile the interests of different groups of residents and users of different areas as well as deliver space to reconcile the different development, economic, social, and environmental goals (Radziejowski, 2002, p. 20).

Thus, in Poland, one of the causes of urban sprawl development is the spatial chaos caused by the lack of control and coordination of development planning. It is primarily due to the lack of a good law and some kind of social culture and tradition

space management in Poland since the Middle Ages (Kudłacz, 2016, p. 249).

In Poland – in contrast to English-speaking countries – this type of landscape degradation which we refer to as sprawl does not have its fixed beginning, which is an answer to the question: when did it start? Most often it is said that in the recent past – perhaps at most dating back to the time of post-war illegal building or the so-called “spontaneous urbanism”. In fact, however, it is a process of much older roots, reaching the Middle Ages. As Henryk Samsonowicz (1970) has pointed out, municipalities that received municipal rights often closed access to offices or professions for newcomers. This resulted in the formation of new centres, often poorer and not fortified, sometimes cooperating with the municipality, sometimes remaining in opposition (Samsonowicz, 1970, p. 39).

Against the backdrop of modern European urban planning, especially in regions such as England, Northern Italy, the Netherlands, or supra-regional network of Hanseatic cities, Polish cities were economically weak and underdeveloped in terms of urban planning. From the 17th century, the rejection of urban culture typical of Western Europe in favour of the return of feudal relations (the return of a grange) became more pronounced. The deepening incapacitation of urban administration and the development of privileges of the nobility and the church – and then of the so-called *jurydyki*, i.e. areas that were not subject to the laws of the city and did not pay taxes – badly affected the condition of the cities. They made the body of the city barren from the inside and disrupted its development from the outside. The scale of this phenomenon is illustrated by the fact that in the 17th century in Kraków alone, on the municipal grounds, 20 new monasteries were established. In the era of elected kings, the nobility led to the enactment of an anti-burgess legislation, namely, among other things: the prohibition of lease of land in 1538, an attempt to liquidate guilds in 1538 and 1552, or a ban on practising active international trade

for the Polish merchants in 1565. As a result of these measures and of the deepening atmosphere of dislike for the middle class and urban life, city autonomy was severely restricted (*Encyklopedia Historii Gospodarczej...*, 1981, p. 525). The resource of contemporary urban structures depleted qualitatively and quantitatively, and was only complemented by not very successful – with the exception of Zamość and later of Rydzyna – private towns and a completely botched action of colonisation of the Borderlands in the 17th century.

The suburban or rural character of a quasi-urban space – i.e. of sprawl back then – was the result of two different processes: suburbanisation and ex-urbanisation. They are as old as city itself, but stronger under the Polish conditions (Figure 1).

The Polish native urban form in the 18th century was generally tightly “porous”, i.e. not yet finished and already deformed. Dim clarity and the blurring of boundaries were usually accompanied by a small-scale building, often one

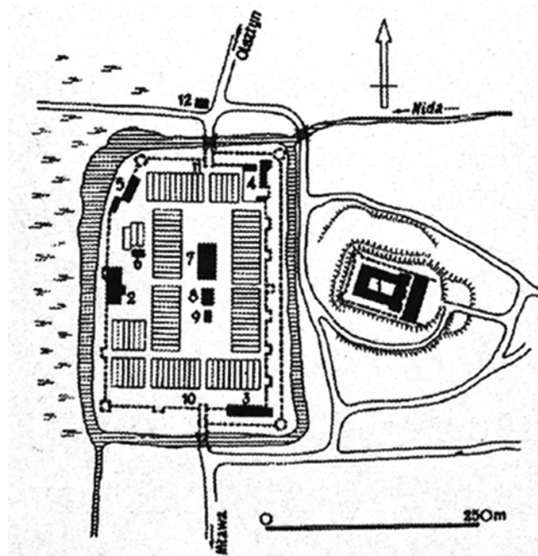


Figure 1. Nidzica – an example of a city founded by the Teutonic Knights

Source: *Zabytki urbanistyki i architektury w Polsce. Odbudowa i konserwacja, Tom 1. Miasta historyczne* (1986) (cited in Kudłacz & Hausner, 2017, p. 35).

of a semi-rural character. It was created around the disproportionately large squares and wide streets – urban-like – and then continued along suburban outgoing roads (Figure 1).

Despite some achievements, e.g. new industrial cities in Mazovia, Poland of the 19th century lacked both economic and socio-cultural opportunities to try to implement the concepts developed in Western Europe, where the demolition of fortifications created a new urban-like architecture (e.g. the new plan of Barcelona from 1855 by Ildefonso Cerdà). Distorted proportions between the new urban form and an amorphous background with the majority of that quantitative background – were the main and traditional differentiator of Polish cities. It is worth noting that in economic terms, the city remained the pole of development and exchange (merchant trails were passing through sites capable of the concentration of a multipurpose potential), and

the said spatial “slouch” had its spatial boundaries, namely that a scattered society remained at a great distance from the city-core, which guaranteed the possibility of using its resources.

The model of a modern society – open and pluralistic – which emerged in the 19th century in Western Europe was based on burghers. At the same time, on areas of Central and Eastern Europe, a “tribal” model of society developed, where national identity was shaped and perpetuated on the basis of the cultural, ancestral community (Kubicki, 2011, pp. 6–7). In this way, much more closed wholes were formed, building a social “inbred” tying capital. In the specific circumstances of society living under occupation, urbanity was identified with ‘strangeness’, which was supported by the saturation of the city space by foreign (Russian, Prussian, Austrian) symbols, works of architecture, institutions, etc., as well as by

