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# Best practices of urban foresight in the process of city development management in the light of the smart city concept

**Dobre praktyki foresightu miejskiego w procesie zarządzania rozwojem współczesnych miast w świetle koncepcji smart city**

## Abstract

The purpose of city management is to achieve set development goals. The effectiveness of city management translates not only into the achievement of the city's development goals, but also into a sense of quality of life in the city. Nowadays, city management using the smart city idea has become a requirement for making decisions on the direction of city development, as well as on the principles to be followed in decision-making processes related to their functioning. A key issue is the selection of appropriate instruments for achieving the objectives set. This implies the need to develop a set of rules defining how to control and guide the city's development and which principles should be applied in relations with all stakeholders. The question of how and to what extent the city's resources should be used in order to improve the quality of life is also important. When taking any decision concerning the functioning of a city, the potential effects of that decision on all spheres of city life should be taken into account. Many publications point to the need to develop an integrated and holistic approach to the smart city. Researchers emphasise the need to identify approaches that integrate urban transformation and involve a wide range of stakeholders and actors both in defining the problem and in finding solutions and conditions in developing shared visions. The response to those needs seems to be urban foresight, the essence of which is to create and build a vision of the future in cooperation between city authorities and a wide group of stakeholders from the local community. In the search

## Streszczenie

Celem zarządzania miastem jest osiągnięcie wyznaczonych celów rozwojowych. Skuteczność zarządzania miastem przekłada się nie tylko na osiąganie jego celów rozwojowych, ale też na poczucie jakości życia w mieście. Obecnie zarządzanie miastem wykorzystujące ideę smart city stało się wymogiem w podejmowaniu decyzji dotyczących kierunku rozwoju miast, a także zasad jakimi należy się kierować w procesach decyzyjnych związanych z ich funkcjonowaniem. Kluczową kwestią jest dobór właściwych instrumentów dla realizacji założonych celów. Oznacza to konieczność wypracowania zestawu zasad określających w jaki sposób kontrolować i prowadzić rozwój miasta oraz jakie z nich należy stosować w relacjach ze wszystkimi interesariuszami. Nie bez znaczenia pozostaje także kwestia sposobu i zakresu wykorzystania zasobów miasta w dążeniu do poprawy jakości życia. Podejmując jakąkolwiek decyzję dotyczącą funkcjonowania miasta należy mieć na uwadze potencjalne skutki tej decyzji dla wszystkich sfer życia miasta. W wielu publikacjach wskazuje się na potrzebę opracowania zintegrowanego i holistycznego podejścia do smart city. Badacze podkreślają, że należy zidentyfikować podejścia, które integrują przemiany miejskie i będą obejmowały szerokie grono interesariuszy oraz podmiotów zarówno w definiowaniu problemu, jak i przy poszukiwaniu rozwiązań i warunków w rozwijaniu wspólnych wizji. Odpowiedzią na te potrzeby wydaje się być foresight miejski, którego istotą jest kreowanie i budowanie wizji przyszłości przy współpracy władz miasta z szerokim gronem interesariuszy tworzących lokalną społeczność. W poszukiwaniu relacji między foresightem miejskim a koncepcją smart city w literaturze przedmiotu



for relations between urban foresight and the smart city concept, attention is drawn in the literature to the growing interest of city leaders and local stakeholders in smart city initiatives, which make extensive use of technology to solve urban problems. The aim of the paper is to identify best practices in the possibilities of incorporating foresight research into the implementation process of the smart city concept. The paper adopts a review and conceptual character of the scientific study.

### Keywords

urban foresight, smart city, managing urban development

JEL: L00, R11

zwraca się uwagę na rosnące zainteresowanie liderów miejskich oraz lokalnych interesariuszy inicjatywami smart city, które szeroko wykorzystują technologię do rozwiązywania problemów miejskich. Celem artykułu jest identyfikacja dobrych praktyk w zakresie możliwości inkorporacji badań foresightowych do procesu implementacji koncepcji smart city w miastach. W artykule przyjęto przeglądowy i koncepcyjny charakter opracowania naukowego.

