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Smart City: From Concept To Implementation

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Administration, project, smart

Abstract

This article presents four interpretations of the term smart city, which are not competitive with each other, but even so, municipal authorities knowingly choose the so-called strong preference, as well as shows the conditions for implementing Smart City Projects, which is treated as one of the mechanisms of implementing the idea of the smart city. We also draw attention in the article to the logic of preferences, which is rooted in every decision-making process of municipal authorities, which were forced to make constant choices in conditions of conflicting expectations of stakeholders.

I. Introduction

The development of smart cities is a result of the implementation of projects, namely, organizational projects intended to achieve unique results. The results of projects enabling the implementation of the idea of smart cities are specific products or services, as well as specific technological or organisational solutions. The uniqueness of Smart City Projects (SCPs) lies in the fact that they are

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characterised by a specific, unique configuration of tangible and intangible resources and the creation of new values and ideas, as well as the implementation of different solutions to particular local social problems than to date. Other than the unique results, the distinctive features of the projects include a strictly defined implementation time (the so-called project temporality), the need to use differentiated resources, as well as implementation risk (related to the implementation of the project) and operational risk (related to the use of the resulting solutions).

The article has the objective of (1) presenting four interpretations of the term smart city, which are not competitive with each other, but even so, municipal authorities knowingly choose the so-called strong preference, as well as (2) showing the conditions for implementing SCPs, which is treated as one of the mechanisms of implementing the idea of the smart city. We also draw attention in the article to the logic of preferences, which is rooted in every decision-making process of municipal authorities, which were forced to make constant choices in conditions of conflicting expectations of stakeholders.

II. The Logic Of Preferences

Having objectives is an inherent feature of every organisation, regardless of its type (public or private), the sector in which it operates, its size or age. A city is not only an area but primarily an organization (a socio-economic system) that pursues its own interests, just as takes place with respect to companies. At the economic level, a city is a separate tangible and organisational socio-economic system, the overriding objective of which is to satisfy the collective needs of the local population. In legal terms, the interests of the local community are identified through the recognition of the city as an entity of rights and obligations and the establishment of an appropriate guarantee of the legal articulation of its interests.

The interests of the local community are specified in the process in which the municipal authorities, which are responsible for creating the city's policies (the transport, urban, economic, educational, environmental and municipal waste management policy, as well as combating crime, etc.) in a specified area, set objectives, after which they implement and enforce them. A city's policy is understood as a collection of operational and long-term objectives related to satisfying the needs of the residents. The process in which the municipal authorities determine (identify) the objectives comprising the individual policies of the city is not indifferent to the residents, as these objectives directly or indirectly affect them and, in this sense, have a general public attribute.

The hierarchisation of objectives is a part of the mechanism of creating a city's policies. A city's specified policy regarding its objectives must be choice, whilst the choice from the abstract point of view involves:

1. the establishment of what is important to the policymakers and the distinction of these possible objectives from everything that is unimportant to the policymakers;
2. the establishment of what is more important what is less important in the selected set of possible objectives.

Formulating this differently, hierarchisation (choice) involves the determination of a set of objectives and putting order to them according to the accepted criterion of importance.

The hierarchisation of objectives, that is, the determination of the criterion for assessing the chosen objectives made by individual people and small business entities may be – and sometimes is – of a fully subjective nature. Account does not need to be taken of the preferences of other people; it is sufficient that they take into account their needs and preferences and pursue them in the choice of their objectives.[1] The problem of hierarchising objectives appears differently in the case of a population of people who are residents of the city, who are not a homogeneous group. Different groups can be distinguished, each having different interests, objectives, preferences and views – similarly, the reduction rule is activated, that is, the urban community, which is formed from groups with diverse objectives, is only able to implement some of the objectives of all those articulated by the individual groups that make up the population of the city. Therefore, the situation of various groups constituting the urban community is not identical: it is least advantageous for those groups, none of whose objectives are accepted by the municipal authorities as objectives of the whole community; it is more advantageous for those groups for whom at least some of the objectives have been accepted as being objectives of the community, whilst it is most advantageous for those, all of whose objectives become the objectives of the community.

Raising these comments helps show that hierarchisation of objectives is important to members of the urban community, that is, the stage at which the municipal authorities specify the criteria for choosing the objectives. If the municipal authorities only accept the subjective criterion – reflecting only the preferences and interests of the municipal authorities – there is no place for the idea of the smart city, understood as smart people in the city, smart collaboration in the city, to become a reality. This is because urban communities have no influence on the shape of urban policies. The model of goal-setting constituting

1 Such a situation is obviously possible within certain limits – if preferences of the individual are in conflict with the situation of others, they cease to be a matter for the individual and start to be public issues

an antinomy with respect to the model described above, namely, one in which the municipal authorities are guided in the process of hierarchising objectives by the preferences of selected groups forming the urban community (objective selection criterion) should also be distinguished.