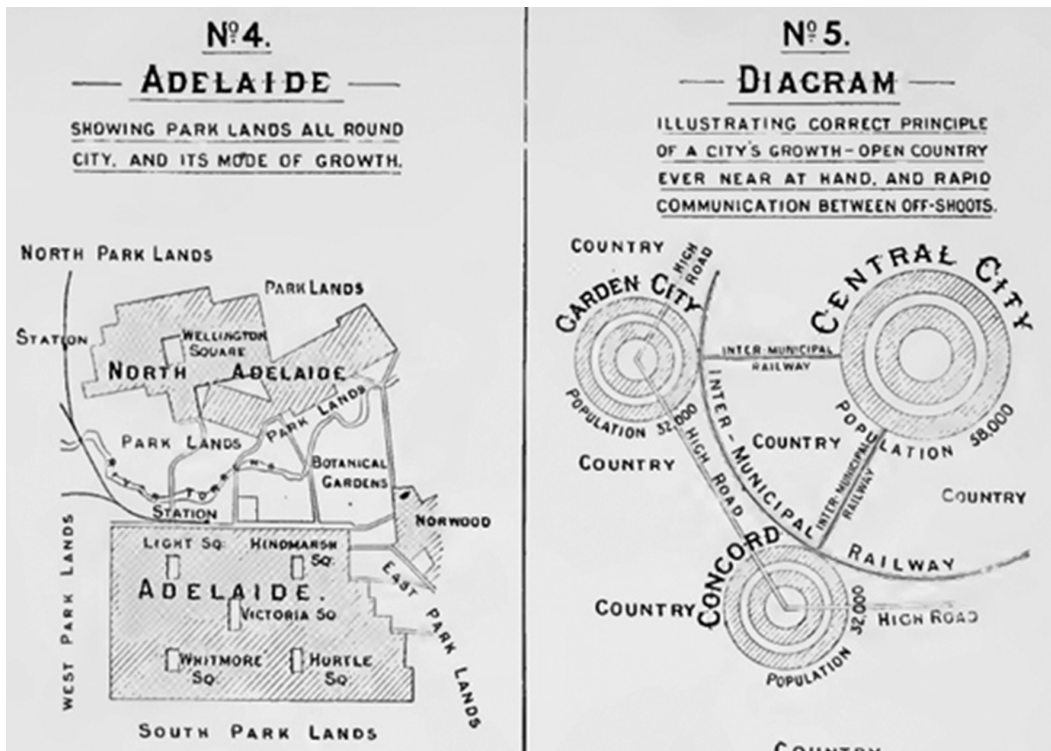


Figure 2. Garden city by Ebenezer Howard

Source: Howard, 1902, p. 129.

the domination of foreign models in the organisation of social life and foreign ‘official’ language. The city was present in the 19th century in the Polish literature almost exclusively in the role of a “villain”, i.e. a bad environment in which positive values could not be shaped (Jedlicki, 1988, p. 207).

The suburban structure arising in the process of suburbanisation was created by buildings that did not meet the urban standards of health (slaughterhouses, tanneries), fire protection (brick-yards, forges), functionality (water mills, fishing villages), guilds (menial villages, workshops of non-guild craftsmen), and, usually, property (poverty). In turn, ex-urbanisation is a process reaching the tradition of the Roman *villa suburbana* of building habitats outside the city, in a villa, a farm, a manor hunting house, or other suburban residence which provides a higher standard of housing than in the city, also used as a refuge for the duration of an epidemic. In Poland, this form was the domain of the nobility and higher clergy, but it also arose as a result of imitations and inferiority complex encountered among wealthier representatives of other social strata. In a way, it took its toll later on the Polish version of the imported ‘Garden City’ trend.

Striving to balance many dimensions of the city functioning expressed by Ebenezer Howard (1902) seems to be particularly interesting for the debate on the desired shape of the city. It was about the balance between the ‘rural’ and the ‘urban’ character of both community residents and spatial solutions. Other aspects of this balance include the necessity to maintain an appropriate balance between the number of the inhabitants of satellite cities and a central city; between the number of inhabitants and the number of jobs; between production capacity and the labour market and export markets; and, finally, between the value of nature and the changes necessary in the anthropogenic environment (Karwińska & Brzosko-Sermak, 2014, p. 40). Yet, in Poland, the realisation of the concept of a garden-city did not reflect these ideas. It is enough to compare the parameters and architectural forms used in the Western assumptions of garden-cities with

those encountered in Poland. In England, the norm was 2–3 ares plots and terrace or twin houses, but with a garden in the middle of the building. In Poland, villas in the manor style were built on ten times larger plots and not too close to one another. In England, the idea of a garden-city turned into a movement for the construction of New Towns. Going forward, one can find in it the elements of what today we meet within the mainstream of New Urbanism. Meanwhile, in Poland, colonies of villas were merely created and overly described with the euphonious term ‘garden city’. Their low intensity in comparison with Western Europe is due to the reluctance of organised and compact forms of residential constructions, which resulted from the rustic-nobility tradition rather than the noble one.

In the tradition of spatial planning in Poland, one can indicate examples – unfortunately discontinued – of planned urbanisation of vast areas freed from the rigours of the fortress. These include primarily Poznań and Kraków. The 1903 plan of Poznań was the first concept of zonal development of a city in Poland, distinguishing new districts planned outside of the Old Town, the development of different types of housing, industry, and greenery. This had been thirty years before the Athens Charter promoted the work–housing–leisure triad. A similar solution was brought in 1911 by an urban contest for the design of the Great Cracow [Pol. *Wielki Kraków*].

As indicated by Janusz Żarnowski, most of the contemporary society in the interwar period remained beyond the reach of the modern urban civilisation, but through the expansion of large urban centres which created metropolitan areas surrounding big cities, rural areas have changed under their influence. Those days, the typical urbanisation scenario for backward countries was characterised by a rapid increase in population of “grouping but not assimilated numbers of emigrants from the countryside” (Żarnowski, 1999, p. 355). In Poland of that time, the process of suburbanisation (ex-urbanisation) was not on a large scale, though it began in suburban districts of villas for the wealthy

strata of the society. There was also a larger scale of this pathological process of urban sprawl.

It should also be noted that in the interwar period (1918–1939), despite the absence of a law on spatial planning, by virtue of the building law, it was not allowed to develop areas without land consolidation and the re-parcelling of land layout into the urban structure (according to the so-called land development plan).