### Słowa kluczowe

foresight miejski, zarządzanie rozwojem miast, smart city

## Introduction

The great interest in the implementation of foresight projects is due to the perception of it as an instrument that can bring a number of tangible benefits to its implementers (countries, regions, cities, institutions, enterprises). A. Havas and M. Kennan point to the following benefits: change of the way of thinking about the future, identification of new markets, improvement of competitiveness at the international level, stopping or at least slowing down the brain drain process, strengthening the innovation system and indicating the importance of science and technology through broad social consultations in political decision-making (Havas & Keenan, 2008). J. Nazarko emphasises that in order to improve foresight practice, it is necessary not only to collect and analyse best practices, but also to use the achievements of science (Nazarko, 2013). D. Szpilko points out that each of the realized foresight projects is a unique individuality, which is a characteristic feature of foresight. This is because it is impossible to develop one universal methodology for the implementation of foresight research, as its scope will always be primarily determined by the various conditions of the research area and the resources possessed by the research implementers (Szpilko, 2016). According to the researcher, such an attitude does not mean, however, a complete dissociation from foresight projects carried out so far. Rather, it encourages rational planning of the research process according to available resources and existing conditions. This approach does not exclude, but even encourages to get acquainted with hitherto realized projects in the same or similar research area. This type of search may provide valuable knowledge, supported by the experience of implementers of particular studies. The application of the identified selected best practices may contribute, of course, to a certain

extent, to achieving success at the stage of designing, implementing and deploying new foresight projects (Szpilko, 2016). The aim of this article is to identify best practices in terms of the possibility of incorporating foresight research into the process of implementing the smart city concept.

## Foresight and management of urban development

The concept of foresight was first defined by J.F. Coates in 1985. The author presented foresight as a process in which a full understanding of the forces shaping the distant future is achieved and which should be taken into account in policy formulation, planning and decision-making. Both quantitative and qualitative methods are used in this process. This makes it possible to monitor signals of emerging trends with policy implications. This makes policy implementation in the context of the passage of time and changing operating conditions, becomes more appropriate, flexible and effective (Coates, 1985).

Among many definitions of foresight, in the author's opinion, the most relevant one in the context of a city is the one developed within the FOREN project (Foresight for Regional Development Network), according to which foresight is perceived as a systematic, participatory process of building a medium- and long-term vision of the future aimed at today's decisions and mobilising collective action (Keenan & Miles, 2001). O. Saritas and D. Loveridge point to the need to involve new stakeholder groups in research beyond the traditional research area experts (Loveridge & Saritas, 2009). Great importance is also attached to the issue of participation and consensus building by J. Cassingena Harper. This distinguishes foresight from other approaches focused on

exploring the future (Nazarko, 2011). In the opinion of J. Anderson, foresight enables the shaping of the future through the concerted action of self-sustaining networks of interested groups (Anderson, 1997). It is assumed in the literature that the purpose of foresight is to identify and assess future needs, opportunities and threats related to social, economic and technological development, as well as to prepare appropriate anticipatory actions concerning science and technology, taking into account more general social, economic, technological conditions (Kuciński, 2010). Foresight enables the construction of scenarios for developments in the relatively long term (usually 10–20 years), as well as when developments may be difficult to predict (Kuciński, 2006).

Foresight as a research endeavour can be classified according to various criteria. One of them is the territorial/spatial criterion. According to this criterion, we distinguish transnational, national, interregional, regional, metropolitan, urban and local foresight (Borodako, 2009).

Regional foresight consists in creating a vision of development in a territorially limited space. The main advantage of regional foresight is the broad practical and theoretical knowledge of the project participants about the situation in the region, its potential, conflicts and economic or institutional barriers. The level of this knowledge increases in the local space — city, where it is easier to identify the determinants of human behaviour and reach a consensus (Foresight, 2011).

Urban foresight can be considered in two ways. In the first view, foresight can be considered in a technological context, for the creation of urban space, taking into account elements such as urban infrastructure, construction, housing, transport, mobility, urban planning (Hartmann, 2011). On the other hand, the focus can be on territorial planning in an attempt to make a long-term observation of the future of science, technology, economics and society in order to identify emerging trends that can contribute to the greatest changes in a city (Guell, 2009). In the 2016 UK report *Future of Cities: Foresight for Cities*, urban foresight is defined as "the science of thinking about the future of cities, using a set of diverse methods to provide decision-makers with comprehensive data on anticipated and possible future changes" (Future of cities: Foresight for cities, 2016). Urban foresight focuses on the need to create coherent visions of a city in order to plan and manage future long-term change and create opportunities for new investment in the local urban economy (Dixon et al., 2018). A crucial issue in formulating a city vision is the proper identification of needs, which further translates into the definition of goals and directions for development (Ravetz & Miles, 2016).

