Sustainable Development of European Smart Cities

International Conference on „Sustainable Development of European Smart Cities" – SmartEU 2023

Conferința Internațională „Sustainable Development of European Smart Cities"

9-10 IUNIE 2023, IAȘI, ROMÂNIA

ANA IOLANDA VODĂ
ANA MARIA BERCU
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(Editors)

Book of Abstracts

ANA IOLANDA VODĂ, ANA MARIA BERCU, LAURA-DIANA RADU
(Editors)

Book of Abstracts

**International Conference on
"Sustainable Development of European Smart Cities" – SmartEU 2023**

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ANA IOLANDA VODĂ, ANA MARIA BERCU, LAURA-DIANA RADU
(Editors)

Book of Abstracts

**International Conference on
"Sustainable Development of European Smart Cities"
SmartEU 2023**

June 9-10, 2023, Iași, Romania

SUMMARY

BOOK OF ABSTRACTS

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CONFERENCE PROGRAMME

FRIDAY, JUNE 9, 2023	
09:00-09:30	Registration University's B building, first floor

09:30-10:00
Council Room, FEAA, UAIC
	Welcoming speech
	    Professor Bogdan Gabriel ZUGRAVU
	    Vice-Dean – Faculty of Economics and Business Administration,
	    "Alexandru Ioan Cuza" University of Iași, Romania
	
	    Lecturer Ana Iolanda VODĂ
	    Director of the **Jean Monnet Module European Smart Cities for Sustainable Development**,
	    "Alexandru Ioan Cuza" University of Iași, Romania

10:00-11:30
Plenary Session Council Room, FEAA, UAIC
	Keynote speakers
	Chair: *Lecturer* **Ana Iolanda VODĂ** (Director of the Jean Monnet Module European Smart Cities for Sustainable Development, „Alexandru Ioan Cuza" University of Iași, Romania)
	
	    Professor Mariusz MACIEJCZAK
	    Director of the Institute of Economics and Finance of the Warsaw University of Life Sciences, Poland
	    Energy production from renewable sources in a smart city - public and private perspectives in Poland
	
	    Associate Professor Cătălin VRABIE
	    National University of Political Studies and Public Administration, Bucharest, Romania
	    Education 3.0 – AI and gamification tools for increasing student engagement and knowledge retention
	
	    Professor Adrian IFTENE
	    „Alexandru Ioan Cuza" University of Iași, Romania
	    Using Artificial Intelligence in Smart Health
	
	    Lecturer Alexandru RUSU
	    "Alexandru Ioan Cuza" University of Iași, Romania
	    The Romanian Metropolitan Areas – a recent example of functional regions for planning and policy design. Estimating their internal economic and demographic inequalities

	FRIDAY, JUNE 9, 2023
11:30-11:45	Coffee break
11:45-13:00 Council Room, FEAA, UAIC	**Session 1. Smart cities and citizen engagement** **Chair:** *Lecturer* **Ana Iolanda VODĂ** (Director of the Jean Monnet Module European Smart Cities for Sustainable Development, "Alexandru Ioan Cuza" University of Iași, Romania) **Matthias SCHMUCK, Stephan FILSER, Emanuel RIEDER** "Alexandru Ioan Cuza" University of Iași, Romania *German smart cities and their strategy: empirical insights* **Daniela Tatiana ȘOITU[1], Ionel MANGALAGIU[1], Marina Holgado MADRUGA[2], Conțiu Tiberiu ȘOITU[1], Mihaela MOCANU[1], Valentina Diana RUSU[1], Anca Diana BIBIRI[1], Iustinian BEJAN[1], Diana Manuela LINA[1], Carolina Andrée LIORÉ[3], Nina MUZYKANTOVA[4], Rita Martin dos SANTOS[5], Eleonore RODERFELD[6], Mari RIIPINEN[7]** [1] „Alexandru Ioan Cuza" University of Iași, Romania [2] University of Salamanca, Spain [3] University of Poitiers, France [4] University of Lille, France [5] University of Coimbra, Portugal [6] University of Jena, Germany [7] University of Turku, Finland *Measuring civic engagement of research and innovation* **Ana Iolanda VODĂ, Ionel MANGALAGIU, SERGIU BORTOȘ, Daniela Tatiana ȘOITU** „Alexandru Ioan Cuza" University of Iași, Romania *Ecosystems knowledge network: a systematic approach* **Valentina Diana RUSU, Mihaela MOCANU, Anca Diana BIBIRI** "Alexandru Ioan Cuza" University of Iași, Romania *Overview of the people's civic engagement in European Countries: a comparative approach*
13:00-14:30	Lunch break

	FRIDAY, JUNE 9, 2023
14:30-16:30 Council Room, FEAA, UAIC	**WORKSHOP ON SMART CITIES: TRENDS AND DIGITAL SOLUTIONS „CRITICAL FRIENDS, SHARED RISKS, SPACE TO INNOVATE, SETTING STANDARDS TO REPLICATE"** **Chairs:** *Lecturer* **Ana Iolanda VODĂ** (Director of the Jean Monnet Module European Smart Cities for Sustainable Development, „Alexandru Ioan Cuza" University of Iași, Romania), *Associate Professor* **Cătălin VRABIE** (National University of Political Studies and Public Administration, Bucharest, Romania) **Professor Gabriel LAZĂR** Director of Research and Development at Ascendia S.A., Bucharest, Romania *LIVRESQ: from the use of digital resources to artificial intelligence in education* **Associate Professor Dumitru-Tudor JIJIE** „Alexandru Ioan Cuza" University of Iași, Romania *From SMART Cities to SMART Counties - Synergic Effect of Growth Poles* **Cătălin Ionel BOGHIU** Director of Digital Transformation and Implementation Smart City Iași, Iași Municipality *Iași 2.0: Digital Transformation and Intelligent Mobility in Action* **Ana Maria ICĂTOIU** "Avisso" group of companies, Organization of Women Entrepreneurs (OFA) in Romania *How do we finance the digital transformation of communities and their leap to the Smart City/Village level?* **Professor Daniela-Tatiana ȘOITU** "Alexandru Ioan Cuza" University of Iași, Romania *Research & Innovation for Cities and Citizens (RI4C2)* **Professor Christian SCHACHTNER** IUBH University of Applied Sciences, Bad Reichenhall, Germany *Creation of a distinct culture for the overall system „Compliance, IT security and Data protection" in municipalities in Germany*
16:30-16:45	Coffee break