The development of these assumptions – one of a great promise for modern urbanisation – was interrupted by the outbreak of the Second World

War. Later, i.e. as of 1945, the communist authorities promoted the vision of the new system – *inter alia*, in terms of the planned construction of towns – but it soon became clear that the centrally-controlled economy is an economy of scarcity, which also included housing.

In this situation, the government administration turned the blind eye to the lawlessness – usually one emerging on suburban agricultural areas – because they reduced waiting for the promised housing ‘at no cost’. People had the choice to either wait several years for an allocation of an

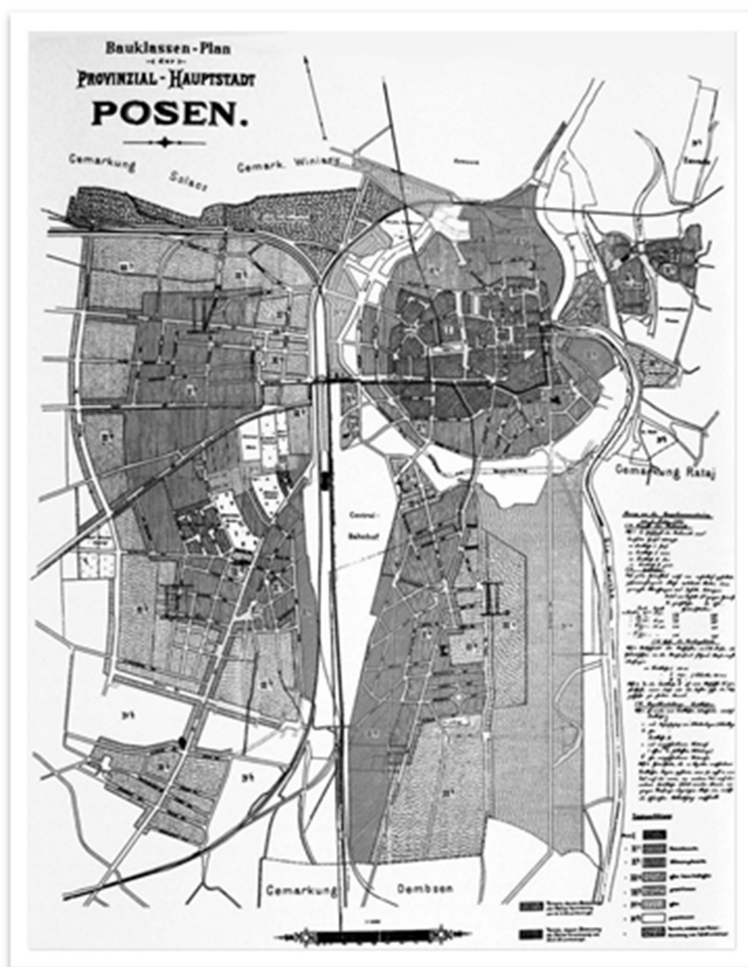


Figure 3. The Poznań development plan from 1903 (by J. H. Stubben) distinguishing between different types of residential buildings, i.e. industry and green

Source: Kodym-Kozaczko & Kozaczko, 2009, p. 105.

apartment in a block of flats, or try their hand and build a house ‘economically’ on their own plot – not always a construction and not always legally.

In Poland after the Second World War, some of the cities on heavily industrialised areas rapidly expanded their borders, often just by locating large housing complexes on the outskirts, later (after 1989) referred to as “bleak apartment buildings”, as well as undergoing the process of humanisation and spatial recomposition. In the post-war years, they were not called unpermitted buildings, but “**spontaneous urbanism**”. What is worse, after a short period of building carefully-designed first settlements in Nowa Huta or in Nowe Tychy¹, the period of the so-called “**poor urban planning**” began. The failure of the economy deepened, which in urban planning was accompanied by a reborn trend of functionalism in the most primitive form of overmuch free compositions. Furthermore, ‘ministerial arbitrariness’ – i.e. the construction of large housing arrangements beyond spatial plan – overlapped. This happened under the pressure of orders to increase production and of the shortage

of housing for the new workers coming from the countryside to work in the industry. Residential blocks built in the middle of nowhere had many features of sprawl, except that they were multi-family and built on a larger scale. The effects are still visible on both sides of the administrative border of the city.

Centralised control of settlement processes was characteristic for the early periods of the Polish People’s Republic; some cities were of a closed character and residency restrictions facilitated the control of social processes. City dwellers did not have any free choice within the city; they often did not have influence on what part of the city and what type of building they lived in. For the purpose of developing industry, homogeneous estates were created (the so-called company construction). The process of intensive industrialisation also enforced certain ways of organising social life (such as activities of employees during the day or week, strictly subordinated to the needs of industrial distribution). All this did not promote the formation of local communities within urban communities, but, rather, contributed to the process of atomisation

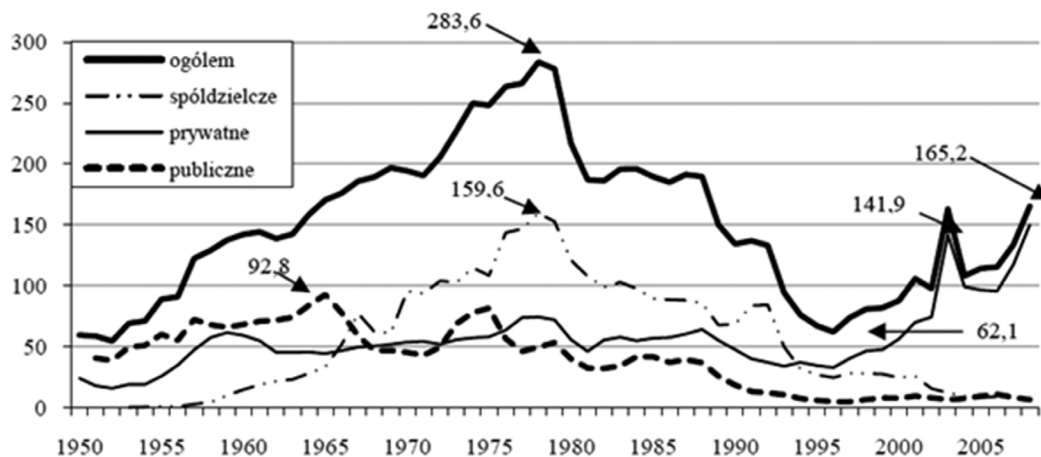


Figure 4. Flats put into use in Poland in 1950–2008 and changes of their investor structure (in thousands) (the key in the chart reads, respectively: in total, cooperative, private, public)

Source: Frąckowiak, 2010, p. 119.