## Concept, objectives and assumptions of the smart city concept

On the basis of the literature review it was observed that in the vast majority of publications, authors attempting to define the smart city concept focus on the technological aspect. Peng et al, for example, define smart city as cities using a set of advanced technologies such as wireless sensors, smart meters, smart vehicles, smartphones, mobile networks or data storage technologies (Peng et al, 2017). In turn, Guo et al. argue that smart city is urban development based on the integration of multiple information and communication technology solutions to manage city resources (Guo et al., 2017). However, a city cannot become smart just by using technology (Nam and Pardo, 2014). Ortiz-Fournier et al. include smart city citizens in their definition of smart cities. The authors describe smart cities in terms of their intelligent inhabitants, the quality of social interaction, and the integration into public life (Ortiz-Fournier et al., 2010). As A. Noworól observes, city managers should remember about the system of values in their activities and focus on creating a vision for the future of the city (Noworól, 2011). J. Szoltysek and R. Otręba add that the efficient preparation and implementation of activities is closely related to the need to recognise the feelings and emotions of all groups of inhabitants and, on their basis, programmes should be created to enable efficient city management (Szoltysek & Otręba, 2015). Huang et al. also highlight aspects of urban governance. They define a city as smart if it is managed in a smart, efficient and sustainable way (Huang et al., 2017). According to Manville et al. a smart city is a city where public issues are solved using ICTs, involving different types of stakeholders working in partnership with the city government (Manville et al., 2014).

R. Giffinger synthesized all the definitions appearing so far and created a model of an intelligent city, in which he emphasizes the importance of modern technologies, while not denying the importance of social capital and its participation in shaping urban development (Krysiński, 2020). According to R. Giffinger's concept, cities can be defined as smart if they have the following elements (Giffinger & Gudrun, 2010; Stawasz & Sikora-Fernandez, 2016; Zanella et al., 2014, Caragliu et al., 2011):

- smart economy — measured by entrepreneurship and productivity of the city, adaptation to change, labour market flexibility and international cooperation;
- smart mobility — measured in terms of local and supralocal accessibility and supralocal accessibility, availability of information and communication infrastructure, through the

development of sustainable, innovative and safe transport;

- smart environment — measured by the attractiveness of the state of the environment, the level of pollution, environmental protection activities and through resource management methods;
- smart people — characterised by qualification levels, lifelong learning, social and ethnic diversity, creativity, openness and participation in public life;
- smart living — measured through existing cultural facilities, living conditions (health, safety, housing), educational facilities, tourist attractiveness and social cohesion;
- smart governance — expressed in transparency of city management, public participation, level of public services and implementation of development strategies.

As noted, S. Molpeceres Arnáiz according to some business and political discourses the smart city seems to be the city of the future (Molpeceres Arnáiz, 2017). A. Noworól argues that, the features of the smart city are forward-looking and determine today's understanding of what shape city management may take in the future (Noworól, 2012). However, despite the numerous potential smart city facilities that modern cities could benefit from, there are some barriers that hinder the implementation of this concept (Dohler et al., 2011). Among the problems arising in the implementation of the smart city concept, the following stand out (Ravetz, 2017; Naphade et al., 2011; Krukowska, 2018; Proseedmag, 2017; Sikora-Fernandez, 2017):

- an excessive focus on investing in advanced technologies, without any real recognition of the conflicts and problems that exist in cities;
- implementation of smart technologies in cities with complex social problems may contribute to the exacerbation of social inequalities;
- lack of solutions to involve the local community in the co-governance of the city;
- lack of a comprehensive view of cities, in terms of satisfying needs in all areas of their functioning;
- changes related to the introduction of the smart city concept, mostly reduced to the technological aspect, may negatively influence the loss of the hitherto character and unique charm of some agglomerations, especially those valued due to their traditional character;
- the development of smart city infrastructure requires huge investments, which are indirectly borne by citizens;
- managing cities is a huge challenge and requires, above all, intelligence, responsibility and common sense which cannot be replaced by modern technologies;
- unskillful or unconscious use of services by so-called digital illiterates may cause a lot of personal and systemic damage;

- cities equipped with modern technologies, do not become an object of interest for inhabitants due to high maintenance costs and lack of social ties.

