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INTEGRAREA CONCEPTULUI DE MANAGEMENT AL ORAȘELOR SMART ÎN OBIECTIVUL NR.11 DIN ODD ALE NAȚIUNILOR UNITE

INTEGRATING THE CONCEPT OF SMART CITIES MANAGEMENT IN OBJECTIVE NO. 11 OF THE SUSTAINABLE DEVELOPMENT GOALS

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Abstract. *Astăzi, mai mult ca niciodată, orașele trebuie să dezvolte procese de planificare strategică care să întâlnească nevoile locuitorilor. Până în anul 2030, Organizația Națiunilor Unite (ONU - ODD) estimează că șase din zece persoane vor fi locuitori urbani, iar cel mai accentuat ritm de urbanizare va fi resimțit în țările în curs de dezvoltare.*
Termenul de oraș inteligent caracterizează așezarea umană în care rețelele și serviciile tradiționale sunt eficientizate prin utilizarea tehnologiilor digitale și de telecomunicații în beneficiul locuitorilor și al afacerilor. Până de curând, tehnologiile inteligente au fost percepute ca instrumente perturbatoare. Obiectivele cercetării de față sunt abordarea cuprinzătoare a elementelor unui oraș inteligent cât și determinarea rolului și al locului managementului în cadrul Obiectivului cu nr. 11 din ODD. La baza cercetării au fost utilizate metode calitative, inducția și deducția, având ca suport științific rapoartele organismelor internaționale și a literaturii academice de resort.
Aprecierea plusvalorii pe care tehnologiile moderne sunt capabile să o furnizeze fiecăruia dintre părțile interesate crește rolul gestionării eficiente a structurilor urbane.

Keywords: ***Smart City Management, sustainable development, SDG, remote work***

JEL CLASSIFICATION: B27, D51, D58, E21, F64

INTRODUCTION - The presence of high-density human settlements is a representative trend in recent decades. Certainly, the role of urban economies is undeniable, generating almost 80% of the global Gross Domestic Product. Occupying only three percent of the Earth's surface, urban settlements have a monopoly on energy consumption and are responsible for about 70% of carbon emissions. In addition to economic functions, cities perform countless other functions: health, education, culture, leisure, etc., they are also home to billions of people. The relevance of the subject is justified through the data provided by international bodies, which attest the fact that more than half of the world's population lives in cities (4.2 billion in 2018). At the same time, the United Nations estimate that by 2030 six out of ten people will be urban dwellers. In this order of ideas, this paper aims to explain how Smart City Management can improve the living conditions of subjects.

FINDINGS AND DISCUSSIONS - Smart City Management refers to the Sustainable Urban Planning (SUP), including its particular goals, strategies, and life quality standards

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focused on the sustainable development; Infrastructure for the implementation of the SUP, and the Evaluation Tools for measuring the effectiveness and the efficiency of a Smart City functioning.

It is important to note that in the coming decades, 90% of urban expansion will take place in developing countries. From this point of view, the problems faced by third world countries affect not only the functionality of local economies, but also the way of life of tens of millions of people, reflected by living conditions, accessibility to medical services and level of education.

Moreover, to date, hundreds of millions of people continue to live in informal, suburban housing, where there are no sanitation services, a high crime rate persists, and social disparities are pronounced. These places often become hotbeds of infections and the spread of epidemics, making people's lives difficult. For this reason, establishing a paradigm for the development of urban economies focused on sustainability is ultimately imperative.

The 2030 United Nations Agenda comprises seventeen integrated and indivisible goals corresponding to the three dimensions of sustainable development - environmental, social and economic, involving both highly developed and developing countries alike. Of the seventeen SDGs, the 11th goal, "Sustainable Cities and Communities", aims to promote inclusive, safe and sustainable cities and human settlements around the globe.[8] This objective sets out the indicators and tools needed to strengthen inclusive and sustainable urbanization, with the aim of significantly increasing the number of human settlements that adopt and implement integrated policies and plans on resource efficiency, climate change mitigation and adaptation, and natural disaster risk reduction. Particular emphasis is placed on welfare and social security, transposed through green infrastructure projects, which aim at greening economic activities; implementation of IoT (*Internet of Things*) technologies to ensure the security of citizens and optimize the transportation system; construction of durable and resilient buildings using local materials; ensuring universal access to green spaces.

The term *smart city* characterizes the human settlement in which traditional networks and services are streamlined through the use of digital and telecommunications technologies for the benefit of residents and businesses. As cities become smarter, they become more livable and responsive - and today we only see a preview of what technology could eventually do in urban areas. Municipal administrations committed to promoting sustainable urban infrastructure aim to design smarter urban transport networks, modernize water supply and waste disposal facilities, and implement efficient lighting and heating of buildings.[9] Also, a priority for them is to meet the needs of an aging population. According to data provided by the World Bank, the number of people in urban areas using the safely managed sanitation service has increased significantly in the last ten years.

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8 United Nations publication issued by the Department of Economic and Social Affairs. *The Sustainable Development Goals Report*. United Nations Publications, 300 East 42nd Street, New York, NY, 10017, United States of America; 2021, p.44. ISSN: 2518-3958.