The term smart administration can be viewed in the context of the decision-making processes, which take place in the city's space; it is related to the analysis of relationships that appear between the objectives of the individual groups of the community and the objectives adopted by the municipal authorities as the objectives of the whole of the community. This is about establishing a relationship between the mechanism of setting the objectives for the urban community and the objectives of the individual groups, as well as specifying the conditions that smart administration needs to satisfy under the assumption that the objectives of the group are to be respected by the municipal authorities.

The key concept is that of preferences, because the starting point is the acceptance by the municipal authorities of certain states of affairs as being more valuable (more preferred) than others. These states of affairs (objectives of specific urban groups), which the municipal authorities consider preferential (most preferred choice), are then treated as objectives and they only take steps to achieve them because of these objectives. Smart administration should pursue the logic of preferences, which is made up of three concepts: strong preference, weak preference and indifference. These notions are the basis of formalising terms from everyday language, for example, smart technology in the city is preferred to smart collaboration (strong preference), smart people in the city are just as good as smart collaboration in the city (indifference). This means that if all states of affairs constituting an object of choice are indifferent to the urban authorities, there would be no logical or axiological grounds for making the choice and, hence, taking action at all. *Ergo*, these states cannot be indifferent to the urban authorities. The municipal authorities make choices and take action on their basis when they prefer certain objectives – they place values on certain states of affairs differently. And it is precisely in the process of valuation that four possible interpretations of smart city are reflected.

III. Smart City. Scope Of Activity

A city's 'smartness' is indexed by its ability to efficiently and effectively rationalize the planning and management of cities.[2] The literature on the subject

[2] Taylor Shelton, Matthew Zook, Alan Wiig 'The actually existing smart city' (2015) 8 Cambridge Journal of Regions, Economy and Society 13–25; Lily Kong, Orlando Woods, 'The ideological alignment of smart urbanism in Singapore: Critical reflection on a political paradox' (2018) 4 Urban Studies 679–701

contains four approaches defining the concept of smart city: (1) smart technology in the city, (2) smart people in the city, (3) smart collaboration in the city and (4) combinations of smart technology, smart people and smart collaboration in the city.

Within the first group of definitions, emphasis is placed on technology, seen as a driving force and a *sine qua non* for the conversion of the socio-economic system – namely, the city – into the desired state of affairs, that is, the smart city. It is claimed that IT increases the productivity of the municipal infrastructure and its constituent components.[3] The basic assumption is that it is the technology and its associated infrastructure that is the initiator of the changes. Therefore, the task of the public administration is to focus on technology and initiate – often from scratch – urban centres equipped with advanced infrastructure.[4] This assumption is visible:

1. From the point of view of the smart city as a 'city where new technologies are intelligently implemented to provide more efficient, secure, safe and sustainable everyday activities and services'.[5]
2. Synoptic 'top-down' projects dominate in the logic of the structure of projects.

The common element for both the next groups of definitions of a smart city is the assumption that it is the people and not the technology and infrastructure that are the initiators of change.

Publications can be mentioned, in which emphasis is placed on the need to develop and improve qualifications, knowledge and skills of the inhabitants. The objective of the municipal authorities is to bring about a unique transformation of inhabitants into human resources who contribute to the development of the city, attract investment and determine its competitive

3 Marcin Baron, 'Do we need smart cities for resilience?' (2012) 10 Journal of Economics & Management 32–46; Robert G. Hollands, 'Will the real smart city please stand up? Intelligent, progressive, or entrepreneurial?' (2008) 3 City Analysis of Urban Trends, Culture, Theory, Policy, Action 303–320; George Cristian, Mariacristina Roscia, 'Definition methodology for the smart cities model' (2012) 1 Energy 326–332; Nils Walravens, 'Mobile business and the smart city: Developing a business model framework to include public design parameters for mobile city services' (2012) 3 Journal of Theoretical and Applied Electronic Commerce Research 121–135

4 An example of one of the projects launched with the focus on smart technology in the city is Masdar in the United Arab Emirates – an estate intended for 50,000 people on the desert outskirts of Abu Dhabi, in which every building, lamp and electric car have been designed and equipped in sophisticated software intended to save energy