In exploring the relationship between urban foresight and the smart city concept, the literature highlights the growing interest of city leaders and local stakeholders in smart city initiatives that make extensive use of technology to solve urban problems. Complexity, diversity and uncertainty are three key attributes of contemporary cities (Fernández-Güell & López, 2016) that hinder conceptual and technical progress in such initiatives. Many publications point to the need to develop an integrated and holistic approach to the smart city (Alawadhi et al., 2012; Perboli et al., 2014; Gil-García et al., 2015). In fact, the concept is evolving from the simple integration of technology in the city with the development of solutions to urban challenges in an interconnected and synergistic way (Lombardi et al., 2012; Mattoni et al., 2015). The processes that support the development, change and daily functioning of cities are complex and urban environments should be seen as such — as complex socio-technical systems (Elzen et al., 2004). Publications highlight the need to identify new approaches that integrate urban transformation and include a wide range of stakeholders and actors both in defining the problem and also in finding solutions and conditions in developing shared visions (De Laurentis et al., 2018; John et al., 2015). The answer to these needs seems to be urban foresight, the essence of which is the creation and construction of a vision of the future in cooperation between the city authorities and a wide range of stakeholders that make up the local community. Due to the identified problems related to the implementation of the smart city concept in cities, in the author's opinion, there is a need to include foresight studies in the process of planning the future of smart cities. Foresight research tools and methods have a wide range of applications. Therefore, it seems right to use urban foresight for the purposes of planning the future of smart cities, in which citizens are both users and co-creators of smart cities.

## Overview of identified urban foresight initiatives

Examples of urban foresight carried out in different contexts can be found in the literature. The report "An initial assessment of territorial forward planning/foresight projects in the European Union" presents a number of foresight initiatives undertaken at national, regional and local levels. In Table 1 a synthetic description of selected urban foresight initiatives is presented.

**Table 1. Foresight initiatives used to manage urban development in European Union countries**

Title of the project	Context	Initiator	Methodology	Trends/Strategic areas
Bruxelles 2040 & PRDD	The project is two-pronged — on the one hand an urban planning tool and on the other a marketing tool. The project aims to adopt a more ambitious and forward-looking vision of Brussels as a city and as a metropolis	The Mayor, together with the Office for Spatial Planning and with the support of the Urban Development Agency in Brussels	A series of foresight workshops focused on diagnosis, identification challenges and objectives for Brussels in the 2020 and 2040 time horizons	<ul style="list-style-type: none"> <li>• demographic growth and rejuvenation of the Brussels population;</li> <li>• challenges related to employment, vocational training, education;</li> <li>• environmental challenges;</li> <li>• the fight against poverty and social division in the city;</li> <li>• internationalisation of the region and links with two neighbouring regions</li> </ul>
Gent 2020 — Pluriannual strategic plan	In 2003, Gent started to think about the need for strategic planning in the city. Each department of the city administration had to propose a strategic plan for their area, consisting of a mission, a vision and strategic objectives	A project set up by the municipal authorities and managed with the help of an internal management team	The methodology included the development of a new mission statement for Ghent. It was designed based on an environmental diagnosis and SWOT analysis, strategy workshops	<ul style="list-style-type: none"> <li>• demographic growth</li> <li>• increasing social and cultural diversity;</li> <li>• increasing attractiveness of the education system;</li> <li>• professionalisation and growing importance of the cultural sector;</li> <li>• growing demand for better quality of life and public participation in local governance</li> </ul>
Genk-Lo 2020	Genk is one of the most important industrial cities in Flanders. The meaning of the word "LO" in the project title refers to open space in the forest and indicates the area where the new Masterplan will be implemented	The municipality of Genk is the initiator of the project and acted in cooperation with the public enterprise Nieuwe Dak ("New Roof") and With the support of an urban development company	The project methodology involved the classic stages of urban design: observation, global visioning, plans with little long-term projection	<ul style="list-style-type: none"> <li>• cultural diversity;</li> <li>• demand for green spaces and quality of life;</li> <li>• need for optimum traffic conditions</li> </ul>
Ottignies-Louvain-la-Neuve 2050	Urban Foresight in a city of 30,000 inhabitants on the vast outskirts of Brussels. The city has experienced impressive scientific and economic development as well as steady demographic growth	It is initiated by a municipal consultative body, the CESDD (Conseil d'Evaluation et de Suivi du Développement Durable), bringing together committed citizens	A participatory foresight, open to actors and citizens. Four themes were chosen for the diagnosis: population, natural and cultural heritage, services, governance. In the second stage, the scenarios were built by the participants (Futuribles method)	<ul style="list-style-type: none"> <li>• shortage of energy supply;</li> <li>• clustering of research/enterprise activities;</li> <li>• changing values (work-life balance);</li> <li>• segregation of social groups;</li> <li>• increasing participation in democracy</li> </ul>
Copenhagen 2015 — Eco Metropolis	In 2007, Copenhagen called itself the Copenhagen named itself the green capital of Europe	City of Copenhagen	The city's initiative is similar to a marketing exercise carried out with the help of a vision	<ul style="list-style-type: none"> <li>• emphasis on reducing CO<sub>2</sub> emissions;</li> <li>• road congestion;</li> <li>• the need to preserve the</li> </ul>