FRIDAY, JUNE 9, 2023	
16:45-19:00	**Parallel Sessions** **Session 2. Green and smart technologies for Smart City** Council Room, FEAA, UAIC **Chairs:** *Professor* **Daniela POPESCUL** ("Alexandru Ioan Cuza" University of Iași, Romania), *Professor* **Vasile-Daniel PĂVĂLOAIA** ("Alexandru Ioan Cuza" University of Iași, Romania) **Ioana-Maria URSACHE, Mădălina-Ioana PETREA** "Alexandru Ioan Cuza" University of Iași, Romania *Inside the world's most sustainable smart city: lessons from Copenhagen* **Leontina PĂVĂLOAIA** "Alexandru Ioan Cuza" University of Iași, Romania *Green accounting in European smart cities* **Carina BRÂNZILĂ[1], Alin RUBNICU[2]** [1] "Alexandru Ioan Cuza" University of Iași, Romania [2] "Gheorghe Asachi" Technical University of Iași, Romania *Smart cities and sustainable mobility* **Corina-Valentina CUCORANU, Daniela POPESCUL** "Alexandru Ioan Cuza" University of Iași, Romania *Sustainable urban development – importance and challenges* **Doina FOTACHE, Vasile-Daniel PĂVĂLOAIA** „Alexandru Ioan Cuza" University of Iași, Romania *Smart cities research in Europe: exploring the power of algorithms* **Rinat GRINBERG** "Alexandru Ioan Cuza" University of Iași, Romania *The effect of delay in construction projects timetables on the building of smart cities* **Session 3. The role of emerging technologies in Smart Cities** B417, FEAA, UAIC **Chairs:** *Associate Professor* **Sabina-Cristiana NECULA** ("Alexandru Ioan Cuza" University of Iași, Romania), *Associate Professor* **Laura-Diana RADU** ("Alexandru Ioan Cuza" University of Iași, Romania)

	FRIDAY, JUNE 9, 2023
	Sabina-Cristiana NECULA "Alexandru Ioan Cuza" University of Iași, Romania *Leveraging machine learning to unveil the key determinants of waste management in smart cities* **Avraham COHEN** "Babes-Bolyai" University, Cluj-Napoca, Romania *Are AI and related technologies the engines of future welfare in intelligent cities?* **Daniel HOMOCIANU** "Alexandru Ioan Cuza" University of Iași, Romania *Exploring the influences associated with using mobile phones as an information source based on a multi-technique approach and WVS data* **Alexandru TUGUI, Paula COBZARU, Cătălin FRÂNCU** "Alexandru Ioan Cuza" University of Iași, Romania *A scientific perspective about the integration of smart cities in the Metaverse* **Laura-Diana RADU, Adriana-Elena ONICA** "Alexandru Ioan Cuza" University of Iași, Romania *Adapting to change: embracing agility in smart cities – from project management to organizational and city perspectives* **Liviu MORON** Cybershare *Why smart cities need smart cybersecurity?* **Cristina CĂUTIȘANU, Mariana HATMANU** "Alexandru Ioan Cuza" University of Iași, Romania *Assessing the green growth trajectory through decoupling: the EU27 case*
19:00-20:00 Council Room, FEAA, UAIC	**SmartEU 2023 Summer School Festivity** **Chairs:** *Lecturer* **Ana Iolanda VODĂ** (Director of the Jean Monnet Module European Smart Cities for Sustainable Development, "Alexandru Ioan Cuza" University of Iași, Romania), *Professor* **Ana-Maria BERCU** (Member of Jean Monnet Module European Smart Cities for Sustainable Development – SMARTEU, „Alexandru Ioan Cuza" University of Iași, Romania), *Associate Professor* **Laura-Diana RADU** (Member of Jean Monnet Module European Smart Cities for Sustainable Development – SMARTEU, „Alexandru Ioan Cuza" University of Iași, Romania) Ceremony of awarding the participants at **SmartEU 2023 Summer School**.