¹ These two examples relate to the so-called ‘socialist model cities’, emerging not in the process of evolution, but holistically designed and implemented within a relatively short time.

(*Raport wprowadzający Ministerstwa Rozwoju Regionalnego*, 2010, p. 10).

The processes of social life underwent significant modifications, if one compares different stages of the period of the Polish People's Republic. However, an inherent feature of this system was a significant atrophy of the social fabric. One of the most well-known concepts explaining the peculiarities of the "socialist" Polish society, formulated by Stefan Nowak, appealed to the concept of "sociological vacuum" (1979, pp. 155–173). This meant the creation of spaces which were socially "empty", appropriated by the authorities or institutions associated with the government. There were no conditions for the formation of citizenship, which, contrary to the ideological declarations, the socialist state did not need for its functioning. A large number of members of the society withdrew into the sphere of privacy, expressing the lack of confidence in the government. At the same time, the state was almost the exclusive distributor of goods and services necessary to meet everyday needs, which created an attitude of patronage, but also somehow prevented the formation of aspirations for greater freedom, willingness to co-decide, etc. (Wnuk-Lipiński & Bukowska, 2008, pp. 9–10).

The period of the Polish People's Republic did not contribute to inculcate thinking about space as a valuable resource. Poland has come to discover this truth only recently, i.e. in a situation where a large part of urban areas could be described as chaotic and degraded spatially, socially, and environmentally. Moreover, in democracy – and with a very low level of the development of civil society at the same time – actors of the "game of space" at all levels contribute to that degradation. This started from the parliament (inappropriate laws), through local governments (decisions geared to short-term profit), to citizens who do not recognise the need to respect the common good and who act in a selfishly understood own interest (Wycichowska, 2012, p. 434).

Along with the development of certain areas of an autonomous civic activity, since the early

1980s, Poland began to debate on the possibility of the formation of a civil society, initially mainly in the context of illegal or semi-legal institutions, in closed artistic and intellectual environments. After 1989, legal and political barriers to the development of civil society were removed, quite a rapid rebuilding of the existing institutions and organisations started (so that they could become 'democratic'), which often was very superficial anyway, sometimes constituting merely a cosmetic reorientation of behaviours and actions. However, the natural basis of the agreement and the creation of bonds that were "fighting communism" began to fade relatively quickly (Mokrzycki, 2000, p. 23). The practice of democracy, the need to make decisions and bear the consequences, taking into account the different needs and expectations, etc., proved to be much more difficult than it had seemed in the first period of enthusiasm associated with the change of regime.

These attitudes and the related behaviours and choices affected all spheres of social life. Within the scope interesting to us, they were also reflected in the ways of managing space and in attitudes towards the common good (including public spaces). The feeling of a lack of influence had been accumulating for decades and resulted in 'selfish' decision-making, aimed at the realisation of private interests without regard for the common good. That attitude did affect the behaviour of not only individual citizens, but also representatives of local authorities and businesses.

The picture of future Polish cities outlined in 2000: "The scenario in which, as a result, they become similar in form and structure to the provincial, average American, Latin American or East Asian city, with its skyscrapers, buildings along routes, unbridled expansion of space, amorphous shape and investments sprawling endlessly, is not impossible" (Kochanowska & Kochanowski, 2000, p. 53). However, also today, in 2021, it is alarmingly likely. In a way, this meant the continuation of the above-mentioned dysfunctional "spontaneous urbanisation".

Urban sprawl in contemporary Poland

A few or a dozen years ago, many researchers as well as practising town-planners, drew attention to the shortcomings of regulation and legal planning, organisational solutions, as well as the lack of cooperation between various entities in the sphere of the organisation and management of urban space. As Adam Kowalewski ironically commented as early as in 2005, in Poland there is a high level of a “cross-party agreement” to *not* deal with urban policy and urban issues (2005, p. 19).

Urban sprawl in Poland as well as in other parts of Europe stems from exuberant market processes and from controllable activities consisting primarily in creating conditions for municipalities located in the metropolitan area in order to attract external capital (Karwińska, Böhm, & Kudłacz, 2018, pp. 29–30). What is equally important, the decisions taken by entities (units) on leaving the metropolis and functioning in the metropolitan area can be conscious, rational, economic, but at the same time also non-economic and not conscious. This depends on the motives for taking the decision to move to the city. In turn, motives and expectations are linked to the characteristics of the entities and individuals making the decision to change the place of residence or investment. The most conscious and rational in this matter are, of course, entrepreneurs, whose business it is – in simple terms – to maximise financial profits. The location of an office infrastructure of international companies in the central part of the metropolitan centre is a matter of business profitability and prestige. This trend had persisted since the middle of 20th century and only slightly has changed its direction and strength, i.e. for some, metropolitan service and office infrastructure becomes too expensive, while for others it is too small, hence there is a tendency to move business premises to specially-designated sites on the outskirts of the metropolis – or outside its borders – while remaining in the immediate vicinity. This, among other things, resulted in the breakdown of spatial compactness of the metropolis and

the growth of significance of metropolitan areas. However, it is worth adding here that circumstances favouring the spatial chaos in Poland include too liberal laws regarding zoning as well as selfish attitudes of entrepreneurs, local governments (manifesting in tearing away potential from each other, unwillingness to cooperate, etc.), and people (‘my plot/home must be the most beautiful, let the others worry about that later’) (Bhatta, 2010).