**Table 1. Foresight initiatives used to manage urban development in European Union countries**

Title of the project	Context	Initiator	Methodology	Trends/Strategic areas
	With this environmental initiative, Copenhagen wants to demonstrate its global environmental leadership		The aim is to show the way and be an innovator, for example in terms of environmentally friendly policies. The vision of becoming a world eco-metropolis is presented as impossible to achieve without the involvement of citizens and business sector in environmental policy and by focusing on educating people about environmental and climate issues	quality and quantity of drinking water; • the growing importance of both EU and global environmental programmes
Helsinki 2050	The main objective was to develop sustainable strategies and concrete solutions to strengthening the status and competitiveness of Greater Helsinki as an attractive region in which to live and do business	Helsinki Municipality: Espoo, Vantaa, Kauniainen, Kerava, Tuusula, Järvenpää, Nurmijärvi, Mäntsälä, Pornainen, Hyvinkää, Kirkkonummi, Vihti and Sipoo and Ministry of the Environment	The methodology included an international competition of ideas aimed mainly at urban planners and architects. The aim of the project was to create an environment for human cooperation, to take care of the ecosystem, ensuring prosperity to meet the present and future needs of society, to base on the positive features of the existing landscapes both natural and built	the main area is the continued development of Helsinki's municipalities, the rate of economic growth in the region, and environmental protection
Bordeaux Metropolis 3.0	Bordeaux wants to be ready to face new challenges such as economic growth, an ageing population, economic globalisation, scarcity of natural resources	Exercise initiated and conducted by Communauté urbaine de Bordeaux (Inter-Communal inter-municipal body of 27 municipalities)	The project methodology was based on several pillars: • Research: an initial diagnosis and a trend forecasting study until 2030; • Thematic meetings and lecture series; • Calls for innovative projects; • Expert advice: scientific committee and panel of international experts; • Participatory dimension	• metropolisation; • shared values for residents

Source: *An Initial Assessment of Territorial forward Planning/Foresight Projects in the European Union, 2011*. [http://cor.europa.eu/en/documentation/studies/Documents/20111115\\_An+initial+assessment+of+territorial+forward+Planning+Foresight+Projects+in+the+European+Union-EN.pdf](http://cor.europa.eu/en/documentation/studies/Documents/20111115_An+initial+assessment+of+territorial+forward+Planning+Foresight+Projects+in+the+European+Union-EN.pdf) (29.05.2021).

## Best practices in applying urban foresight

Taking into account the adopted purpose of the article, it should be stated that the identified best practices concern the possibility of incorporating foresight studies into the process of implementing the smart city concept in cities. The identification of good practices was based on the following criteria:

- actions taken are in line with sustainable development principles;
- actions taken have contributed to an increase in the activity of city residents;
- actions taken are based on local human, material and innovative resources.