SATURDAY, JUNE 10, 2023	
10:00-10:30	Registration University's B building, first floor
10:30-13:00	**Parallel Sessions** **Session 4. E-Society and Smart City Development** B417, FEAA, UAIC **Chairs:** *Professor* **Ana-Maria BERCU** ("Alexandru Ioan Cuza" University of Iași, Romania), *Professor* **Andrei NEȘTIAN** ("Alexandru Ioan Cuza" University of Iași, Romania) **Nurit Rozolyo – Ben HAMOZEG** "Alexandru Ioan Cuza" University of Iași, Romania *Smart city as enabling smart developmental network* **Lyubka KOSTADINOVA** South-West University "Neofit Rilski" Blagoevgrad, Bulgaria *New challenges in trafficking in human beings* **Camelia GRĂDINARU, Daniel-Rareș OBADĂ, Ioan-Alexandru GRĂDINARU** "Alexandru Ioan Cuza" University of Iași, Romania *Sustainable behaviors make a city smart: an inquiry into consumers' perception of sustainable cosmetic brands* **Andrei Ștefan NEȘTIAN, Silviu Mihail TIȚĂ** "Alexandru Ioan Cuza" University of Iași, Romania *Thematic evolution of scientific publications on smart city foresight* **Gabriela POLEAC, Emil Andrei TOESCU** "Alexandru Ioan Cuza" University of Iași, Romania *Enhancing city mobility through digital apps: a study on the effects of E-Society* **Silvia CARP, Ana-Maria BERCU** "Alexandru Ioan Cuza" University of Iași, Romania *The evolution of smart cities: drivers, challenges and opportunities* **Mihaela CLINCU, Alexandru BĂNICĂ** "Alexandru Ioan Cuza" University of Iași, Romania *Culture as indicator of sustainable urban development at the level of the European Union*

SATURDAY, JUNE 10, 2023
Session 5. Digital education and circular economy Council Room, FEAA, UAIC **Chairs:** *Professor* **Alexandru ȚUGUI** ("Alexandru Ioan Cuza" University of Iași, Romania), *Lecturer* **Ana Iolanda VODĂ** ("Alexandru Ioan Cuza" University of Iași, Romania) **Mihaela PASCAL** "Alexandru Ioan Cuza" University of Iași, Romania *Smart workplaces and the need to have a place – is the psychological ownership triggered among Romanians who work in agile environments?* **Camelia COJAN** "Alexandru Ioan Cuza" University of Iași, Romania *Playing fair: ethical considerations in marketing toys and games to children* **Augustin Marius AXINTE** "Alexandru Ioan Cuza" University of Iași, Romania *Digital skills of primary school pupils from Romania* **Nelu FLOREA** "Alexandru Ioan Cuza" University of Iași, Romania *The role and implications of technology in smart cities* **Mihaela ONOFREI, Ana Iolanda VODĂ, Dana-Claudia COJOCARU** "Alexandru Ioan Cuza" University of Iași, Romania *Smart cities: sustainable solutions towards a green economy* **Felicia Catalina APETROI** University of Seville, Spain *The importance of social health insurance for the economy* **Francine DEHUE[1], Udo KÄSER[2], Dilyana KERANOVA[3], Vladislava LENDZHOVA[3], Daniel-Rareș OBADĂ[4], Miroslav TERZIYSKI[3], Ana Iolanda VODĂ[4], Trijntje VÖLLINK[1]** [1] Open Universiteit, The Netherlands [2] Bonn Centre of Teacher Education and the Bonn University, Germany [3] South-West University „Neofit Rilski", Blagoevgrad, Bulgaria [4] "Alexandru Ioan Cuza" University of Iași, Romania *Digital education and cyberbullying: a comparative analysis of Bulgaria, Germany, the Netherlands, and Romania*

SATURDAY, JUNE 10, 2023	
	Simona-Roxana ULMAN, Cristina CĂUTIŞANU "Alexandru Ioan Cuza" University of Iași, Romania *Study on the main vulnerabilities of environmental wellbeing in Romania*

CONFERENCE LINKS FOR PLENARY, PARALLEL SESSIONS AND WORKSHOP

June 9-10, 2023

**CONFERENCE LINKS PLENARY SESSIONS,
JUNE 9, 2023, 09.30-11:30 EET**

Link: https://rb.gy/rl9n3

Chair: *Lecturer* **Ana Iolanda VODĂ** (Director of the Jean Monnet Module European Smart Cities for Sustainable Development, „Alexandru Ioan Cuza" University of Iași, Romania)

**Session 1. Smart cities and citizen engagement,
JUNE 9, 2023, 11:45-13:00 EET**

Link: https://rb.gy/rl9n3

Chair: *Lecturer* **Ana Iolanda VODĂ** (Director of the Jean Monnet Module European Smart Cities for Sustainable Development, „Alexandru Ioan Cuza" University of Iași, Romania)

WORKSHOP ON **SMART CITIES: TRENDS AND DIGITAL SOLUTIONS. „CRITICAL FRIENDS, SHARED RISKS, SPACE TO INNOVATE, SETTING STANDARDS TO REPLICATE", JUNE 9, 2023, 14:30-16:30 EET.**

Link: https://rb.gy/rl9n3

Chairs: *Lecturer* **Ana Iolanda VODĂ** (Director of the Jean Monnet Module European Smart Cities for Sustainable Development, „Alexandru Ioan Cuza" University of Iași, Romania), *Associate Professor* **Cătălin VRABIE** (National University of Political Studies and Public Administration, Bucharest, Romania)

**Session 2. Green and smart technologies for Smart City,
JUNE 9, 2023, 16:45-19:00, EET**

Link: https://rb.gy/k98tl

Chairs: *Professor* **Daniela POPESCUL** ("Alexandru Ioan Cuza" University of Iași, Romania), *Professor* **Vasile-Daniel PĂVĂLOAIA** ("Alexandru Ioan Cuza" University of Iași, Romania)

**Session 3. The role of emerging technologies in Smart Cities,
JUNE 9, 2023, 16:45-19:00, EET**

Link: https://rb.gy/zfpa4

Chairs: *Associate Professor* **Sabina-Cristiana NECULA** ("Alexandru Ioan Cuza" University of Iași, Romania), *Associate Professor* **Laura-Diana RADU** ("Alexandru Ioan Cuza" University of Iași, Romania)

