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AZƏRBAYCANIN AĞILLI ŞƏHƏR VƏ KƏND TƏŞƏBBÜSLƏRİNDƏ REGİONAL İQTİSADİ POTENSİALIN QİYMƏTLƏNDİRİLMƏSİ

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Xülasə. Bu tədqiqat ölkənin rəqəmsal xidmətlərə çıxışa, rəqəmsal platformalarda iş yerlərinin yaradılmasına və minimal xərclərlə innovasiyaların təşviqinə hazırlıq səviyyəsini qiymətləndirir. Araşdırmanın əsas məqsədi regionların iqtisadi potensialına təsir edən amilləri təhlil etmək və iqtisadi inkişafı təsir edə biləcək əsas dəyişənləri müəyyənləşdirməkdir. EViews proqram paketi istifadə olunaraq aparılan reqressiya təhlili dəyişənlərlə iqtisadi potensial arasındakı əlaqəni qiymətləndirməyə və hər bir regionun potensialını optimallaşdırmaq üçün vacib amilləri müəyyən etməyə imkan vermişdir. Əldə olunan nəticələr inkişaf strategiyalarının formalaşdırılması və iqtisadi qərarların qəbulunda dəyərli tövsiyələr verir.

Açar sözlər: Ağıllı Şəhər, Ağıllı Kənd, İqtisadi Potensial, Regional İnkişaf, Rəqəmsal Transformasiya.

EVALUATING REGIONAL ECONOMIC POTENTIAL IN AZERBAIJAN'S SMART CITY AND VILLAGE INITIATIVES

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Abstract. This study evaluates the country's readiness for digital services, creating jobs on digital platforms, and encouraging innovation with minimal costs. The primary aim of the research is to analyze the factors influencing the economic potential of regions and identify key variables that can impact economic development. Regression analysis using the Eviews software package enabled the assessment of the relationship between variables and economic potential, revealing important factors for optimizing the potential of each region. The obtained results provide valuable insights for developing strategies and making economic decisions.

Key words: Smart City, Smart Village, Economic Potential, Regional Development, Digital Transformation.

ОЦЕНКА РЕГИОНАЛЬНОГО ЭКОНОМИЧЕСКОГО ПОТЕНЦИАЛА В ИНИЦИАТИВАХ «УМНЫХ ГОРОДОВ» И «УМНЫХ ДЕРЕВЕНЬ» В АЗЕРБАЙДЖАНЕ

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Резюме. Данное исследование оценивает готовность страны к предоставлению цифровых услуг, созданию рабочих мест на цифровых платформах и стимулированию инноваций с минимальными затратами. Основная цель исследования – анализ факторов, влияющих на экономический потенциал регионов, и выявление ключевых переменных, способных повлиять на экономическое развитие. Регрессионный анализ, проведённый с использованием пакета программ Eviews, позволяет оценивать взаимосвязь между переменными, выявив важные факторы для оптимизации потенциала каждого региона. Полученные результаты предоставляют ценные рекомендации для разработки стратегий и принятия экономических решений.

Ключевые слова: Умный город, Умная деревня, Экономический потенциал, Региональное развитие, Цифровая трансформация.

INTRODUCTION

The formation of new challenges based on the Fourth Industrial Revolution has led to global advancements in digitalization, laying a substantial foundation for the development of new scientific fields in recent decades. Advanced practices consider quality, safe, and efficient digital transformation, as well as effective resource use in this area, as a driving force for innovation development. This driving force has become a significant trend worldwide, prompting governments to take relevant steps towards developing this field.

This global process has not left Azerbaijan unaffected. To enhance the efficiency of the national economy and state governance, information security, and citizens' living standards, the development of broadband internet infrastructure, the implementation of digital initiatives such as "Government Cloud" (G-Cloud), "Big Data," "Smart City," and "Smart Village" are among the steps being taken to transform the country into a digital hub in the region.

One of the main reasons for preparing this study is the necessity of implementing the "Smart City" concept, which is currently being applied in many countries worldwide, across all regions of Azerbaijan, and highlighting the fundamental reasons for this through mathematical modeling.

Currently, the "Smart City" concept is being piloted in the liberated territories of Azerbaijan, with the main objective being to meet needs and increase service efficiency through information and communication technologies, ultimately improving the quality of life for the population.

