UDK: 71:502/504
Paper received: March 27, 2022
Paper accepted: March 07, 2022

Journal of Entrepreneurship and Business Resilience
Year V • Vol 5, No 1.
pp. 41-47

SCIENTIFIC REVIEW

RESILIENT, SMART AND GREEN CITIES: THEORETICAL APROACH

RADOVIĆ- MARKOVIĆ Mirjana
University Business Academy in Novi Sad, (SERBIA)
E-mails: mirjana.radovic@ien.bg.ac.rs

SALAMZADEH Aidin
Faculty of Management, University of Tehran, Tehran, (Iran)
E-mails: salamzadeh@ut.ac.ir

VUJIČIĆ Slađana
Faculty of Business, Economics and Entrepreneurship, Belgrade, (SERBIA)
E-mails: sladjanakonto@gmail.com

ABSTRACT

There have been many talks recently about smart cities. People are intrigued by the possibilities a connected city can bring. The article aims to consider the possibility of integrating smart, resilient, and green cities to increase the quality of life in those cities. Sometimes it can seem as though smart cities and resilient cities are mutually different ideas. Therefore, the authors investigate the definition of a smart, green, and resilient cities with the intention of showing their similarity and connection, not their mutual exclusion. Authors concluded that policy makers must be more focused on planning and implementing the green and digital transformation of the local economy and society, and to influence innovation and development, as well as changes in knowledge and work models.

Key words: *city; smart city; digital city; sustainable development; urban development*

JEL classification: *Q01, R00*

INTRODUCTION

Cities must change themselves according to the demands of the new times. In particular, the appearance of Covid19 greatly influenced the way of life in the cities. The impact of the global epidemic caused by the appearance and spread of the Covid19 virus has led to strong effects on all human labor activities [33]. It has changed the lifestyle, the way of education and the modalities of work. In other words, COVID-19 has an impact on accelerating the digitization of urban areas. “Not only are many people working from home and increasingly reliant on IT, but city governments have also had to shift how they deliver services under lockdown restrictions”. [1] In an era of technological revolution, transition and globalization, change is happening at breakneck speed [32]. In line with this, organizations should change the way they operate. The key factor of a new society development is information, which is transformed into knowledge with a person's help [31]. With the maturation of the individual, knowledge needs to be increased until the moment when the person himself decides on higher education [34].However, adaptation and adoption of new operating modes and digital business are the only reasonable decisions that one country's economy should strive to [2]. Habitats of all the inhabitants of the world have completely changed in all spheres of life [35].

THEORETICAL OVERVIEW

Through telework, an increasing number of employees perform a significant part of the job at home, in buyer’s premises or on the road, using the computer related to their workplace [3].

Working outside the employer’s premises represents a much more comfortable form of work than travelling to work every day for many employees and different experts. At the same time, it enables networking and working in desired companies, although they might be miles away, in another city. The social community has many advantages from such a manner of employment, traffic jams are reduced, a parent can pay more attention to children and the house, it is enough that he does not lose time to travel to work and back [4]. This way of working requires appropriate digital knowledge and education. In this context, remote workers must pass the education on technical equipment at their disposal and the significance of this type of work organization. The employers and associates of remote workers can also require education on this form of work and the manner of managing it [5].

In addition, cities have problems with various shocks caused by power outages, traffic collapse and the similar that affect their resilience. However, new technologies can positively affect the growth of cities' resilience, ensure the smooth operation of these systems, and solve problems before they turn into road delays, power outages, and similar [6, 7, 8]. The emergence of a pandemic in the world has especially brought to the fore the issues of resilience and sustainability of cities. For example, New Clark

City in the Philippines is the first and largest resilient city globally. This city represents a modern city where citizens can live and work in terms of a better climate and a secure environment [9]. In addition, increasing resilience contributes to numerous benefits for cities, such as climate adaptation and mitigation, clean water and air, sustainable economies, green jobs, access to green public spaces for recreation and physical, mental, and spiritual well-being.

Nature-based solutions (NbS) are important tools for improving urban resilience. [10] They help to avoid losses every year by protecting cities [11]. NbS also offer an opportunity to quickly support "*the transition to a more sustainable economy*" [12]. There are many connections between the concept of smart cities and urban resilience. However, the literature analyzes the notion and significance of smart cities more than urban resilience. Therefore, there are few works that deal with the influence of each other. We will look at a few studies that conclude that resident cities positively affect smart cites, while the opposite is not always the case [13]. However, both are important for urban planning and can complement each other through proper governance, which implies the need to build a resilient smart city (RSC) [14].

CONCEPT OF SMART, GREEN, AND RESILIENT CITIES

The concepts of green, smart, and resilient cities are variously defined by various scholars. Even sometimes, these concepts are used interchangeably [15, 16, 17, 18]. The following table shows some of the most well-known definitions of these phenomena.