**Session 4. E-Society and Smart City Development,
JUNE 10, 2023, 10:30-13:00 EET**

Link: https://rb.gy/25oyc

Chairs: *Professor* **Ana-Maria BERCU** ("Alexandru Ioan Cuza" University of Iași, Romania); *Professor* **Andrei NEȘTIAN** ("Alexandru Ioan Cuza" University of Iași, Romania)

**Session 5. Digital education and circular economy,
JUNE 10, 2023, 10:30-13:00 EET**

Link: https://rb.gy/1ures

Chairs: *Professor* **Alexandru ȚUGUI** („Alexandru Ioan Cuza" University of Iași, Romania); *Lecturer* **Ana Iolanda VODĂ** („Alexandru Ioan Cuza" University of Iași, Romania)

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- When joining the meeting, all the attendees will be muted, and they should unmute themselves only while speaking.
- The organizers of the meetings have the possibility to mute/unmute the attendees, to grant them presenters' rights in order to share their computer screen and to remove any participant from the ongoing meeting.

BOOK OF ABSTRACTS

ENERGY PRODUCTION FROM RENEWABLE SOURCES IN A SMART CITY – PUBLIC AND PRIVATE PERSPECTIVES IN POLAND

Mariusz MACIEJCZAK, University of Life Sciences, Poland

Abstract: Enhancing the welfare of citizens and the quality of government service by creating a sustainable, efficient, and livable urban environment is the primary goal of the smart city. Its smartness comes most of all from the utilization and connectivity and management of innovative technology and key data. While its sustainability could be referred to many dimensions, one of which is production, storage, distribution, and use of energy from renewable sources. By combining the production of green energy with intelligent management, smart cities can optimize their operations and reap many multidimensional benefits, including a reduction of carbon footprint, increase energy efficiency or improve air purity. Therefore, the success of a smart city depends on good relations between the public and private sectors. In the European Union, this success can be enhanced by support from structural funds. Analyzing the situation in Poland the EU funds i.e. co-financed 3362 investments in solar renewable energy carried out under operational programmes 2014–2020. This funding constituted 60% of the total value of such investments. The investments in solar renewable energy depend mostly on the value of EU funding obtained by small and medium-sized enterprises and by local and regional authorities. Additionally, most of the individual users in urban areas decided to invest in photovoltaic microinstallations to take advantage of free energy and to some extent become independent from electricity price increases. Thus, the question arises not only about the production of energy from renewable sources in Polish cities that to some extent are smart but above all about public-private cooperation in the field of green energy. Is it also smart? The primary aim of the paper is twofold. Firstly, to present the conceptual foundations of energy production from renewable sources in a smart city, and secondly, using Poland as a case study, to present public and private perspectives of green energy production and utilization.

Keywords: renewable energy, smart city, public and private cooperation, Poland

EDUCATION 3.0 – AI AND GAMIFICATION TOOLS FOR INCREASING STUDENT ENGAGEMENT AND KNOWLEDGE RETENTION

Cătălin VRABIE, National University of Political Studies
and Public Administration, Bucharest, Romania

Abstract: The rapid advancements in Web 2.0 applications and artificial intelligence (AI) have significantly influenced the educational domain, introducing novel challenges for both educators and learners in online learning contexts. By continually learning and adopting innovative teaching methods, educators can cultivate enhanced learning experiences and collaboration between teachers and students. Effective strategies for delivering course content in online environments can further contribute to students' satisfaction and in-depth understanding of the subject matter. This article aims to present a framework for educators to improve interaction with students, grounded in pertinent e-learning literature and supported by institutional research as it discusses the results of a pilot project designed to stimulate learning by tailoring it to students' individual needs and maximizing the advantages of visual technologies in the learning process through gamification. Six courses on various subjects were developed, but this article focuses solely on a computer science course. The outcomes indicate visible improvements in student academic performance and satisfaction.

Keywords: e-learning, e-interaction, artificial intelligence

USING ARTIFICIAL INTELLIGENCE IN SMART HEALTH

Adrian IFTENE, „Alexandru Ioan Cuza" University of Iași, Romania

Abstract: The field of artificial intelligence has evolved a lot in recent years, reaching very good results in the area of text and voice processing, image and video processing, clustering and classification, prediction, etc. The medical field is one of the fields that can benefit a lot from this evolution, we refer here to the automatic analysis of CT, MRI, images, radiographs, and ECGs, predictions of disease evolution, and the identification of best treatment for patients, etc. The Faculty of Computer Science from Iași has several projects related to the application of artificial intelligence in medicine: (1) participation in CLEF competitions related to image processing with radiographs of tuberculosis patients, Kaggle competitions related to the use of RSNA medical collections IHD, iris, etc., (2) projects started from collaborations with doctors from the University of Medicine in Iași: identification of atrial fibrillation, identification of strokes, identification of ocular diseases, classification of teeth, etc. (3) research projects started at the level of the ImagoMol Medical Imaging Cluster: REVERT-an H2020 project, which aims to predict the best treatments for colorectal cancer patients, etc.