The phenomenon of an amorphous development of the suburban space relates primarily to the citizens and users of metropolitan centres. Decisions taken by individuals are most often rational, but sometimes not fully conscious. The phenomena of amorphous growth of suburban space are related to the behaviours, needs, and value systems of people belonging to several different groups: rich city dwellers looking for peace and quiet as well as space; young citizens of the metropolis in the process of enrichment and looking for a flat on mortgage, cheaper than it would be in the centre of the city, but still offering good standards of living for the family; new citizens coming from non-urbanised areas, who ‘for starters’ choose to live more in the periphery; and, finally, different categories of users (e.g. students commuting to work and using specialised services). All these groups wish to tap into the resources of the metropolis, which in the long perspective results in the need to clear communication channels, but also to raise various costs related to everyday commuting to the core-city.

Under the Planning Act of 2003 and as a result of the introduction in 2015 of a new construction law under the slogan “freedom of development”, some bad practices of the communist period were eventually addressed. Too liberal “WZ”² – or simply an exemption from a building permit – is a step reaching even further and resembles the erstwhile *jurydyki*. The laws of the 17th century released

² In Poland, conditions for land development implies an administrative decision which practically equals a building permit (or its lack) and constitutes a substitute for a local spatial development plan.

the favoured investors from urban legislation. Current regulations exclude certain investments from the rules of the spatial order and will degrade the landscape on a larger scale. Under the populist attitude of the legislator, they sanction the priority of the right of ownership over local law. The border of a city regulates nothing. Thus, the phenomenon of **internal sprawl** and **external sprawl** emerged, unknown elsewhere. Today, the same thing can be observed in new circumstances. The so-called *departmental sprawl* died, but its place has been taken by *developer's sprawl*, i.e. investments on land purchased by individual developers and usually not coordinated with the basic document defining the directions of urban development (requiring a study of the conditions and directions of spatial development).

The development of technical and transport infrastructure encourages one to live outside the city in homes where standard equipment is no different than housing in the city (and often higher). The prices are competitive and the Internet allows a high degree of remote work and studying, not to mention other services which ease the discomfort of commuting. However, they are only contemporary accelerators of an old phenomenon.

Today, the traditional passion for independence and being on one's own is also motivated by environmental conditions (naturally better outside the city), an increasingly higher level of wealth, as well as hopes associated in some cities with the development of the suburban railway network. When analysing the substrate and the development of this phenomenon in the last two decades, the following factors should be taken into consideration:

- the ethos of individualism and the dominant role of property rights;
- the liberalisation of planning and construction regulations;
- growing areas of set-asides as well as the baby bust;
- the oversupply of building land ('raw' – agricultural until recently).

This combination of conditions must result in extensive building – not just housing – on both sides of the administrative border of a city. Demographic forecasts are relentless, and the absurd surplus of building land in depopulated cities and around cities becomes increasingly obvious.

An extremely important role is played here by the level of social capital, especially sensitivity to common good, compliance with recognised standards and rules, as well as trust in others and in institutions. For at least thirty-five years, in countries with a higher level of social capital, sprawl which has been negatively evaluated by professionals is evolving and changing – owing to their work – into a more acceptable form. In the wake of a better-composed planning character of this building, it is sometimes described with new, ennobling adjectives that invoke the concept of "new urbanism", namely 'smart sprawl' or 'smart growth' cities. In Poland, these are exceptions, and yet most people still prefer "construction guerilla" than "new urbanism". It is a paradox that results from the clash of a village-noble tradition with technological progress.

When indicating the social causes of urban sprawl in contemporary Poland, one should recall the three levels of analysis of phenomena occurring in the social, economic, and cultural spheres that were defined by Marek Ziółkowski (2000). These consist in, first, taking into account universal trends observed in all the countries of our cultural circle; second, taking into account regional specificities associated with a particular region of the world; and third, taking into account the individuality (peculiarity) of Poland (Ziółkowski, 2000, pp. 13–15).

Universal trends, which are important from the point of view of the analysed phenomenon, are primarily the processes of civilisational development, i.e. especially the development of new communication technologies, but also changes in the professional sphere; the growing permissiveness of culture and acceptance of various lifestyles as well as alternative values; and changes in the way an individual grows, especially

with regard to the growth of the importance of individualism itself.

Processes and phenomena at the regional level, specific to societies of Eastern Europe, include, above all, the disintegration of the socialist system and the formation of a new type of expectations and needs, with various residues of socialism, both material and mental. Characteristic attitudes include a pursuit of hasty “catch-up” in different fields. In connection with the issue of the sprawl of a city, what should be noted here is the desire to compensate for the lack of freedom and a sense of agency, also in terms of control of one’s own life and making own choices.

Finally, there are phenomena and social processes typical of the contemporary Polish society. One of the features of Poland of the 21st century is the growing social polarisation and widening disparities in various spheres of life, starting with wealth, through access to various privileges, through value systems, to the level of social activity and participation. The increasing regional differences should also be acknowledged (especially in view of metropolises), namely peripherals and cultural differences, including ethnic and religious ones. The wealthier strata of the society is looking for new opportunities to pursue their aspirations and – to some extent – processes of suburbanisation, and they are associated with these new social expectations (Podęworna, 2006).