CONCLUSIONS

The notions of Green [19, 20, 21], Smart [22, 23, 24], and Resilient [25, 26, 27] cities are dramatically being used in the extant body of the literature. Nevertheless, policymakers and researchers use these words interchangeably, especially in emerging economies [28, 29]. This is important because of the interconnectedness and influence of each other. Namely, they jointly include a broad range of actions that harness the power of nature for sustainable development and that support climate resilience, healthy populations, sustainable economies, green jobs, and biodiversity conservation. [30]. In line with this, policy makers must be more focused on planning and implementing the green and digital transformation of the local economy and society, and to influence innovation and development, as well as changes in knowledge and work models.

Table 1. *Definitions of green, smart, and resilient cities*

Type of city	Definition	Reference
Green cities	"The cities striving to lessen their environmental impacts by reducing waste, expanding recycling, lowering emissions, increasing housing density while expanding open space, and encouraging the development of sustainable local businesses."	El Ghorab & Shalaby [19]
	"Cities characterized as having clean air and water, running a low risk of major infectious disease outbreaks, being resilient to natural disasters, encouraging green behavior, and having a relatively small ecological impact."	Wątróbski, Ziemba, Jankowski, & Zioło [20]
	"cities with the ultimate goal of achieving a net zero-carbon footprint in energy, transportation, architecture, and the activity cost chain of businesses."	Tehrani, Fulton, & Schmutz [21]
Smart cities	Cities "uniting Eco World, Digital World and Social World into the Trinity World, unifying the ecological principles of the eco world development.**"**	AL-Masri, Ijeh, & Nasir [23]
	"a complex combination of efficient computational capacity, as well as emerging technologies that are motivated by economic benefits as well as social gains."	Amini, Arasteh, & Siano [22]
	"those that use digital technologies cohesively drive economic growth, to provide information, enhance welfare of the public and improve services of government."	Krishnan, Arumugam, & Maddulety [24]
Resilient cities	"commonly perceived as transit-oriented development of eco-cities and eco-efficient dwelling with smart infrastructure, local food production and pedestrianization."	Chand [25]
	"cities that managed to achieve an urban resilience capacity to face all the types of the unpredictable and unpredictable events."	Elewa [26]
	"cities that can absorb, recover and prepare for future shocks of economic, environmental, social & institutional challenges."	Dias, Jayakody, Amaratunga, Abenayake, & Jayasinghe [27]

Source: Authors

REFERENCES

[1]. Harvey, D. 2008. The right to the city. *The City Reader* 6: 23–40.
[2]. Burkart, K. (2009). How do you define the 'green' economy? MNN—Mother Nature Network.
[3]. Radović-Marković, M ., Radulović, D ., Đukanović, B, Kyaruzi, IS . (2021).Flexibility and adaptation: the new post-Covid era, Silver and Smith Publishers, Birmingham, United Kingdom. ISBN 978-1-80068-337-2
[4]. Radović-Marković, M. (2020). Resilience and Enterprise Recovery In Response To Covid 19 Crisis, *Journal of Entrepreneurship and Business Resilience (JEBR)* No. 3-4/2020, pp. 3-11. ISSN: 2620-0414
[5]. Radović-Marković, M., (2018) Female Entrepreneurship Opportunity: Home-Based Genealogy Business. *Journal of Women's Entrepreneurship and Education* (3/4). pp. 20-33. ISSN 1821-1283
[6]. Radović Marković, M. (2018). Resilience of Small and Medium-Sized Enterprises in terms of Globalization: Evidence of Serbia, *Journal of Entrepreneurship and Business Resilience (JEBR)., No.22*, pp.5–15.
[7]. Hemes,J., Woetzel, J. (2019). Smarter cities are resilient cities. Available at: Resilience planning for smart cities | McKinsey
[8] UNDP (2021). Smart, Sustainable and Resilient cities: the Power of Nature-based Solutions, A working paper for the G20. Avaiable at: SSRC.pdf (unep.org)
[9]. New Clark City (2020). Clark City is green and disaster resilient. Available at: Green, smart, and disaster-resilient city - New Clark City
[10].IUCN (2020). Guidance for using the IUCN Global Standard for Nature-based Solutions. A user-friendly framework for the verification, design and scaling up of Nature-based Solutions. First edition. Gland, Switzerland: IUCN.
[11].Shiyao, Z.,Dezhi, L.,Haibo, F.,Tiantian ,G.,Kasun ,H.,Rehan, S., (2020) .Smart city and resilient city: Differences and connections,WIREs.
[12].Cook, J. and Taylor, R. (2020) Nature is an economic winner for Covid-19 recovery, World Resources Institute. www.wri.org/news/ coronavirus-nature-based-solutions-economic-recovery.
[13].Camboim, G. F., Zawislak, P. A., & Pufal, N. A. (2019). Driving elements to make cities smarter: Evidences from European projects. Technological Forecasting and Social Change, 142, 154-167.
[14].Chourabi, H., Nam, T., Walker, S., Gil-Garcia, J. R., Mellouli, S., Nahon, K., Scholl, H. J. (2012, January). Understanding smart cities: An integrative framework. In 2012 45th Hawaii international conference on system sciences (pp. 2289-2297). IEEE
[15].Shiyao, Z.,Dezhi, L.,Haibo, F.,Tiantian ,G.,Kasun ,H.,Rehan, S., (2020) .Smart city and resilient city: Differences and connections,WIREs.
[16].Cook, J. and Taylor, R. (2020) Nature is an economic winner for Covid-19 recovery, World Resources Institute. www.wri.org/news/ coronavirus-nature-based-solutions-economic-recovery.