The primary aim of this research is to analyze the current state during the implementation of the "Smart City" and "Smart Village" concepts intended for future application in other regions of Azerbaijan and to contribute to the establishment of cities according to the terrain of each area. This article will extensively study the impact of the "Smart City" on Azerbaijan's economic and social life through the collection of mathematical statistics from various regions of Azerbaijan and its application based on modeling, emphasizing the importance of existing alternative opportunities.

LITERATURE REVIEW

The scientific literature review on the topic includes several key works exploring the concepts, technologies, advantages, and challenges associated with the development of smart cities and smart villages. These papers represent an extensive overview of contemporary research and reflections on smart cities and smart villages, covering various aspects and providing valuable scientific and practical insights for further development in this area.

The development of smart cities and smart villages has emerged as a significant area of Interest In contemporary research, focusing on the integration of advanced technologies to enhance urban and rural environments. Correia, Marques, and Teixeira (2022) provide an extensive overview of the technologies, innovations, and development strategies of smart cities within the European Union. Their study analyzes various approaches to creating smart cities, identifying factors that either facilitate or hinder their successful development. Similarly, Al-Sharif and Pokharel (2022) conceptualize smart cities by examining technological, social, and institutional dimensions. They describe the interrelationship between technologies, people, and institutions, emphasizing the importance of a holistic approach to smart city development.

In examining the role of innovations and digital policies, Filiou, Kesidou, and Wu (2023) explore whether smart cities are inherently green by assessing eco-innovation in China. Their findings

highlight the significance of environmental and digital policies in fostering sustainable urban development. Meanwhile, Cantuarias-Villessuzanne, Weigel, and Blain (2021) rank mid-sized European smart cities based on criteria such as technology accessibility, innovation, and quality of life, analyzing examples of successful implementations and identifying success factors.

Thibaud et al. (2018) offer a comprehensive review of the Internet of Things (IoT) in high-risk environment, health, and safety (EHS) industries, providing insights into various smart city models, their advantages, and disadvantages, and recommendations for improving strategies. The research also delves into the differences between sustainable and smart cities in the context of developing countries [4]. This study discusses the factors influencing the development of smart cities in these regions and suggests strategies to facilitate this process.

De Marco and Mangano (2021) analyze the evolutionary trends in smart city initiatives, focusing on developing countries. They identify major trends and challenges faced by these regions, offering an evolutionary perspective on smart city development. Furtado et al. (2023) present an integrative framework for digital transformation towards smart governance, using big data tools to target Sustainable Development Goals (SDGs) in Ceará, Brazil. This framework is tailored to the unique socio-economic conditions of developing countries.

Mora, Deakin, and Reid (2019) explore strategic principles for smart city development through a multiple case study analysis of European best practices, with implications for developing countries. Finally, Joss et al. (2018) present a global discourse on smart cities, analyzing storylines and critical junctures across 27 cities, including examples from India, China, and Brazil. This study highlights the development features and challenges of smart cities in diverse geographic and economic contexts.

PROBLEM STATEMENT

Despite the extensive research on smart cities and smart villages, there remains a significant gap in understanding the comparative development strategies and contextual challenges faced by these initiatives in different socio-economic and geographic settings. The existing literature predominantly focuses on technological advancements and strategic implementations in developed regions, often overlooking the unique needs and opportunities present in developing countries [3].

Current studies provide valuable insights into the technologies, innovations, and development strategies of smart cities, particularly within the European Union and other developed areas [6]. However, there is a lack of integrative frameworks that consider the socio-economic and environmental dimensions necessary for the sustainable development of smart initiatives in developing regions [5], [7]. Additionally, the distinct challenges and best practices for implementing smart village concepts remain underexplored.

This literature review aims to address these gaps by synthesizing existing research on smart cities and smart villages, emphasizing the differential impacts and development strategies across diverse contexts. By analyzing methodologies, findings, and frameworks, this review seeks to identify best practices and challenges, providing comprehensive insights for future research and practical implementations in both urban and rural settings [9].

The primary object of study Is the Identification of alternative strategies for developing the "Smart Village" concept in various regions of Azerbaijan using technological and social innovations. These strategies can enhance service delivery and stimulate local economic development in rural areas.

MATERIALS AND METHODS OF RESEARCH

The main hypothesis of the study is to determine the role that technology and innovation can play in the development of the "Smart Village" concept in Azerbaijan. The hypothesis suggests that technology and innovation have the potential to mitigate inequalities between rural and urban areas, contributing to sustainable rural development and improving the quality of life and economic status of their population. The study aims to assess the country's readiness for access to digital services, job creation on digital platforms, and the ability to encourage innovation with minimal transaction costs, such as in the case of digital payment systems, music distribution, and news.