Keywords: artificial intelligence, smart health

THE ROMANIAN METROPOLITAN AREAS – A RECENT EXAMPLE OF FUNCTIONAL REGIONS FOR PLANNING AND POLICY DESIGN. ESTIMATING THEIR INTERNAL ECONOMIC AND DEMOGRAPHIC INEQUALITIES

Alexandru RUSU, „Alexandru Ioan Cuza" University of Iași, Romania

Abstract: In 2022, a new law regarding the creation of the metropolitan areas ("zone metropolitan") in Romania was adopted. The law underlines the need for a functional frame of policy interventions related to the new challenges faced by the Romanian cities, challenges that were rapidly augmented by a succession of a set of severe territorial crisis – post-EU adhesion, financial crisis, COVID pandemic, geopolitical instability and nowadays economic turbulences. It is also supposed that the emergence of the metropolitan areas, as territorial entities endowed with an enlarged economic and decisional autonomy, will accelerate the absorption of the EU funding provided via the Romania's Recovery and Resilience Plan. The law annexes describe the limitations of this form of functional region, mainly in terms of geographical extent, by a list of local administrative units that are eligible to be included in a metropolitan area. Our research aims to measure the degree of territorial consistency of this delineation, using two sets of indicators (recent local economic and demographic datasets), based on the hypothesis that the degree of internal disparities within the metropolitan areas might interfere with the objectives of a functional region, mainly … functionality. More specifically, this investigation evaluates the local gradients of economic performance, using indicators like the local gross turnover, the number of companies and the stock of employees, together with the recent demographic dynamics and flows (proxy variables). Our main goal is to establish a local metropolitan typology based on the degree of internal functionality, considering that this functionality is an essential pre-requisite for further policy making. We consider that the typology obtained by this methodology will explain why the emergence of the Romanian metropolitan areas, despite a generous legislative frame, lacks the adherence of the administrative decision takers, at local scale. The theoretical support of our approach is derived from the recent conceptualizations of the functional regions in Europe, such as they are defined by ESPON, OECD and the EU Commission. This theoretical support is intersected with the recent developments in the field of the Romanian planning thinking, with a special focus on a potential administrative reform in the future.

Keywords: metropolitan areas, Romanian cities

GERMAN SMART CITIES AND THEIR STRATEGY: EMPIRICAL INSIGHTS

Matthias SCHMUCK, „Alexandru Ioan Cuza" University of Iași, Romania
Stephan FILSER, „Alexandru Ioan Cuza" University of Iași, Romania
Emanuel RIEDER, „Alexandru Ioan Cuza" University of Iași, Romania

Abstract: More and more smart cities are emerging in response to increasing urbanization and the need for sustainable and efficient urban development. These cities leverage advanced technologies and data-driven approaches to enhance various aspects of urban life, including transportation, energy management, public safety, and citizen engagement. The consequence of this increasing digitization is the collection, storage, analysis, and sharing of large amounts of data. Recent developments in sustainable urban development have increased the need for effective data strategy and governance to maximize the value of data-driven approaches, and therefore data. In this regard, data strategy and governance must be an integrative part of a digitization (or smart city) strategy. Evidence-based research on this topic is scarce in this regard, because much research focusing on a literature-based approach to conceptualization. This study aims to fill such a research gap and examines the current state of strategy initiatives in smart cities in Germany. Using online content analysis, a checklist, and a coding scheme, we sought to obtain empirical evidence of strategy initiatives related to digitization, data, and governance, as well as their transparency and progress, on a sample of 82 major German cities (state capitals of the 16 German states and cities with at least 100,000 inhabitants). Preliminary results show varying degrees of sophistication and transparency of strategy initiatives. These results provide insights into possible directions of the development of strategy initiatives in smart cities.

Keywords: German smart city, digitalization, data strategy, data governance, content analysis

MEASURING CIVIC ENGAGEMENT OF RESEARCH AND INNOVATION ACTIVITIES

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Abstract: The growing of public engagement in Citizen Science (CS) raised the problem of finding models for understanding and assessing public engagement. The objective of the paper is to present instruments for measure civic engagement in CS. Starting from an analysis of people's civic engagement in the seven countries members of the EC2U Alliance (University of Coimbra – Portugal, University of Iași – Romania, University of Jena – Germany, University of Pavia – Italy, University of Poitiers – France, University of Salamanca – Spain, University of Turku – Finland), we propose a motivation-based approach of civic engagement. Considering the literature review and the key findings from a previous analysis of the Local Knowledge Ecosystems of the EC2U Alliance, we designed the Toolkit of Instruments for Measuring Civic Engagement in R&I activities. This is a work within „Research & Innovation for Cities & Citizens – RI4C2" project, funded through Horizon 2020 „Science with & for Society" (SwafS) call for European Universities. The measurement instruments can be useful for assessing the public engagement in CS projects, in order to improve the activities and evaluate the participation's impact.

Keywords: citizen Science, civic engagement, local knowledge ecosystems, quantitative-qualitative instruments for measuring civic engagement

ECOSYSTEMS KNOWLEDGE NETWORK: A SYSTEMATIC APPROACH

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Abstract: The concept of a Knowledge Ecosystem (KE) encompasses a dynamic network of interconnected elements that collaborate to foster the creation, sharing, and utilization of knowledge. It encompasses the various processes, tools, and platforms that facilitate knowledge generation, dissemination, and application. One of the key attributes of a knowledge ecosystem is its ability to generate novel insights and valuable solutions for all participants involved, fostering innovation, enhancing decision-making capabilities, and supporting continuous learning and growth. This paper aims to provide an overview of the knowledge ecosystem concept, which has gained considerable attention in recent research. It specifically focuses on the organizational structure of knowledge ecosystems and explores the relationships between its various components. In addition to examining the different forms of organization within knowledge ecosystems, this paper also contributes to the existing research by outlining the main methodological approaches employed in evaluating the concept.

OVERVIEW OF THE PEOPLE'S CIVIC ENGAGEMENT IN EUROPEAN COUNTRIES: A COMPARATIVE APPROACH

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Abstract: The interest and perceived need to engage citizens, civil society actors and end-users in general to R&I activities is increasing, although the degree of involvement differ from one ecosystem to another. Stating from this, the main objective of this paper is to realize a comparative analysis of the indicators that measure civic engagement. As sample for our analysis we consider the seven countries where the EC2U Alliance universities come from (Finland, France, Germany, Italy, Portugal, Romania, Spain). For this empirical investigation, we chose to analyse a set of indicators that measure people's civic engagement. The data used come mainly from Eurostat (2023) but also from the results obtained from surveys carried out by the European Parliament (Flash Eurobarometer FL4023, 2020) and European Commission (2015). The results of the study highlight the differences and similarities between the countries considered with regard to active citizenship showing at the same time the factors that could stimulate this involvement.