As opposed to the American urban sprawl, in which the spontaneous growth of the phenomenon was accompanied by the development in technology, in Poland it is the passiveness of the public administration that is conducive to this phenomenon. Public administration is understood here as both central and local authorities. The central administration is responsible for the legislation that should prevent phenomena that are socially unwanted and economically and spatially ineffective. The Act of the Planning and Spatial Management seems to be the birthplace of some disturbing phenomena, which – together with the aforementioned historical conditions of the development of space in Poland and

the specific Polish mentality – result in a gigantic abundance of building space and the spatial chaos leading to various economic and social dysfunctions. The above-mentioned Act seems to be excessively liberal and at the same time vague, especially where it concerns spatial management. It lacks stipulations that would unequivocally introduce standards for the shaping of space in the form of restrictions for all the entities that contribute to the forming of space. Ambiguities in a legal act allow for freedom of interpretation, which is the first step to acknowledging the priority of private interest over the public one. The socio-cultural context of this Act also includes the attempt to repay the wrong and injustice that the owners had suffered for decades of the socialist system, when they were deprived of their rights to the premises they owned. Returning to the legally-guaranteed respect to private property and the owner’s right to dispose of it was a time of putting exceptionally strong emphasis on placing a premium on individual interests and at the same time negating anything that even resembles centrally-steered economy. The terms “planning” or “social interest” became negatively perceived and ‘morally wrong’ due to the abuses perpetrated by the socialist state. This negative ideological burden does not allow some of real-estate holders – who, after many years, regained the right to their property – to accept the necessity to take into account the interests of the city or the local community, and sometimes even to **prioritise** them. The period of the People’s Republic of Poland did not contribute to instilling thinking about public space as a valuable resource. Polish people started to discover this as late as in the 1990s (the beginnings of democracy), when a large part of city space could be described as chaotic and spatially-, environmentally-, and socially-degraded.

The Polish spatial policy is formed and defined in a report which constitutes the concept of the spatial management of the country; this document is of conceptual character, showing directions and describing the vision of the spatial development of the country, as well as where this

development is heading. The said document (The Act on Planning and Spatial Management) is a sound diagnosis of the issues and, as mentioned before, it is the most important legal act concerning spatial planning in Poland. Theoretically, therefore, it impacts the slowing down of the phenomenon of urban sprawl. It specifies the principles of shaping the spatial policy by units of local self-governments, but not the spatial policies of communes. These policies are general enough to allow for different interpretations of the “spatial order” and “balanced growth”. In theory, these principles are of key importance to the establishment of the study of conditions and directions of the spatial development of communes, as well as local spatial management plans, which ought to be paramount in proceeding cases of designating certain space for particular purposes as well as establishing the principles of their management and development. Taking into account the provisions of the Act and the sources that it refers to, these two key definitions should be understood as such land form that forms a harmonious whole and incorporates into ordered relations all conditions and requirements: functional, socio-economic, environmental, cultural, and landscape-and-aesthetic. However, as mentioned before, to some extent these provisions constitute wishful thinking. It is enough to prove to the deciding body that all conditions relevant for the commune’s space were met and one can realise the investment without any trouble. The Act also introduces the “planning permission” term, whose purpose is to substitute local spatial management plans of communes. The solution applied in Poland has been known in Europe (*inter alia* in Germany); however, the sheer scale of its use is shocking. Planning permission – which, in theory, is an administrative decision issued as an exception (in cases where there is no local spatial management plan) – is actually granted to 75% of entities realising investments in Poland, whereas only 6% of planned investments were denied such a permission, which shows that economic calculation is of greater importance to local authorities and investors than the social

and spatial consequences for the general public (Böhm, 2021, pp. 99–118).

This document provides accurate diagnoses of different issues and their remedies based on the spatial development resources of the country, yet it is simultaneously general to such an extent that it would be hard to expect it to have any influence on spatial policy, which is commonly realised at the lowest level of public administration (communes).

The analysed Act states that the local self-government of the voivodeship shapes and is responsible for the spatial policy in the voivodeship, including the realisation of tasks related to establishing the spatial management plan for the voivodeship. Regional self-government authorities have only a limited influence on urban sprawl through this document. Naturally, due to the territorial vastness of administrative regions in Poland, the protection of landscape and cultural resources is fictional. The following are usually analysed in such a document: islands of communication imperfection, other infrastructure deficiencies, directions where the potential residents might migrate, and the socio-economic growth-poles of the region. From this perspective, it is impossible to identify the changes in a commune’s tissue resulting from spontaneous (free-market) processes at the local and micro-local levels.

In compliance with art. 3 par. 2, the spatial policy of a poviats’ self-government (the poviats’ council and the staroste) involves making, within the body’s competences, their own analyses and studies on spatial management at the level of poviats and on issues related to its development. This means that these analyses and studies must be strictly related to the development within a poviats’ territory. In reality, then, spatial policy is not part of a poviats’ self-government’s competences.

The spatial policy of a commune is determined by a commune’s council through a resolution on the study of the conditions and directions of spatial development of a commune. This document stipulates the directions of spatial development of a commune by means of incorporating key

definitions. As key subjects of realising spatial policies, communes have at their disposal insufficient measures to, e.g., block undesirable investments which distort order, aesthetics, or functions of space, or which lead to irrational management of land resources, which are limited by nature. Ultimately, in case of a conflict between an investor and a local self-government of a commune, it is the court that decides on the matter, and due to the vast numbers of commercial investments or apartment blocks, developers hire teams of lawyers specialised in convincing courts that legal provisions are violated now.

Another dysfunction is worth mentioning, too, namely that the Act lacks effective instruments which would facilitate closer links between different levels of planning and spatial management in Poland.

On the other hand, when watching the kind of entrepreneurial initiatives developed in suburban areas, one can see a kind of “following” the aspirations, since a variety of specialised services is emerging, allowing space to satisfy the needs in a way more suited to expectations. Communities living in suburban areas are characterised by an increasingly high level of social and intellectual capital, which creates demand for valuable jobs that require great skills and competence. It promotes the transfer of entrepreneurial activity beyond the city limits.

Investment possibilities of Polish developers already exceed the boundaries of individual plots, as they enter larger areas. The market – including the housing market – is becoming more and more demanding. A significant part of the price of an apartment is derived from the attractiveness of the window view. There is a growing group of potential customers who can afford a better apartment, looking for an offer that includes not only a garden, but the proximity of services, attractive public spaces, and greenery encouraging recreation. More and more often, they expect environmental certificates for buildings and land use as well as guarantees that next year there will not be a wholesale scrap or incinerator built

in the vicinity. Therefore, developers have to go to the market with complex offers. There is a growing awareness among them of the role of the local plan. They look for areas where there is a plan, and not – as before – places that **do not have a plan yet**, and where you could realise any project having the aforementioned “WZ”.