The primary task of the research Is to analyze and Identify the factors that have the greatest Impact on the economic potential of regions. During the study, key variables and aspects capable of significantly influencing economic development in specific regions were identified. This will provide a better understanding of the dynamics and factors behind economic development, as well as valuable insights for developing strategies and decisions aimed at optimizing the potential of each region. To achieve this goal, regression analysis was conducted using the Eviews software package. This analysis enabled the assessment of the relationship between various variables and economic potential and identified which of these variables have the greatest impact on the parameter being studied.

DATA AND RESULTS

In this research, linear regression is used to quantitatively assess the linear dependence or relationship between the dependent variable and at least one independent variable. The dependent variable for which the equation is constructed is "Economic potential." The predictor variables are "Economic Sources for Local Development," "Infrastructure and Services," "Human Capital," and "Governance."

This analysis method will determine how the dependent variable "Economic potential" changes depending on changes in the values of the predictor variables.

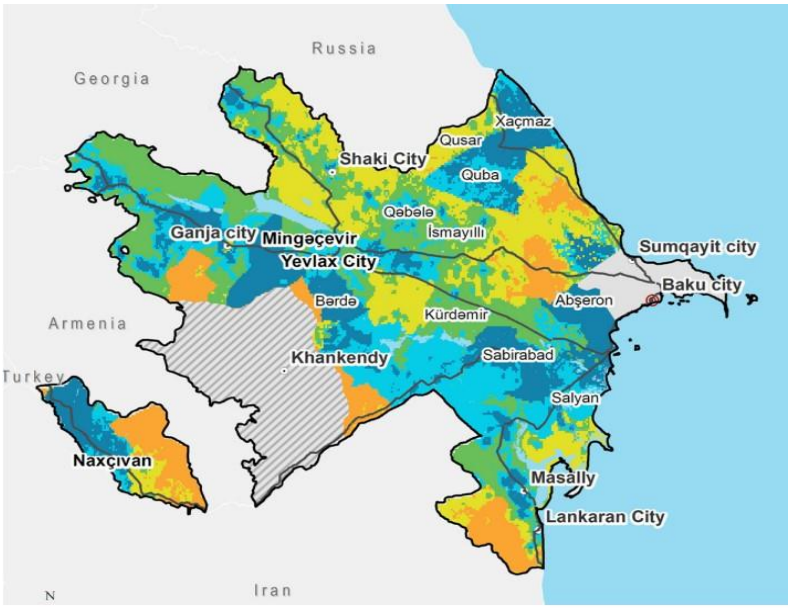

Figure 1. Smart Villages Readiness in Azerbaijan

Source: https://www.worldbank.org/en/country/194zerbaijan/publication/a-framework-for-developing-smart-villages-in-azerbaijan

Figure 1 demonstrates the provinces of Azerbaijan according to their readiness level for the "smart village" concept. On the map, various regions are marked with different colors. Dark blue areas indicate "enhanced" regions that are best prepared to realize the benefits of the "smart village" program. Meanwhile, areas marked in yellow are classified as "active" and require significant efforts for preparation. These areas may also be characterized by low population density, necessitating substantial per capita capital investment to raise their readiness level for implementing the "smart village" concept.

Table 1 demonstrates the most significant disparities across independent variables occurring within each of the classification groups. For instance, in the "Amplify" group, there are comparatively fewer substantial disparities across all indicators; however, the disparities in infrastructure/services and economic sources for local development are more pronounced. Meanwhile, in the "Accelerate-high" group, the largest disparity exists in the area of economic sources for local development among the set of indicators.

Table 1. Smart Village Readiness in Azerbaijan

	Economic potential	**Economic sources for local development**	**Infrastructure and services**	**Human capital**	**Governance**
Amplify	8.70%	26.40%	24.80%	14.30%	19.40%
Accelerate-high	27.95%	55.10%	37.70%	35.80%	33.10%
Accelerate-medium	59.25	47%	58.30%	66.90%	55.7
Accelerate-low	98.20%	81.90%	91.30%	63.80%	89.60%
Activate	90.90%	70.20%	71.90%	83.40%	86.70%

Source:*https://www.worldbank.org/en/country/azerbaijan/publication/a-framework-for-developing-smart-villages-in-azerbaijan*

The analysis of the adequacy of the selected variables begins with assessing the normality of the distribution of the independent variables' values. In this study, the Jarque-Bera test is employed as a tool to check the normality of the distribution of the independent variables' values. If the p-value derived from the test is low, there is a reason to doubt the normality of the data. Conversely, if the calculated p-value (probability) exceeds the established significance level of 0.05, we have grounds to reject the null hypothesis, which posits that the data do not conform to a normal distribution (Table 2). If the residuals or dependent variables are close to a normal distribution, this supports the application of statistical methods that assume data normality. This is crucial to ensure that parameter estimates and statistical inferences are accurate.