The following best practices were identified through the analysis of city foresight projects:

- Time horizon — the time frame of most city-level foresight initiatives is 15–20 years. However, the long-term future is very important for cities. A 50-year horizon can help to explore a wider range of creative and possible futures. Several cities have engaged in foresight projects with time horizons beyond 25 years (including Glasgow 2061 and One Planet Cardiff 2050, but these were the exception) (Future of Cities, 2016);
- The diversity of participants in the urban foresight process is essential to ensure timely and effective access to a wide range of knowledge (Future of Cities, 2016).
- A vision for urban development in itself cannot be the final end point of urban foresight. Action needs to be taken 'on the ground' to realise the ambitions of the vision. Promoting and encouraging full stakeholder engagement and communicating the vision is therefore key (Dixon et al., 2018);
- Urban foresight projects should take into account the multidimensional nature of contemporary cities, rather than focusing on single actions, implementations. Urban complexity should be taken into account in foresight projects. Few initiatives take it seriously. Simple and sectoral approaches that inevitably create biased urban visions (few projects are able to create an integrated vision of the city's future) should give way to understanding and presenting complex functional systems (Fernández-Güell & López, 2016);
- It is worth exploiting the potential of foresight for the formulation of urban strategies. To this end, foresight activities should evolve from providing general visions to assessing the specific impacts of critical urban challenges (Fernández-Güell & López, 2016);
- In addition to free discussions and debates, which are valuable but not sufficient in themselves, urban foresight projects should also use formal techniques to elicit, structure and synthesise

different viewpoints and sources of information (An initial assessment of territorial forward planning/foresight projects in the European Union, 2011);

- The potential of modern communication technologies should be exploited to foster teamwork (Fernández-Güell & López, 2016);
- The creation of plausible and coherent future visions of the city must take place through participatory processes with the involvement of a wide range of stakeholders, resulting in strategies for dealing with future environmental and socio-economic changes that can be anticipated (Dixon et al., 2018);
- Including urban diversity and local stakeholder engagement in foresight projects can improve foresight practitioners' understanding of complex participatory processes in cities (Fernández-Güell & López, 2016);
- There is no top-down imposed number of events or participants in urban foresight projects, but many examples show that it is beneficial to schedule more than one scenario planning workshop with stakeholders. This allows stakeholders to get to know each other, building openness and trust in local planning processes (Tatar et al., 2020);
- Those leading the work of building a city vision must always consider the inclusivity of the vision — what it means for all stakeholder groups in the city (Dixon et al., 2018);
- A key element of an urban foresight project is stakeholder mapping and the involvement of different actors, both in terms of types of organisations (city authorities, companies, universities, umbrella organisations, citizen initiatives, etc., and other areas relevant for integrated urban transformation e.g. energy, transport, ICT, etc.) (Tatar et al., 2020);
- Research experience in many urban foresight projects confirms the usefulness and relevance of engaging an external facilitator or external expert to help moderate the public workshops and guide the whole process, especially when developing scenarios. Involving such experts helps to mobilise stakeholders, increases the effectiveness of group work and encourages participants to voice their opinions (Tatar et al., 2020);
- It is important to place appropriate emphasis on international trend analysis, and then applying this knowledge to the analysis of the current state in the city before starting to develop scenarios and visions at the local level, as this facilitates the scenario development process and adds analytical depth. As follows from the urban foresight projects carried out, foresight is not only about interacting with stakeholders and conducting foresight workshops, but also

thorough preparation to determine the status of an issue — "understanding the present" (Tatar et al., 2020);

- Scenario planning is a useful tool within city foresight. It helps to create future models of a city and its development by identifying a preferred vision for the future and what needs to be done in the present to achieve this vision. It is not only the quantitative approaches that are important, but also the qualitative value of collaborative scenario development, which builds understanding among a wide range of audiences and then generates insights about the future of the city and enables subsequent groups of experts to work using quantitative methods to translate scenarios into potential actions (Tatar et al., 2020).

In the author's opinion, taking into account the application constraints of best practices resulting from the individual character of each urban centre, local conditions and the aspirations of its inhabitants, best practices should be treated as a tool facilitating the search for specific model solutions in the complex urban reality, closest to the needs and conditions of a given city in order to develop one's own vision of development.

## Summary

Foresight research at the city level remains limited, but the rapid development of the smart city concept has given a boost to foresight-related research. Foresight researchers agree that there is no single way to carry out effective foresight research and that different foresight undertakings require different foresight methods. In conclusion to the considerations made in this article, the most important benefits resulting from the application of urban foresight as a useful tool in managing urban development in accordance with the smart city concept should be indicated. Firstly, urban foresight offers the development of reliable and coherent visions of the future through participatory processes. Consequently, a wide range of stakeholder involvement can result in strategies for dealing with future environmental and socio-economic changes that can be anticipated. The development of collaborative networks can help to foster knowledge exchange between different stakeholders and decision makers.

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