9 OECD, Ministry of Land, Infrastructure and Transport, Korea. *Smart cities and inclusive growth. Building on the outcomes of the 1st OECD Roundtable on Smart Cities and Inclusive Growth*. OECD 2020; p.8; p.32; p.35; p.44. *http://www.linkedin.com/groups/OECD-Publications-4645871*

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Thus, if in 2015 this indicator comprised 37% of the total urban population globally, by 2015 it had increased by 8.4 percentage points. Despite the progress, we find that only half of the urban population benefits from sanitation services.[10] Until recently, smart technologies were perceived as tools behind the scenes. The situation is changing dramatically lately, as more and more decision-makers and stakeholders become aware of the added value that modern technologies are able to provide to every individual through personal portable smartphones, which supply millions of people with real-time information on traffic, health services, safety alerts and community news. Contrary to popular belief, the implementation of sustainable infrastructure in urban economies starts with smart-city strategies. In other words, "smartness" is not just about installing digital interfaces in traditional infrastructure or streamlining the city's operations. It is also about using technology and data intentionally to make the right decisions and to provide a better quality of life.[11]

Three elements combine synergistically to form a smart city. *First* and foremost is the technology base, which includes a critical mass of smartphones and sensors connected via high-speed communications networks. *The second element* consists of specific applications. Translating raw data into alerts, information, and actions requires the right tools, and that's where technology providers and application developers come in. *The third element* is the use by cities, companies and the public. Many applications only succeed if they are widely adopted. They encourage people to use transit during business hours, change routes, use less energy and water and do so at different times of the day, and reduce stress on the health care system through preventive self-care.

Applications are capable of streamlining traffic. Tens of millions of people in cities around the world start and end every day working in traffic or on overcrowded buses and trains. Improving your daily commute is critical to your quality of life. Using digital signals or mobile applications to provide real-time information about delays allows drivers to adjust routes. Smart-parking apps direct them directly to available places, eliminating wasted time around city blocks. Also, installing IoT sensors on existing physical infrastructure can help crews troubleshoot issues before they turn into malfunctions and delays. By 2025, cities implementing smart mobility applications have the potential to reduce commuting time by an average of 15–20%. The potential associated with each application is highly variable, depending on the density of each city, the existing transit infrastructure and shuttle models. In a dense city with extensive traffic, smart technologies could reduce the commuter's average by 15 minutes a day. In a developing city with more strenuous commutes, the improvement could be half an hour every day.

Apps can also help cities fight crime and improve other aspects of public safety.

Implementing a range of applications could reduce deaths (homicides, accidents and fires) by up to 10% and burglary and theft incidents by as much as 40%. In addition to these values are the incalculable benefits of providing residents with freedom of movement and peace of mind.

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10 United Nations Department of Economic and Social Affairs. *Sustainable Development. Goal No. 11: Make cities and human settlements inclusive, safe, resilient and sustainable*. https://sdgs.un.org/goals/goal11

11 HACHI, Mihai, *Spații creative și dezvoltarea urbană în orașul Chișinău*. Conferința Științifică Internațională „Competitivitate și Inovare în economia cunoașterii”, Ediția a XXII-a, 25-26 septembrie 2020, Chișinău. e-ISBN 978-9975-75-985-4; p.335-336.

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When lives are at stake, every second counts, which makes the speed of the response critical.

Intelligent systems can optimize call centers and field operations, while preemption of the traffic signal gives emergency vehicles a clear path to drive.

These types of applications could reduce the emergency response time by up to 35%.

Another aspect of the smart infrastructure included in this paper and which is able to reduce the pressure on the urban environment is the implementation of hybrid models in the workplace. The potential for work that does not require presence and physical interaction was analyzed in a McKinsey study conducted in nine countries, six of which are states with a highly developed economy. The analysis shows that in the coming years, more than 20% of the workforce could work remotely from three to five days a week as efficiently as they could from an office.[12] If the results are true, that would mean three to four times more people working from home than the situation before the pandemic and would have a profound impact on urban economies. Research has also confirmed that higher-paying jobs that require increased cognitive effort and data analysis have a high potential to become distance jobs. Remote labor productivity varies from country to country, reflecting the sector, occupation and mix of activities, which is higher in advanced economies.

On the other hand, in developing economies, the labor force is predominantly employed and requires labor and manual labor in sectors such as agriculture and manufacturing. In India, for example, the workforce could spend only 12% of its time working remotely without losing its effectiveness.

Remote work not only benefits employees by eliminating daily commutes, but also increases productivity and encourages a healthier lifestyle. Part of the time normally spent on road traffic offset the time spent on professional and personal activities. Thus, some of this regained time was spent building healthier habits. The average commute of an American takes almost half an hour. So much time on the road means that workers spend more money on fuel, maintenance costs and vehicle-induced repairs. Finally, it was found that remote employees work 1.4 days a month longer than their office counterparts, resulting in more than three additional weeks of work per year. Some distance-adjusted professions are likely to persist long after the pandemic crisis is over.

Starting from this idea, we notice the need to stimulate investments in digital infrastructure, reduce the space allocated to offices and the structural transformation of cities.

CONCLUSION - Today, more than ever, cities need to develop strategic planning processes that meet the needs of residents. Smart cities generate many business opportunities and opportunities for collaboration between the public and private sectors. Because all stakeholders can contribute, it is necessary to develop an ecosystem network involving members of the public, organizations, institutions, governments, universities, companies, experts, research centers and non-profit organizations.

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12 McKinsey & Company, *The future of work after COVID-19 Report*. [18.02.2021]: *https://www.mckinsey.com/featured-insights/future-of-work/the-future-of-work-after-covid-19*

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5. McKinsey & Company, *The future of work after COVID-19 Report*. [18.02.2021]: *https://www.mckinsey.com/featured-insights/future-of-work/the-future-of-work-after-covid-19*

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