Table 2. Descriptive statistics

	Economic potential	**Economic_sources for_local_ development**	**Governance**	**Human capital**	**Infrastructure and_services**
Mean	0.570000	0.561200	0.569000	0.528400	0.568000
Median	0.592500	0.551000	0.557000	0.638000	0.583000
Maximum	0.982000	0.819000	0.896000	0.834000	0.913000
Minimum	0.087000	0.264000	0.194000	0.143000	0.248000
Std . Giant .	0.388217	0.213913	0.313507	0.275110	0.265015
Skewness	-0.135145	-0.202334	-0.043432	-0.396757	0.071692
Kurtosis	1.424840	1.892597	1.368494	1.754579	1.679078
Jarque-Bera	0.532122	0.289604	0.556116	0.454320	0.367790
Probability	0.766392	0.865194	0.757253	0.796793	0.832023

Source: Authors' calculation

Next, we will perform the testing procedure to assess the hypothesis regarding the stationarity of the applied variables. In this context, stationarity refers to the property of a time series wherein its statistical characteristics remain constant over time. The absence of unit roots (stationarity) ensures that the series does not exhibit long-term trends or cyclicality, making them more predictable and allowing for the use of standard analytical methods. To confirm or refute this hypothesis, we employ the Phillips-Perron test (Table 3) and the Dickey-Fuller test (Table 4).

Table 3. Time series stationarity test (Phillips-Perron test)

Method	**Statistics**	**Prob .****
PP – Fisher Chi-square	8.16167	0.6130
PP – Choi Z- stat	-0.18546	0.4264
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution.		

Source: Authors' calculation

Table 4. Time series stationarity test (Dickey-Fuller test)

Method		**Statistics**	**Prob .****
ADF – Fisher Chi-square		5.91675	0.8222
ADF – Choi Z- stat		0.40508	0.6573

Method		**Statistics**	**Prob .****
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.			

Source: Authors' calculation

The value of 8.16167 for the PP – Fisher Chi-square represents a numerical measure of the degree of non-stationarity in the observed values. The larger the value of the PP statistic, the more likely it is that the series possesses unit roots and, consequently, is non-stationary. The probability value (p-value) of 0.6130 represents the probability (type I error probability) of obtaining a PP statistic equal to 8.16167. Lower p-values indicate stronger evidence in favor of the presence of unit roots and non-stationarity. In the Dickey-Fuller test (Table 4), the probability of 0.8222 is also quite high, which may indicate that we have no grounds to reject the hypothesis of the series being stationary.

The heteroskedasticity test serves as the final stage In assessing the adequacy of the constructed model. This test is employed to examine the hypothesis of equal error variances within a regression model. Heteroskedasticity implies that the variance of errors in the model is not constant and may vary depending on the values of the explanatory variables (see Table 5). The primary objective of the heteroskedasticity test is to detect the presence of systematic dependency between the magnitudes of model errors and the values of predictors (independent variables). If the model residuals do not exhibit heteroskedasticity (non-uniformity of variance), this eliminates potential distortions in parameter estimates and statistical inferences. In the context of the heteroskedasticity test, the null hypothesis posits that the error variance remains constant (homoskedasticity). The alternative hypothesis suggests the presence of heteroskedasticity – varying error variances.

The values provided In Table 5 for the conducted heteroskedasticity test, In this case, the ARCH test (Autoregressive Conditional Heteroskedasticity), provide grounds to assert the absence of significant heteroskedasticity. In our case, the statistical value of the F-statistic (0.001419) is utilized for comparison with critical values to determine the presence of heteroskedasticity in the data. We have a sufficiently high probability (0.9734) of obtaining this F-statistic value. This may indicate that we lack sufficient evidence to reject the null hypothesis of no heteroskedasticity.

Table 5. Test for heteroskedasticity

Heteroskedasticity Test: ARCH			
F- statistic	0.001419	Prob . F(1,2)	0.9734
Obs *R- squared	0.002836	Prob . Chi – Square(1)	0.9575

Source: Authors' calculation

Thus, as evident from the preceding analysis, the confirmed presence of normality in the series, absence of non-stationarity, absence of unit roots, and homoscedasticity provide grounds for commencing the regression analysis.