[17].Camboim, G. F., Zawislak, P. A., & Pufal, N. A. (2019). Driving elements to make cities smarter: Evidences from European projects. Technological Forecasting and Social Change, 142, 154-167.
[18].Chourabi, H., Nam, T., Walker, S., Gil-Garcia, J. R., Mellouli, S., Nahon, K., Scholl, H. J. (2012, January). Understanding smart cities: An integrative framework. In 2012 45th Hawaii international conference on system sciences (pp. 2289-2297). IEEE
[19].El Ghorab, H. K., & Shalaby, H. A. (2016). Eco and Green cities as new approaches for planning and developing cities in Egypt. *Alexandria Engineering Journal*, 55(1), 495-503.
[20].Wątróbski, J., Ziemba, P., Jankowski, J., & Zioło, M. (2016). Green energy for a green city—A multi-perspective model approach. *Sustainability*, 8(8), 702.
[21]. Tehrani, M., Fulton, L., & Schmutz, B. (2020). Green cities and waste management: The restaurant industry. *Sustainability*, 12(15), 5964.
[22].Amini, M. H., Arasteh, H., & Siano, P. (2019). Sustainable smart cities through the lens of complex interdependent infrastructures: panorama and state-of-the-art. In Sustainable interdependent networks II (pp. 45-68). Springer, Cham.
[23].AL-Masri, A. N., Ijeh, A., & Nasir, M. (2019). Smart city framework development: Challenges and solutions. In Smart technologies and innovation for a sustainable future (pp. 325-331). *Springe*r, Cham.
[24].Krishnan, B., Arumugam, S., & Maddulety, K. (2020, December). Impact of Disruptive Technologies on Smart Cities: Challenges and Benefits. In International Working Conference on Transfer and Diffusion of IT (pp. 197-208). Springer, Cham.
[25].Chand, A. V. M. (2018). Place Based Approach to plan for Resilient Cities: A local government perspective. Procedia engineering, 212, 157-164.
[26].Elewa, A. K. A. (2019). Flexible public spaces through spatial urban interventions, towards resilient cities. *European Journal of Sustainable Development*, 8(4), 152-152.
[27].Dias, N., Jayakody, C., Amaratunga, D., Abenayake, C., & Jayasinghe, A. (2021). Health resilient cities in a post Covid world. In COVID 19: Impact, Mitigation, Opportunities and Building Resilience: From Adversity to Serendipity (pp. 621-635). National Science Foundation of Sri Lanka.
[28].Bibri, S. E., Krogstie, J. (2017). Smart sustainable cities of the future: An extensive interdisciplinary literature review. Sustainable Cities and Society, 31, 183-212
[29].Jong Martin, Joss Simon, Schraven Daan, Zhan Changjie, Weijnena Margot. Sustainable smart - resiliente low-carbon eco-knowledge cities; making sense of a multitude of concepts promoting sustainable urbanization. *Journal of Cleaner Production* 109, 2015, 25-38
[30].UNDP (2021). Smart, Sustainable and Resilient cities: the Power of Nature-based Solutions, Working paper. Available at: SSRC.pdf (unep.org)

[31] Endovitsky A.D., Tinyakova I.V., Morozova I.N.,, Karyagina V. T., Fedotova A.M. (2021) Analysis of forming of the professional competence and the rational use of human capital in the digital economy, International Review, No.. 3-4, p. 130-136
[32] Jovanovic D.(2021) The influence of manager selection on the development of production and service entreprises, Akademski pregled,Vol.IV, br.1, p.10-20, Univerzitet Bijeljina
[33] Jakovljević N.(2021) Analiza uticaja epidemije Covid-19 kroz boravišnu taksu i stavove ispitanika, Trendovi u poslovanju, vol. 9, br. 2, str. 20-29
[34] Djukic G., Ilic B.(2020) Održivost u visokom obrazovanju - poređenje azijsko-pacifičkog regiona i Srbije, Trendovi u poslovanju, vol. 8, br. 1, str. 9-21
[35] Kalicanin K., Brdar I., Vesić T.(2021) Education is becoming digital: The youth attitudes towards online teaching during the COVID-19 pandemic, International Review, br. 1-2, str. 111-119