5 Guido Perboli, Alberto De Marco, Francesca Perfetti, Matteo Marone, 'A new taxonomy of smart city project' (2014) 3 Transportation Research Procedia 473

advantage.[6] Reference to the logic of preferences mentioned in the article means that it is possible to notice that preferences regarding objectives are complementary to preferences regarding actions; this is about the so-called problem of compatibility of objectives and actions. If urban authorities consider a certain state of affairs to be valuable and desirable (in this case the creation of a relatively large group of human resources with a high level of scientific and technical potential within the population) and want to implement it, they also consequently assess various actions and projects for their relevance to the pursuit of the intended objective. In practice, such activities are smart inhabitants, in terms of their educational grade, assigning urban areas and financial resources to the formation of scientific and technical campuses and creating channels for transferring knowledge between universities and business entities.[7] The assumption that human resources are the source and the driving force behind the changes is noticeable:

1. in investments, which can lead to the creation of a knowledge-based economy within the city's space;
2. in the creation of cultural conditions, which not only, but also facilitate and encourage the inhabitants to attract and develop knowledge, skills and qualifications and simultaneously build projects of an incremental nature.

Another aspect that is emphasised in the literature is the ability to create relations of cooperation between various entities: government institutions and business entities, as well as non-profit organisations of various provenances. The assumption that creativity, inspiration and innovation cannot arise where direct interpersonal contacts are difficult or absent is appropriate for such a view of a smart city. The city's potential can contribute to generating and conducting socio-economic changes. The intensification of interpersonal relations, the rapid flow

6 Dennis Linders, 'From e-government to we-government: Defining a typology for citizen coproduction in the age of social media' (2012) 4 Government Information Quarterly 446–454; Helmut Willke, *Smart governance: Governing the global knowledge society* (Campus Verlag 2007)

7 The limits of this article prevent a detailed discussion of all issues related to the interpretation of smart cities as a process of creating human resources with high scientific and technical potential and creating infrastructure for development. However, it should be emphasised that, precisely, this view of smart cities (smart people in the city) is very strongly focused on developing the competitive advantage of the city, that is, the leader of the knowledge-based economy. At the same time, from a historical perspective, it is not a *novum*. In 1862, the U.S. government implemented a programme of splitting land from the federal government's resources to build new universities. President Abraham Lincoln and Congress were interested in supporting innovation and developing knowledge, particularly in the area of agriculture and engineering. It is precisely because of this programme that Cornell University and MIT, amongst others, arose and contributed to the United States achieving a leadership position in the area of business and science

of information in the urban environment, cooperation and participation drive economic development, increase innovation and facilitate the effective performance of municipal services. Therefore, the main task of the municipal authorities is the ability to identify who is the key to the achievement of the objectives and initiate and facilitate connections between them. The result of these processes is to be the creation of 'innovation hubs'.[8] The identification of the smart city with activity that is smart collaboration in the city is reflected in the theory and practice of the functioning of the public administration.

The expression of this is the development of administrative phenomena that are not rooted in the Weber tradition: governance and public–private partnership.[9] The assumption that inter-sectoral cooperation is a source of radical changes and progress causes:

1. 'A shift away from vertical, often government-controlled integration to environments involving a mix of multiple public, private and quasi-private entities that manage and govern urban infrastructural systems'.[10]
2. The need for the self-government authorities to also obtain new skills and knowledge capabilities. The self-government administration performs its tasks not only within a hierarchical structure but also within hybrid structures and affects other entities not only within the hierarchical structure but also within the framework of the information and capital ties.[11] Similarly, incremental projects dominate.

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8 Karima Kourtit, Peter Nijkamp, Daniel Arribas, 'Smart cities in perspective – A comparative European study by means of self-organizing maps' (2012) 2 Innovation: The European Journal of Social Science Research 229–246; Karima Kourtit, Peter Nijkamp, 'A smart cities in smart space: A regional science perspective' (2017) 1 Scienze Regionali 105–114; Gabriela Viale Pereira, Maria A. Cunha, Thomas J. Lampoltshammer, Peter Parycek, Mauricio G. Testa, 'Increasing collaboration and participation in smart city governance: A cross-case analysis of smart city initiatives' (2017) 3 Information Technology for Development 526–553