An amorphous growth of the city causes and strengthens various spatial, economic, and social dysfunctions. They are linked to each other and form a self-reinforced syndromes of unfavourable features characterising socio-spatial wholes. They can generate the phenomenon of maldevelopment (i.e. bad, imperfect development) in all three areas (economic, social, and urban space).

The effects of uncoordinated development around cities considered in spatial terms manifest in the reduced investment availability of suburban areas. It is a paradox, because on the one hand the number of roads and technical infrastructure piped to distributed development increases, but at the same time the texture of this network is so fine-grained that it blocks or limits the possibility of determining the corridor for large investment lines (service roads, motorways, and highways). For the same reasons, the possibility to plan investments’ location of strategic importance for the city (e.g. airports, technology parks, or photovoltaic farms) is limited. In addition to these direct negative consequences, attractiveness is diminished as well, which leads to lower real estate prices, affected by the sprawl. This is due to changes in the passive exposure – i.e. ‘the window view’ – and is especially noticeable in areas of high landscape values, e.g. on the outskirts of legally protected areas such as national parks or landscape parks. As a consequence of uncoordinated development, the expansion of a zone of a disharmonious landscape and unwanted views is usually accompanied by increased atmospheric and acoustic pollution.

Due to the previously mentioned attitudes towards space in – especially the lack of a sense of its value – wasteful practices of managing spatial resources became popular in Poland (in terms of size, attractiveness, and accessibility). This led

to the formation of low-quality urban environments that are not able to compete (Kochanowska & Kochanowski, 2000, pp. 50–51). New urbanised areas have been created quite accidentally, i.e. not as a result of a long-term social policy, but, rather, as a consequence of a game of interests of different actors, often without proper infrastructural facilities and without field reserves (Lisowski & Grochowski, 2008, p. 250).

Reflecting on the social consequences of the phenomena generated by the exuberant and amorphous urban sprawl, dysfunctions should be determined which interfere with the normal course of, first, social life (macro-scale); second, local communities (meso-scale); and, third, individuals and small groups, e.g. families (micro-scale).

It seems that in the Polish reality, one can indicate the following consequences:

- dysfunctions resulting from the strengthening of **social inequalities** in access to desired values (education, health, recreation, implementing the lifestyle);
- a failure to observe the principle of **inter-generational justice** (a spatial reality limiting the possibilities for the future is created);
- dysfunctions associated with the process of building the **local identity** – the disappearance of a coherent “framework of reference” of a community, the lack of (or the loss of) space(s) defined as common;
- dysfunctions related to the provision of the **quality of life** for the inhabitants at the level of psychological, social, aesthetic, and intellectual needs. The needs for familiarity, the feeling of being “at home”, to establish and maintain social contacts (neighbourly socialising), aesthetic satisfaction with contacts with the environment, etc. are more difficult to meet under the conditions of an amorphous sprawl of the city;
- dysfunctions with regard to developing and maintaining **social relationships** (and, consequently, the formation and maintenance of social capital), related to the lack of civic centres of social aggregation;
- dysfunctions relating to building and developing **a sense of citizenship**. It is about being responsible for the city and developing attitudes of cooperation and collaboration; this refers also to prospective thinking, i.e. one not limited to a scale of one generation;
- dysfunctions relating to providing **freedom of choice** (as to lifestyle, the way of satisfying felt needs, etc.); contrary to expectations and hopes, areas of the sprawling city create various limitations associated with shortages of infrastructure, transport problems, etc.;
- dysfunctions in realising the right to the **use and development of space**, which is about creating conflictual areas in the situation of the overlapping of various concepts and conflicting interests. There are no “mediators” or professionals in the field of spatial planning that can be trusted by society;
- dysfunctions relating to the creation and maintenance of **public spaces** – a shortage or poor quality of these spaces has a negative impact on the possibility of the formation of relationships within the community inhabitants, as well as it is often an obstacle in solving local social problems;
- **diversity** – which is a reflection of the historical differences as well as of the diversity of past experiences – disappears. Space which is for everyone and is unified is essentially a space for no one specifically. It is about the disappearance of the specificity of various communities and cultural differences.

However, it is worth looking at the problem of urban sprawl from yet another point of view. One cannot ignore the fact that a significant number of locals choose this type of location. Why is this the case? The new circumstances of the ‘individual’ sprawl and the developer sprawl should be considered. The development of technical and transport infrastructure encourages people to live in houses outside the city, where standard equipment is no different than housing in the city. The prices are competitive and the Internet allows remote work and studying, not to mention other services, all

of which eases the discomfort of commuting. When analysing the grounds of this preference, the following circumstances should be considered:

- the dominant role of property rights and the ethos of individualism;
- the liberalisation of planning and construction regulations;
- growing areas of set-asides;
- the passive attitude of local governments;
- the oversupply of building land (“raw” – only recently agricultural);
- the baby bust.

This mixture of conditions must result in extensive building – not just housing – on both sides of the administrative border of the city. Demographic forecasts are relentless and the absurd surplus of building land in depopulating cities and around cities is becoming more and more obvious.

As Igor Zachariasz (2013) points out, in the existing local plans, the total area of 1,214,945 acres was designed for residential areas, which allows the settlement of 77 million people in the country which has less than 38 million inhabitants. In addition, the obligations of municipalities resulting from the adopted local plans in connection with the necessary buyout of land for public roads in all municipalities of the country amounts to approximately 130 billion PLN (Zachariasz, 2013, pp. 3–7).