The combination of these characteristics instills confidence that the data are prepared for a more comprehensive regression analysis and that the outcomes of this analysis will be more robust and interpretable.

The regression analysis (Table 6) was conducted using the method of least squares, with economic potential serving as the dependent variable. This method stands as one of the key tools in statistical analysis, employed to investigate relationships between the dependent variable and one or multiple independent variables (). The analytical process entails seeking the optimal linear approximation of the dependent variable based on available data regarding the independent variables. Such an analysis can aid in identifying correlations, trends, and the impact of various factors on economic potential, thereby facilitating more informed economic decisions and strategies.

Table 6. Regression analysis

Variable	**Coefficient**
ECONOMIC_SOURCES_FOR_LOCAL_DEVELOPMENT	-0.010566
GOVERNANCE	0.744481
HUMAN_CAPITAL	0.169494
INFRASTRUCTURE_AND_SERVICES	0.442614
C	-0.188646
R- squared	1.000000
SD dependent there is	0.388217
Durbin-Watson stat	2.170996

Source: Authors' calculation

The negative coefficient value of the variable "LOCAL DEVELOPMENT ECONOMIC SOURCES" (-0.010566) signifies that an increase in the value of the variable "LOCAL DEVELOPMENT ECONOMIC SOURCES" by one unit is associated with an expected decrease in economic potential by 0.010566. This observation may be elucidated by the notion that an increase in "LOCAL DEVELOPMENT ECONOMIC SOURCES" could potentially lead to structural changes in the economy, which initially may diminish developmental potential.

The variable "GOVERNANCE" de"onstrated the best results, with its positive coefficient indicating that an increase in its value by one unit is associated with an increase in economic potential by 0.744481. The high coefficient underscores the significance of the "GOVERNANCE" variable in explaining changes in economic potential. This suggests that the quality of governance and the effectiveness of governmental institutions exert substantial influence on economic development.

The coefficient of "HUMAN_CAPITAL" exhibits a positive value, indicating that an increase in this variable by one unit is associated with an elevation in economic potential by 0.169494. This positive coefficient underscores the importance of human capital in the context of economic potential development. Enhancing education, skills, and competencies among individuals can exert a significant positive impact on economic advancement.

The positive coefficient of "INFRASTRUCTURE_AND_SERVICES" Indicates that an Increase In this variable by one unit is associated with a growth in economic potential by 0.442614. This positive coefficient underscores the significance of infrastructure and services in the context of economic potential development. Enhancing infrastructure and improving the accessibility of diverse services can exert a substantial positive influence on the economy's capacity to grow and develop.

Summarizing all of the above based on the results of the regression analysis, we come to the following conclusions:

1. Presumed structural changes in the economy of Azerbaijan may have a negative impact on its development potential in the initial stage.
2. Significant importance is given to the quality of management and efficiency of state institutions in the context of economic development.
3. Improving the level of education, development of skills and competencies of the population contributes to significant stimulation of economic growth.
4. Increasing the level of infrastructure can have a significant positive impact on the ability of the economy to expand and improve.

Thus, our results of regression analysis indicate the importance of these variables for understanding and forecasting economic development, and emphasize the need to pay attention to factors such as management, human capital, and infrastructure to stimulate sustainable economic growth.

DISCUSSION

If we look at the general overview of the article, we can note that the main goal set here is to determine alternative strategies for the establishment of this concept in different regions of the country, taking into account the implementation of the concepts of "Smart City" and "Smart Village" in Azerbaijan as a pilot project in the territories freed from occupation. . The current problem in the article is the lack of formation of the appropriate road map for the implementation of the "Smart City" and "Smart Village" strategies in other regions of Azerbaijan. One of the main reasons for this is the lack of a data-based analysis of the economic development of the regions and the lack of a single database in the state institutions regarding the specific economic indicators of each region. That is why it is very important to prepare a strategy related to the implementation mechanisms of the "Smart City" and "Smart Village" concepts in order to ensure the socio-economic development of Azerbaijan. On the other hand, the need to define this strategy is related to the direct impact of the existing problems in the regions on the socio-economic development of Azerbaijan. In this article, it is proven on the basis of data that Azerbaijan has the potential to provide innovative economic equality between villages and cities in all economic regions, thereby improving the quality of life.