Keywords: civic engagement, active citizenship, local knowledge ecosystems, Eurostat

INSIDE THE WORLD'S MOST SUSTAINABLE SMART CITY: LESSONS FROM COPENHAGEN

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Abstract: Smart city emerged as a new approach to urban development, aiming to bring innovative solutions to the complex challenges that cities face today. A general objective of the smart city agenda is to achieve sustainability through the use of technological instruments, best practices coming from Western cities. Copenhagen has earned a reputation as the world's most sustainable smart city due to its commitment to sustainability practices and policies. This qualitative research article analyses Copenhagen's sustainability practices and policies based on a comprehensive document analysis of reports, official websites, and academic papers. The study aims to identify the drivers behind Copenhagen's success and to draw lessons for other cities seeking to become sustainable. The article examines Copenhagen's sustainability practices in the areas of renewable energy, green infrastructure, and sustainable transportation. The research draws on these experiences to identify key lessons for other cities, highlighting the importance of political commitment, stakeholder engagement, and long-term planning for sustainability.

Keywords: sustainability, smart city, sustainable practices, urban policies

GREEN ACCOUNTING IN EUROPEAN SMART CITIES

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Abstract: The rapid urbanization and increasing environmental concerns have spurred the emergence of smart cities as a sustainable solution for urban development. In this context, the concept of green accounting has gained significant attention, aiming to incorporate environmental factors into traditional accounting practices. This article explores the implementation of green accounting in European smart cities, focusing on the integration of sustainability metrics, environmental performance indicators, and cost-benefit analysis within the accounting framework. Through a comprehensive review of existing literature and case studies, the article highlights the potential benefits of green accounting in enhancing the transparency, efficiency, and effectiveness of financial decision-making processes in smart cities. It discusses the challenges and opportunities associated with the adoption of green accounting practices, including the need for standardized methodologies, data availability, and stakeholder engagement.

Keywords: green accounting, smart city, environmental performance indicators, sustainable development

SMART CITIES AND SUSTAINABLE MOBILITY

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Abstract: Cities today have become or are trying to become „Smart cities", which is a complex notion, with more implications than one might think. One of the main characteristics of a Smart city is the high quality of life standard it offers. And one of the key issues of a good life-quality is urban transport. Urban mobility and a reliable, sustainable public transport is of utmost importance, and not just for the people living there, but also for the city itself and for the environment. This presentation aims at discussing some important issues related to sustainability regarding the public transport and to offer some good practice examples from around the world.

Keywords: smart cities, urban mobility, sustainable

SUSTAINABLE URBAN DEVELOPMENT – IMPORTANCE AND CHALLENGES

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Abstract: The relationship between urban development and technological progress is mutually beneficial. Technological advancements meet the needs of citizens, leading to better, smarter cities. Conversely, cities function as concentrated hubs of economic activity and innovation, attracting skilled professionals, entrepreneurs, and investors who contribute to the deployment of cutting-edge technologies. For this cycle to stay virtuous, urban development must be supported by measures able to ensure economic, environmental, and social sustainability. This paper highlights the importance of sustainable urban development and synthetizes the challenges associated with it, focusing on a set of Internet-of-Things based projects implemented in three Romanian smart cities (Cluj Napoca, Iași and Alba-Iulia).

Keywords: smart city, economic sustainability, environmental sustainability, social sustainability, internet of things

SMART CITIES RESEARCH IN EUROPE: EXPLORING THE POWER OF ALGORITHMS

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Abstract: The European Union has witnessed significant progress in the implementation of smart city initiatives, where the topic of algorithms emerges as fundamental tool for achieving sustainability and efficiency goals. This review article examines the diverse applications of algorithms in European smart cities, covering areas such as intelligent transportation systems, energy management, waste management, citizen engagement, and urban planning. The manuscript aims to present key algorithms approaches, data analytics techniques, and the integration of emerging technologies in the European context. Additionally, it provides insights on the ethical implications of algorithmic decision-making and highlights the need for transparency and accountability. This review consolidates the current state-of-the-art, identify gaps, and provide recommendations for future research and development in algorithmic solutions for smart cities in the European Union.

THE EFFECT OF DELAY IN CONSTRUCTION PROJECTS TIMETABLES ON THE BUILDING OF SMART CITIES

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Abstract: Smart cities leverage technology and data in order to improve the quality of life of their residents, the effectiveness and sustainability of municipal systems, and economic development. These cities offer varied technologies, such as sensors and data analysis for the purpose of collecting and analyzing data in real-time. Thus, they facilitate a rapid and efficient decision-making. Improvement of the quality of life is achieved by providing efficient transportation, clean energy, and high-quality public services such as healthcare and education. Furthermore, smart cities enhance their sustainability by reducing the consumption of resources and emission of greenhouse gases, promoting their renewable energy, as well as creating durable infrastructures that can withstand natural disasters. Delays in the construction timetables significantly affect the development and implementation of smart cities. Various factors can account for such delays. For example: unexpected site conditions, disruptions caused by the weather, changes of design or scope of work, as well as lack of materials or manpower. Smart cities involve complex and connected systems, such as transportation, energy, and communication networks and, thus, delays in the timetables can compromise their timing and continuity. These factors entail increased costs and potential failures of the project. The delay in building a smart transportation network affects the branching out of the systems, the traffic management, or smart parking. Project managers should adopt proactive measures, e.g., risk management and contingency plans, as well as perform current monitoring and reporting in order to moderate the impact of timetable delays on the construction of smart cities.