According to the Izba Urbanistów’s (the Chamber of Town Planners) estimates (prepared just before its shutdown by the Polish Parliament in 2014), the country has at its disposal areas for development for approximately 320 million inhabitants. It is hard to imagine, just as it is unlikely to undo the liberalisation of the Law on Spatial Planning and Construction, newly implemented as a result of pressures from the society. Thus, large areas of fallow land endowed with the right to development – it is not known for what and for whom – have been left to their fate and will inevitably become a terrain of natural succession.

Controlling re-naturalisation processes would probably provide a chance to take control over this particular element. Such attempts – albeit for

different reasons – have been taken for several years in China for the purpose of maintaining desired levels of ecological safety in certain regions.

In Poland, it remains far beyond the scale of interest in national planning. It is not to be changed soon, because – according to research by the 2010 Public Opinion Research Centre (CBOS) – 82% of the population is satisfied with the existing level of the spatial order. In addition, 35% of the respondents (in similar studies from 2005 – 40%) expressed the view that the owner of the land should have a complete freedom of choice when it comes to how to build on the plot (CBOS, 2010, pp. 7, 10). Under these circumstances, no politician will risk any legislative initiative which could lower the public support of their group. Under the slogan of the landscape law, the parliament focuses on regulations on roadside advertising at most.

The critique of the current state of spatial chaos refers to the disadvantageous situation in Poland which results from excessive liberalism – both in planning and in management – in the sphere of space, leading, in turn, to the lack of a coherent and forward-looking concept of spatial policy. And yet, correct and responsible management of space has a positive effect not only on the spatial order, but also on the possibility of achieving the social order (good functioning of the society), as well as on the level of economic governance (better use of resources) (Paszkowski, Węclawowicz-Bilska, & Schneider-Skalska, 2014, p. 15).

Conclusion

The contemporary Polish urban sprawl has much in common with the same phenomenon in the USA and the UK, but it also has its own specific features. A common feature is that – in the economic terms – urban sprawl is caused and amplified by metropolisation, and therefore it relates primarily to economically-strong cities and their functional areas. Metropolisation leads to the polarisation of the global space and to the creation of more and less privileged sites

in terms of development opportunities. Forming a communication channel means that metropolises are “nodes” for the movement of goods, services, information, capital, and people. However, even if it is not the intention of the city authorities to develop their environment, an involuntary and spontaneous diffusion of the potential and the qualitative growth of metropolitan areas still occurs.

The Polish legal system is constructed in such a way that access to land as common good is practically inviolable. However, there are no interpretations of what the essence of common good is, or what common good means in the context of various interests, both public and private. Thus, one might venture to conclude that there are no guidelines as to what proprietorship right is, how it relates to the right of use and development of land, and how it relates to higher values, namely the harmony of space and the structuring of morphological and functional space. This, in fact, translates into the continuation of the historical petrification of behaviours leading to spatial chaos, which has negative consequences at both economic and social levels. When attempting to grasp the positive aspects of the analysed phenomenon in Poland, one should mention the economic revival of the suburbs of the metropolis, which is actually common for this phenomenon all over the world. Moreover, one should point at the growing awareness of local authorities of communes that are situated within the realm of the positive influence of the core-city as regards tapping into the resources of the core-city in order to fulfil micro-local public objectives.

Yet, undeniably, it is the negative consequences that prevail. This is due to the fact that the characteristic features of the Polish urban sprawl include: excessively general law regulating spatial management, the priority of the proprietorship right over local regulations, the historically-conditioned social mentality in which there is complete freedom when it comes to forming space, the dependence of self-governments of communes on various groups realising their interests while determining

the directions of spatial management stipulated in local spatial management plans, and, finally, the “sprawling” spatial layout that is conducive to the increase of the phenomenon of urban sprawl.

The consequences of the assessment of the effects of uncontrolled urbanisation are severe. In the opinion of experts, spatial chaos is not just a matter of aesthetics. The outcomes of such a spatial policy include lost profits from the synergy of programmes and functions, which can be achieved only in terms of the planning and coordination of land use. The economic effects have been mentioned above, but one should also mention the effects of a more social nature, namely conflicts associated with different concepts of space utilisation (e.g. in the private and in the public dimensions or related to different expectations of different groups and social circles). The social cost includes also a waste of time due to poor organisation of space and the lack of access to various goods and services. These lead to a lower quality of life of individuals and families, weakening local social contacts as a result (*Raport o Ekonomicznych Stratach...*, 2013, p. 6).

It should be emphasised that the importance of harmonising the ways of organising and using spatial resources is constantly growing – e.g. under the conditions of climate threats – which then increases the importance of problems related to the quality of life, etc. The links between socio-economic and cultural phenomena as well as changes in expectations and aspirations related to the organisation of space require further analyses. Moreover, an important issue for further considerations is also the attitude of indifference to phenomena taking place in spaces which extend beyond the immediate surroundings, which is still noticeable in the Polish society (the ‘NIMBY’ syndrome).

Quite often, the problem of the development of Polish metropolitan centres lies in the attitude of “narcissistic” city authorities, which, in fact, comes down to a way of thinking consisting in the glorification of the tangible and intangible

assets as well as a nonobjective estimation of their efforts to create conditions for the socio-economic development. The negligence of municipalities resulting from this aspect is often the cause of limiting part of its potential. Legal solutions, their ways of functioning in practice, bad functioning of the local authorities, the lack of the efficiency of planning, problems with social participation in decision-making, and, finally, the deficiency of social sensitivity to the lack of a spatial order constitute some of the key issues strengthening the phenomenon of urban sprawl. The relationship between the spatial order and the social order is recognised too seldom.

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The mission of *Public Governance / Zarządzanie Publiczne* is to publish advanced theoretical and empirical research in public management, governance, public policy analysis and evaluation, public sector economy as well as strategic management, which reflects new developments in the methodology of social sciences. The editors select papers with an original theoretical background and those that discuss the results of pioneering empirical research. We are also eager to promote the interdisciplinary and comparative approaches based on qualitative, quantitative, and experimental studies that provide new insights into the construction of theoretical models along with the methodological concepts in the field of public management.

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