9 Agnieszka Chrisidu-Budnik, Jerzy Korczak, 'Związek jednostek samorządu terytorialnego jako struktura sieciowa' ['Territorial Self-Government Union as a Network Structure'] (2012) 1–2 Samorząd Terytorialny 86–104, Justyna Przedańska, 'Partnerstwo publiczno-prywatne jako forma współpracy administracji pulicznej z otoczeniem' ['Public-private partnership as a form of cooperation between public administration and the environment'] (2017) CXI Przegląd Prawa i Administracji, Jerzy Korczak (ed) *Otoczenie administracji publicznej* [*Public administration environment*] 143–158; Wasim Al-Habil, 'Governance and Government in Public Administration' (2011) 5 Journal of Public Administration and Policy Research 123–128

10 Sarah Barns, Ellie Cosgrave, Michele Acuto, Donald Mcneill, 'Digital infrastructures and urban governance' (2017) 1 Urban Policy and Research 20–21

11 This approach is based on relations intended to share resources and focus on the use of common resources, which becomes possible through learning and sharing. In this sense, the concept of smart collaboration in the city is larger, that is, it can include smart people in the city. The learning relationship is based on an exchange or extension of knowledge, skills and qualifications, whereas sharing means the use of resources of the partners to the cooperation who are not themselves able to use these resources

The ability of the municipal authorities to create a configuration of these elements – smart technology, smart people and smart collaboration – is emphasised in the last group of definitions.[12] It is appropriate in this approach to assume that the organisational skills of the municipal authorities and primarily the skills of effective horizontal coordination and building relationships based on relational contracts constitute the driving force behind urban development. The ability to initiate and implement combinations of smart technology, smart people and smart collaboration in the city's space is the most advanced, complex and simultaneously demanding form of transformation of the city. The expressions of this are the formation of administrative phenomena, which include governance network, heterarchy and coopetition.[13] The assumption that the organiser's skills generate change requires the following of the municipal authorities:

1. Awareness of the existence of common and conflicting objectives alongside each other; without the ability to find common objectives, cooperation cannot be taken up, and, therefore, there is no need for the configuration and its consequential vertical coordination and, without the existence of conflicting objectives, there is no need to look for coincidence. Therefore, coopetition is a form and simultaneously a plane for arriving at an agreement containing elements of cooperation (the parties look for agreement – ensure consistency of urban objectives – coordination of activities) and competition (all parties obtain the best possible result for them).
2. The awareness of the formation of relations, which, on the one hand, are an expression of the flexibility of the municipal authorities and learning and, on the other hand, the relationships alone increase this flexibility and learning ability. A high level of complexity and uncertainty of the urban system based on the combination of smart technology, smart people and smart collaboration imposes the need on the urban authorities to adapt, including that which requires being flexible.
3. Choice between a synoptic and an incremental structure of the project.

12 Robert G. Hollands, 'Will The Real Smart City Please Stand Up? Intelligent, Progressive, or Entrepreneurial?' (2008) 3 City Analysis of Urban Trends, Culture, Theory, Policy, Action 303–320; Albert Meijer, Manuel P.R. Bolivar, 'Governing the Smart City: A review of the literature on smart urban governance' (2015) 2 International Review of Administrative Sciences 392–408

13 Agnieszka Chrisidu-Budnik, 'Trust in an Integrated Territorial Investment' in Barbara Kożuch et al (ed) *Managing Public Trust* (Palgrave Macmillan 2018) 209–223

IV. Smart City Projects. Conditions

The notion and characteristics of the project are a continuous matter of interest of the representatives of theory and practice of dealing with the issue of project management. It is noted that the project is an organisational project within which human, material and financial resources are configured in an innovative way to achieve unique and desirable objectives in qualitative and quantitative terms, within the framework of specific financial and time constraints.[14] At least four distinctive features can be mentioned, which set the projects in opposition to other organisational projects:

1. Uniqueness: Each project has a specific configuration of tangible and intangible resources within the existing organisational structures.
2. Innovativeness: Each project is an organisational project facilitating the creation of new values and ideas and implementing different solutions to specific local social problems than to date.
3. Timeliness: Each project has a precisely defined start and end date and specific stages and is, therefore, a venture that is limited in time. The temporal feature of the project means that its implementation is related to the need to provide the desired results at a specified time.
4. Product: Every project is initiated to achieve the intended effects. The effect presents the result of the implementation of the organisational project, namely, the intended effect as an objective.

Since the 1960s, the issue of projects has given rise to questions about factors affecting both the shape and the possibilities, as well as the methods of managing a project in such a way as to effectively enable the achievement of its intended objectives. The issue of projects is currently increasingly being considered from the point of view of the implementation of the assumptions mentioned in the article, which are appropriate to each of the four interpretations of the notion of the smart city. In this context, the aim is to separate the categories of SCPs from among the whole group of projects and identify the circumstances of their effective implementation.