Keywords: schedule delays, project management, smart cities, changing reality, construction industry

LEVERAGING MACHINE LEARNING TO UNVEIL THE KEY DETERMINANTS OF WASTE MANAGEMENT IN SMART CITIES

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Abstract: Unravelling the complex dynamics of waste management in smart cities, this study harnesses the power of machine learning to identify critical influencing factors. With a focus on an array of waste types – including ferrous and non-ferrous metals, food, glass, and construction & demolition waste – our research employs a multifaceted machine learning approach. The analysis begins with an Ordinary Least Squares (OLS) regression model, which impressively accounts for 85.4% of the variance in total waste generation, as measured in thousands of tonnes. Notably, 'Food' waste type emerges as a significant predictor. Beyond these initial findings, the study employs additional machine learning methodologies to not only validate the OLS model's outcomes but also to unearth further insights into the intricate system of waste management in our cities of the future. This comprehensive analysis, straddling multiple algorithms, ensures the robustness of our findings and paves the way for data-driven waste management strategies in smart cities, contributing to more sustainable urban environments.

Keywords: machine learning, waste management; smart cities, waste generation, predictive modeling

ARE AI AND RELATED TECHNOLOGIES THE ENGINES OF FUTURE WELFARE IN INTELLIGENT CITIES?

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Abstract: We are living in an area of interconnected materials and intelligent automation machines. The fields of intelligence robotics, IOT, augmented reality, nanotechnology, blockchain are partial list of today's technologies being utilized by governments and cities. To take advantage of these technologies in the most efficient way to provide integrated services, cities should operate and collaborate as intelligent entities guided and regulated by central unit. Integration and Implementation of these technologies is easier said than done even by a wealthy city around the globe. Even top ranked smart cities are still far behind to have ideal transportation system and other essential services; enough to mention Amsterdam which was rank number one in smart cities index for 2022. At the same time, no city in Africa made it to the list of top 31 smart cities in the world. One important finding emerging from my PhD research is that education, is strongly associated with Artificial Intelligent index of countries. The findings give a direction to policy makers to strive to collaborate with other cities to increase high level published research which would turn to higher level of investment in AI. This direction might be the most direct and cost efficient to many cities around the globe which otherwise will stay behind. The aim of this paper is to outline effective process for policy makers to prioritize the investment in Artificial Intelligence and other technology. In addition, to provide a guide of how these technologies should be implemented and adopted to services that will yield the highest welfare for its citizens per invested capital. The empirical study in this paper shows that cities investing in technologies to improve its services have a higher net average salary in its region. Moreover, technologies related to education, environments, healthcare and mobility have the highest effect on its citizen's net average salary. In other words, the finding of this paper directing policy makers to invest in technologies related to education, healthcare and environment and mobility. In addition, based on the finding that transparent governance & open data initiatives, productivity and economic vitality, received lower priority, I recommend to standardize the reporting of information by cities. I point the adoption of Extensible Business Reporting Language (XBRL) by the Security Exchange Commission (SEC) as a good example to follow to create similar standard.

Keywords: smart city, artificial intelligence, innovation, research, sci-tech, scientific, technical, technology

EXPLORING THE INFLUENCES ASSOCIATED WITH USING MOBILE PHONES AS AN INFORMATION SOURCE BASED ON A MULTI-TECHNIQUE APPROACH AND WVS DATA

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Abstract: Based on different techniques and tools for exploring large amounts of data, this paper aims to identify the most resilient influences of using mobile phones as information sources from the most recent and comprehensive dataset of the World Values Survey (TimeSeries 1981-2022, v4.0). One of the contexts is the increasing role of „smart mobility" as a significant pillar of smart cities, where both aim for better transformations of the way we live and work. DK/NA treatment and many rounds of selections based on Adaptive Boosting in the Rattle library of R, PCDM, the LASSO pack, together with different types of regressions, and the NOMOLOG tool and command (for generating prediction nomograms) in Stata contributed to identifying the five most salient influences in a classification model with no evidence of collinearity and good-to-excellent accuracy of classification (AUC-ROC>0.87). The first four (five-point frequency scale from daily to never, identical to the one of the target) are about using other channels or information sources, namely social media (Facebook, Twitter, etc.), talking with friends or colleagues, radio news, and e-mail. In addition to these four, a strong influence also has the birth year (all five positively correlated with the outcome), leading to the respondent's age as having a negative correlation with the target.

Keywords: World Values Survey, mobile phones as an information source, data mining techniques, most resilient influences

A SCIENTIFIC PERSPECTIVE ABOUT THE INTEGRATION OF SMART CITIES IN THE METAVERSE

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Abstract: Today's cities are more and more open to the digital transformations of society, which highlights their ubiquitous smart city character. Through a review of the specialized literature, this paper aims to identify the extent to which the scientific literature in the field deals with the integration of smart cities into the metaverse as a research subject. The results of our study within the Scopus database reveal that metaverse-related immersive technologies can assist urban environments, showcase the integration of metaverse with IoT as a support technology for smart cities, and design future smart cities. We also concluded that teleportation is used for navigating large urban immersive virtual environments and that the metaverse is constituted as a virtual form of data-driven smart urbanism and even as a virtual form of smart cities. The integration of the two domains is possible through immersive technologies such as 3D displays, interactives, and integrating digital twins or advanced intelligent technologies. Our study's originality lies in the integrated perspective of the intersection of the two fields, smart cities and metaverse, reached so far by academic research. Our results become the starting point for further studies in the field.