The article notes that while the execution of state programs addressing the socio-economic development of Azerbaijan's regions through the implementation of existing alternative strategies may to some extent mitigate current issues, the lack of a comprehensive roadmap for their application may result in a gradual escalation of these socio-economic problems in the future due to the absence of proactive approaches, primarily resorting to reactive measures.

To develop alternative strategies, the factors affecting the economic potential of the regions were investigated in the article, and regression analysis was conducted using the "Eviews" software package to determine the linear relationship between these factors as dependent and independent

variables. The analysis process involves finding the best linear approximation of the dependent variable based on available information about the independent variables. This analysis made it possible to evaluate the relationship between different variables and economic potential, as well as to determine which of these variables has the greatest influence on the studied parameter.
Consequently, through the analysis conducted across several directions (herein, the names and objectives of the tests conducted are specified), the significance of these variables in identifying and forecasting economic development was elucidated, emphasizing the necessity of attention to factors such as management, human capital, and infrastructure to stimulate sustained economic growth. This underscores the importance of utilizing a comprehensive strategy and roadmap in this direction for future planning and implementation.

CONCLUSION

This scientific article is dedicated to the strategies for developing the concept of "Smart Village" in various regions of Azerbaijan, utilizing technological and social innovations. The main hypothesis regarding the role of technology and innovation in this context suggests their potential in mitigating disparities between rural and urban areas, fostering sustainable development of rural territories, and enhancing the quality of life and economic status of their inhabitants. The research aims to assess the country's readiness for digital services, create jobs based on digital platforms, and promote innovations with minimal transaction costs. The primary objective of the study is to analyze the factors influencing the economic potential of regions and identify key variables capable of impacting economic development. Regression analysis conducted using the Eviews software package allowed for evaluating the relationship between variables and economic potential, identifying the most significant factors for optimizing the potential of each region. The obtained results offer valuable insights for formulating development strategies and making decisions in the field of economics.

REFERENCES

[1] Al Sharif, R., & Pokharel, S. (2022). Smart city dimensions and associated risks: Review of literature. *Sustainable Cities and Society, 77*, 103542. https://doi.org/10.1016/j.scs.2021.103542
[2] Cantuarias-Villessuzanne, C., Weigel, R., & Blain, J. (2021). Clustering of European smart cities to understand the cities' sustainability strategies. *Sustainability, 13*(2), 513. https://doi.org/10.3390/su13020513
[3] Correia, D., Marques, J. L., & Teixeira, L. (2022). The state-of-the-art of smart cities in the European Union. *Smart Cities, 5*(4), 1776-1810. https://doi.org/10.3390/smartcities5040089
[4] Current Urban Studies. (2022). Smartness and sustainability in Finnish smart city initiatives during the 2010s. *Current Urban Studies, 10*, 405-425. https://doi.org/10.4236/cus.2022.103024.
[5] De Marco, A., & Mangano, G. (2021). Evolutionary trends in smart city initiatives. *Sustainable Futures, 3*, 100052. https://doi.org/10.1016/j.sftr.2021.100052
[6] Filiou, D., Kesidou, E., & Wu, L. (2023). Are smart cities green? The role of environmental and digital policies for eco-innovation in China. *World Development, 165*, 106212. https://doi.org/10.1016/j.worlddev.2023.106212

[7] Furtado, L. S., da Silva, T. L. C., Ferreira, M. G. F., de Macedo, J. A. F., & Moreira, J. K. de M. L. (2023). A framework for digital transformation towards smart governance: Using big data tools to target SDGs in Ceará, Brazil. *Journal of Urban Management, 12*(1), 74-87. https://doi.org/10.1016/j.jum.2023.01.003

[8] Joss, S., Sengers, F., Schraven, D., Caprotti, F., & Dayot, Y. (2018). The smart city as global discourse: Storylines and critical junctures across 27 cities. *Journal of Urban Technology, 26*(1), 3-34. https://doi.org/10.1080/10630732.2018.1558387

[9] Mora, L., Deakin, M., & Reid, A. (2019). Strategic principles for smart city development: A multiple case study analysis of European best practices. *Technological Forecasting and Social Change, 142*, 70-97. https://doi.org/10.1016/j.techfore.2018.07.035

[10] Thibaud, M., Chi, H., Zhou, W., & Piramuthu, S. (2018). Internet of Things (IoT) in high-risk environment, health and safety (EHS) industries: A comprehensive review. *Decision Support Systems, 108*, 79–95.