The literature describes SCPs in two ways: either utilitarily, as a mechanism for effectively implementing the appropriate assumptions, especially for the idea of smart technology in the city,[15] or in the axiological plane, as a mechanism for implementing the four assumptions of smart cities discussed in the article, which are essentially of the nature of public objectives. Attention is drawn in this second

14 J. Rodney Turner, *The handbook of project based management* (McGraw-Hill 1993)

15 Guido Perboli, Alberto De Marco, Francesca Perfetti, Matteo Marone, 'A new taxonomy of smart city project' (2014) 3 Transportation Research Procedia 470–478

meaning of SCPs to the fact that their subject matter is the implementation of projects of a public nature, namely, those that serve the public interest and the common good.[16] The objective of the SCP is public in the sense that it remains in the well-understood public interest – namely, by assumption, it is to serve the common good of the residents of the city. In this context, it should be accepted that the criterion for isolating public and private projects is the criterion of interest, which is additionally based on certain subjectively and/or objectively accepted values. Within public projects, which refer to ideologically and axiologically determined attitudes of local authorities, SCPs that can be activated in different areas can be specified, as presented in Table 1.

The determinants of the effectiveness of the project vary over time and are of a dynamic and individualised nature because of the uniqueness of each project. Three conditions may be mentioned with regard to SCPs.

First is the equilibrium. This applies to the balance between the planning approach[17] and the adaptive approach.[18] Drawing attention to the meaning of the importance of the 'planning-adaptive' contrast in the application to the problem of the determinants of the effectiveness of the SCPs shows that, owing to its uniqueness, there is a need to precisely set the objectives and main parameters (scope, quality, time, cost) and prepare a reliable and comprehensive plan preceding the implementation phase.[19] Undoubtedly, the opposition understood

16 Such an interpretation of an SCP is important in that different approaches to the differences between public projects and projects implemented by private entities can be found in the literature. In the first indifferent approach, conclusions are formulated generally, however, not making the reservation that they are only relevant to public projects; thereby, it is claimed that public projects do not differ from private projects, see Jui-Sheng Chou, Jung-Ghun Yang, 'Project management knowledge and effects on construction project outcomes: An empirical study' (2012) 5 Project Management Journal 47–67; Prasanta K. Dey, 'Managing projects in fast track – a case of public sector organization in India' (2000) 7 International Journal of Public Sector Management 588–609. In the second polarising approach, conclusions are formulated on the need for a demarcation between projects in the public sector and the projects implemented by private entities, see S.Z.S. Tabish, Kumar N. Jha, 'Identification and evaluation of success factors for public construction projects' (2011) 8 Construction Management and Economics 809–823; Markku Kuula, Antero Putkiranta, Pirjo Tulokas, 'Parameters in a Successful Process Outsourcing Project: A Case from the Ministry of Foreign Affairs, Finland' (2013) 12 International Journal of Public Administration 857–864

17 The planning approach is based on sequencing methods, namely, a linear, consequential, staged structure of project implementation. The most prevalent methodologies in this group are the PRINCE2® and the PMBoK® methodologies

18 The adaptive (flexible) approach is based on the so-called agile project methodologies, which are based on the iterative and incremental achievement of the project objectives. The Scrum methodology is most frequently used in this group. See Michał Trocki (ed), *Metodyki i standardy zarządzania projektami [Project management methodologies and standards]* (PWE 2017) 231

19 It should be emphasised that projects implemented by the public administration feature increased complexity, ambiguity and immeasurability of objectives. In projects implemented by private entities, the overriding objective is profit maximisation and, similarly, it is relatively easier to determine the project parameters. In the projects implemented by the

Table 1: Areas of implementation of SCPs

Area of implementation	Description of activity (examples)
Environment	Renewable energy, efficient use of water,[20] a reduction in greenhouse gas emissions in connection with modernised recycling and cost reduction, a reduction in water consumption, the incineration of sewage sludge, investment in solar panels
Quality of life	The development of underground transport, which frees up space at ground level for comfortable and clean cycling, the extension of the network of cycle paths, digital parking meters sending information to navigation devices, when and where a space is freed up, the creation or expansion of the social and technical infrastructure
Management	Participation treated as a process and not a state, that is, admitting an objective criterion that reflects preferences of urban communities
People	The development and use of the potential of the cumulative experience and knowledge of urban communities, the acceptance that the basis of the project and the condition of use by the inhabitants is the creation of social ties (relationships), the promotion of variety, an atmosphere of freedom, tolerance and dynamism

Source: own study.

in this way must also be taken in to account, taking into consideration the fact that 'projects require a high degree of flexibility, understood as the ability to quickly introduce *ad hoc* changes and adapt to the changing conditions'.[21] The approaches mentioned and, in fact, their methodologies are in conflict with each other, which, in the context of the management of SCPs, is primarily expressed

public administration, profit is not the overriding objective and, in the case of the so-called soft projects, the objective of which is, for instance, the reduction of unemployment or the battle against smog, the category profit does not appear; only the costs of using the resources for the performance of the operations in the project are estimated. The overriding objective of the projects performed by the public administration is the implementation of the common good, which is concretised and performed uniquely in each project. See David W. Wirick, *Public sector project management: Meeting the challenges and achieving results* (John Wiley & Sons 2009); Emils Pūlmanis, 'Micro-Economical aspects of public projects: Impact factors for project efficiency and sustainability' (2015) 6 PM World Journal 1–15

20 A solution was accepted in the said city, Masdar, in the United Arab Emirates involving turning off showers automatically after several minutes, whilst water and energy consumption is monitored by a smart computer network enabling the public supplier to intervene, if the user is too 'wasteful', see David Biello, 'Eco-Cities of the future' (2008) 6 Scientific American Earth 68–73

21 Janusz M. Lichtarski, 'Antynomie w zarzadzaniu projektami' ['Antinomies in project management'] in *Sieci międzyorganizacyjne, procesy i projekty w erze paradoksów [Interorganizational networks, processes and projects in the era of paradoxes]* (Wydawnictwo Uniwersytetu Ekonomicznego we Wrocławiu 2016) 349

in the skills and the need to reconcile the directives of the actions of their appropriate approaches.[22]

Second is the oscillation. SCPs feature a certain degree of ambiguity; in particular, the study project plan can demonstrate only estimated data on costs, deadlines and quality. The project plan is concretised at the stage of identifying the detailed functions and objectives to be achieved within the framework of this organisational project. Even so, an inherent property of SCPs, which is also their weakness, is a certain degree of risk that, in practice, the project plan may not provide the desired results or generate the expected changes.[23] Therefore, possible oscillation (Lat. *oscillatio* – rocking, fluctuation) should be taken into account during project management. In the case of projects implemented by the municipal authorities, it is important to separate the so-called external oscillation, the frequency and nature of which is a consequence of the changes taking place in the project's environment, for example, changing legal regulations, the market situation and the so-called internal oscillations, which arise from the objective and the values of the parameters of a specific project.

Third is the skilful integration of resources and coordination of activities.[24] This determinant should be considered in the context of the issue of autonomy of the project. The autonomy of the project applies to the possibility and the need to isolate the project from the organisation in organisational, economic, and sometimes also legal terms. The variant of isolating the project adopted in each specific case should reflect the adequacy of that variant to the optimum achievement of the project's objective. In the area of the projects implemented by the territorial self-government, it is possible to apply two variants.

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22 See Aaron J. Shenhar, Dov Dvir, *Reinventing Project Management. The Diamond Approach to Successful Growth and Innovation* (Harvard Business School Press 2007) 10 et seq

23 Risk is defined as an uncertain event that may have a positive or a negative impact on the project objectives. *A Guide to the Project Management body of Knowledge* (PMBOK® Guide) – Fifth Edition, Project Management Institute (Newton Square 2013) 309. It should be highlighted that it is strongly emphasised in the theoretical and practical layer of project management that risk should be perceived not only in the traditional way – as a potential threat to the achievement of the project's objectives – but also as an opportunity. In such a perspective, risk is perceived as a situation in which there is a probability of achieving results that are better or worse than expected under the assumption that the distribution of the probability of deviation of these results from their expected value is also known. William H. Marsh, *Basic Financial Management* (South-Western College Publishing 1995) 235

24 The literature on the subject frequently introduces the term governance, referring to the integration of resources and the coordination of activities. Project governance includes (a) the establishment of the relationship between the participants involved, (b) the determination of the flow of information between the project stakeholders, (c) the designation of the project structure, (d) consolidation of resources and (e) the creation of mechanisms for monitoring results at each stage of implementation. See Bruce T. Barkley, *Government program management* (McGraw-Hill 2011) 45 et seq; Lynn H. Crawford, Jane Helm, 'Government and governance: The value of project management in the public sector' (2009) 1 Project Management Journal 73 et seq

The first variant constitutes intraorganisational projects, embedded in the organisational structure of the self-government administration.[25] In this variant, integration means the need to cross individual organisational divisions of the office in which the project is being conducted. The commitment of human resources from various divisions is required, which forces the coordination of cooperation within the project team, as well as the harmonisation of the cooperation between the project manager and the line managers; the elimination or restriction of the powers of any of these managers is undesirable. Projects of this type usually assume the form of 'top-down' synoptic projects. Their potential weakness is the centralised nature of planning based on rigid assumptions regarding human expectations; they can, therefore, be insensitive to changes and unexpected situations. This explains why the implementation of many SCPs has failed, because their initiators wrongly foresaw the method of use of opportunities in everyday life and did not provide appropriate flexibility.

The second variant is that of intraorganisational projects, which should be seen as mechanisms of participation of various groups in the performance of public tasks. Intraorganisational projects are often activated in order to conduct investments in the area of technical and social infrastructure; the projects feature:

- a scope exceeding the capabilities of an individual partner (lack of know-how, financial resources, technology),
- a high degree of complexity and complication forcing the creation of interdisciplinary organisational projects,
- a high degree of risk that, in the case of large projects, the distribution of the cooperation on all the partners.

The essence of the integration in interorganisational projects lies in the objective plane both in terms of the methods of their definition and the expected ways of achieving them. The effectiveness of the implementation of an interorganisational project is a function of the skilful reconciliation of the logic of functioning, which is appropriate to each of the sectors and the assurance of intensive coordination of tangible and intangible flows of resources between them.

25 There are many forms of intraorganisational projects; their common elements are (1) the organisational assignment of employees to a project group, (2) the determination of the scope of competence and the resulting decision-making powers of the project manager and the line managers, (2) the organisational inclusion (empowerment) of the project group in the office's existing line structure and (3) a lack of substitutability – the project group does not displace existing line structure but purely supports it for the duration of the project. The oldest form of intraorganisational projects used by public administrations is the matrix structure, which creates the possibility of stably affecting and dividing competencies between the project manager and the line manager. See Agnieszka Chrisidu-Budnik, Jerzy Korczak, Andrzej Pakuła, Jerzy Supernat, *Nauka organizacji i zarzadzania [The science of organization and management]* (Kolonia Limited 2005)

V. Summary

Up to 200 years ago, location was the main factor determining whether a city would develop harmoniously. Urban centres were built, for example, at the confluence of rivers or on the shores of bays, namely, in places enabling the use of maritime routes for trading purposes. At present, the greatest assets of cities are education, high-quality urban infrastructure, the transformation of existing cities into those that are more environmentally friendly, diversity and tolerance, namely, values as a result of which investors, specialists and technologically innovative industries come to cities. Creativity and inspiration cannot arise where direct contacts between people are difficult. If municipal authorities take into account the socio-urban potential, this can contribute to the faster implementation of changes in urban space. These changes usually require the use of advanced technologies. SCPs are launched to implement assumptions that are appropriate for smart cities; in particular, the use of 'bottom-up' incremental projects creates an opportunity to rethink the concept of future cities – methods of their design, construction and functioning. By opening up the opportunity of a smart life to the urban community, the municipal authorities ensure that the community formed by them – which is the actual embodiment of the city – will also be smart.

References

A Guide to the Project Management body of Knowledge (PMBOK® Guide) (Project Management Institute, Newton Square 2013)

Al-Habil Wasim, 'Governance and Government in Public Administration' (2011) 5 Journal of Public Administration and Policy Research

Barkley Bruce T, *Government Program Management* (McGraw-Hill 2011).

Barns Sarah, Cosgrave Ellie, Acuto Michele and Mcneill Donald, 'Digital Infrastructures and Urban Governance' (2017) 1 Urban Policy and Research

Baron Marcin, 'Do We Need Smart Cities for Resilience?' (2012) 10 Journal of Economics & Management

Biello David, 'Eco-Cities of the future' (2008) 6 Scientific American Earth

Chou Jui-Sheng and Yang Jung-Ghun, 'Project Management Knowledge and Effects on Construction Project Outcomes: An Empirical Study' (2012) 5 Project Management Journal

Chrisidu-Budnik Agnieszka, 'Trust in an Integrated Territorial Investment' in Barbara Kożuch et al. (ed) *Managing Public Trust* (Palgrave Macmillan 2018)

Chrisidu-Budnik Agnieszka, Korczak Jerzy, Pakuła Andrzej and Supernat Jerzy, *Nauka organizacji i zarzadzania [The Science of Organization and Management]* (Kolonia Limited 2005)

Chrisidu-Budnk Agnieszka and Korczak Jerzy, 'Związek jednostek samorządu terytorialnego jako struktura sieciowa' ['Territorial Self-Government Union as a Network Structure'] (2012) 1–2 Samorząd Terytorialny

Crawford Lynn H and Helm Jane, 'Government and Governance: The Value of Project Management in the Public Sector' (2009) 1 Project Management Journal

Cristian George and *Roscia* Mariacristina, 'Definition Methodology for the Smart Cities Model' (2012) 1 Energy

Dey Prasanta K, 'Managing Projects in Fast Track – a Case of Public Sector Organization in India' (2000) 7 International Journal of Public Sector Management

Hollands Robert G, 'Will the Real Smart City Please Stand Up? Intelligent, Progressive, or Entrepreneurial?' (2008) 3 City Analysis of Urban Trends, Culture, Theory, Policy, Action

Kong Lily and Woods Orlando, 'The Ideological Alignment of Smart Urbanism in Singapore: Critical Reflection on a Political Paradox' (2018) 4 Urban Studies

Kourtit Karima and Nijkamp Peter, 'A Smart Cities in Smart Space: A Regional Science Perspective' (2017) 1 Scienze Regionali

Kourtit Karima, Nijkamp Peter and Arribas Daniel, 'Smart Cities in Perspective – A Comparative European Study by Means of Self-Organizing Maps' (2012) 2 Innovation: The European Journal of Social Science Research

Kuula Markku, Putkiranta Antero and Tulokas Pirjo, 'Parameters in a Successful Process Outsourcing Project: A Case from the Ministry of Foreign Affairs, Finland' (2013) 12 International Journal of Public Administration

Lichtarski Janusz M, 'Antynomie w zarzadzaniu projektami' ['Antinomies in Project Management'] in *Sieci międzyorganizacyjne, procesy i projekty w erze paradoksów [Interorganizational networks, processes and projects in the era of paradoxes]* (Wydawnictwo Uniwersytetu Ekonomicznego we Wrocławiu 2016)

Linders Dennis, 'From e-Government to We-Government: Defining a Typology for Citizen Coproduction in the Age of Social Media' (2012) 4 Government Information Quarterly

Marsh William H, *Basic Financial Management* (South-Western College Publishing 1995)

Meijer Albert and Bolivar Manuel PR, 'Governing the Smart City: A Review of the Literature on Smart Urban Governance' (2015) 2 International Review of Administrative Sciences

Perboli Guido, De Marco Alberto, Perfetti Francesca and Marone Matteo, 'A New Taxonomy of Smart City Project' (2014) 3 Transportation Research Procedia

Przedańska Justyna, 'Partnerstwo publiczno-prywatne jako forma współpracy administracji pulicznej z otoczeniem' ['Public-Private Partnership as a Form of Cooperation Between Public Administration and the Environment'] (2017) CXI Przegląd Prawa i Administracji, Jerzy Korczak (ed) *Otoczenie administracji publicznej* [*Public Administration Environment*]

Pūlmanis Emils, 'Micro-Economical Aspects of Public Projects: Impact Factors for Project Efficiency and Sustainability' (2015) 6 PM World Journal

Shelton Taylor, Zook Matthew and Wiig Alan, 'The Actually Existing Smart City' (2015) 8 Cambridge Journal of Regions, Economy and Society

Shenhar Aaron J and Dvir Dov, *Reinventing Project Management. The Diamond Approach to Successful Growth and Innovation* (Harvard Business School Press 2007)

Tabish SZS and Jha Kumar N, 'Identification and Evaluation of Success Factors for Public Construction Projects' (2011) 8 *Construction Management and Economics*

Trocki Michał (ed), *Metodyki i standardy zarządzania projektami [Project Management Methodologies and Standards]* (PWE 2017)

Turner J Rodney, *The Handbook of Project Based Management* (McGraw-Hill 1993).

Viale Pereira Gabriela, Cunha Maria A, Lampoltshammer Thomas J, Parycek Peter and Testa Mauricio G, 'Increasing Collaboration and Participation in Smart City Governance: A Cross-Case Analysis of Smart City Initiatives' (2017) 3 Information Technology for Development

Walravens Nils, 'Mobile Business and the Smart City: Developing a Business model Framework to Include Public Design Parameters for Mobile City Services' (2012) 3 Journal of Theoretical and Applied Electronic Commerce Research

Willke Helmut, *Smart Governance: Governing the Global Knowledge Society* (Campus Verlag 2007).

Wirick David W, *Public Sector Project Management: Meeting the Challenges and Achieving Results* (John Wiley & Sons 2009).