Keywords: metaverse, smart cities, IoT, 3D technologies, digital twin

ADAPTING TO CHANGE: EMBRACING AGILITY IN SMART CITIES – FROM PROJECT MANAGEMENT TO ORGANIZATIONAL AND CITY PERSPECTIVES

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Abstract: In the last few decades, the concept of agility has gained immense popularity in project management and organizations. Companies strive to enhance speed, foster adaptability to market dynamics, and promote innovation by implementing an agile strategy, adopting agile practices, and cultivating an agile mindset among leaders and employees. However, despite its widespread adoption, there remains ambiguity surrounding the precise meaning of agility and the critical factors for its successful implementation. In the context of transitioning towards smart cities, the active involvement of citizens is crucial. Their participation goes beyond making decisions and selecting projects; they play a vital role in the implementation process. The ever-evolving needs and desires of citizens require the implementation of agile practices and principles in projects developed within smart cities. The extensive acceptance of agile methodology in organizations engaged in software product development, coupled with their critical role in smart city development, facilitates the extension of agility from teams to entire organizations and cities. Scaling in both vertical and horizontal dimensions becomes imperative, along with an open attitude towards change and effective communication among community members and between them and local administrations. This paper aims to tackle the primary challenges associated with the adoption of agile project management in organizations and smart cities.

Keywords: smart cities, agile project management, organization agility, citizen involvement

WHY SMART CITIES NEED SMART CYBERSECURITY?

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Abstract: Connecting public services can increase the efficiency and resilience of the infrastructure that supports day-to-day life in our communities. However, digital public services in Smart Cities are a target for hackers and cities should thoroughly assess and mitigate the cybersecurity risks.

Keywords: cybersecurity, smart cities

ASSESSING THE GREEN GROWTH TRAJECTORY THROUGH DECOUPLING: THE EU27 CASE

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Abstract: Economic activities are directly supported by the natural environment through its resources and raw materials provided as inputs for the production of goods and services. However, the intensity of economic activities and the manner in which they are made in various sectors of activity cause air pollution through emissions that, in the end, endanger human health. The aim of the study is to analyse the degree of decoupling of economic growth from environmental degradation in EU27 countries within the periods covering the two commitments of the Kyoto Protocol, 2008-2012 and 2013-2020. Graphic representations and statistical tests (Paired Student's t test and 2-sample Wilcoxon Rank test) were used in order to analyze the comparative evolutions of the growth rates for GDP per capita and CO2 emissions at the level of each country, both at the national level and the representative economic activities. The main result emphasized that most of the EU27 countries registered a negative coupling stage in the first period, while in the second one, the transition was a significant one, managing to achieve a relative or absolute decoupling stage. Overall, the Nordic countries could be observed as examples of best practices. These findings are relevant for various stakeholders, such as the government or public institutions, who have an important role in the preparation of programs, projects and policies meant to achieve economic growth in a more sustainable manner, a green growth.

Keywords: decoupling, GDP per capita, CO2 emissions per capita, EU27 countries, economic activities

SMART CITY
AS ENABLING SMART DEVELOPMENTAL NETWORK

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Abstract: The Developmental Network model is based on leaders engaged in weaving networks for their subordinate development, and developing a space that enables growth, innovation, entrepreneurship and connections. A network of professional development connects people from similar and different fields to create an enabling space, from which innovative ideas are born. „Smart city" is a terminology adopting mobile computing systems. It refers to practical data management networks amongst all components and layers of the city. Through smart management of the city, a variety of systems and resources can be improved, such as traffic control, sustainable resource management, quality of life, and infrastructure in the smart city. This paper is about the most valuable resource of the city- its residents! I will argue that the smart cities' networks can be used at the benefit of individuals and organizations, so that opportunities for professional and occupational developmental can evolve. The city as a community can (and should) create an enabling space to its residents and organizations, by sharing knowledge between industries, collaboration, human resource exchange, empowerment of human resources, and more. Occupational Development opportunities are a major element in keeping residents in the city.

Keywords: developmental network, smart city, occupational development

NEW CHALLENGES IN TRAFFICKING
IN HUMAN BEINGS

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Abstract: Trafficking in human beings is a crime that is hidden from public view due to the covert nature of its activity. Often described as a modern form of slavery, this illegal activity poses a significant threat to national security, business and the wider economy in Europe and internationally. Every year, men, women and children fall into the traps of exploitative practices perpetrated by organized criminal groups, the aim of which is to make a huge financial profit. The forms of exploitation are evolving, and criminal activities are increasingly taking on an online dimension. Economic crises, military conflicts, the 'COVID-19' pandemic, climate change and forced displacement are having a significant impact on people's lives, and these factors of stress and insecurity are making more people vulnerable to exploitation and trafficking. This report presents and scientifically specifies the phenomenon of trafficking in human beings in the context of the development of its new dimensions and its impact on societies, based on a review and analysis of documents and data at European and international level. The conclusions drawn from the analysis and interpretation of the aggregated findings suggest that the fight against trafficking in human beings is a multifaceted process that requires a multidisciplinary and multidimensional approach through the integration of sustainable policies and relevant governance models and tools that respond to the new dimensions of trafficking in human beings.

Keywords: trafficking in human beings, anti-trafficking measures, trends, sustainable policies, vulnerability

SUSTAINABLE BEHAVIORS MAKE A CITY SMART: AN INQUIRY INTO CONSUMERS' PERCEPTION OF SUSTAINABLE COSMETIC BRANDS

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Abstract: Modern-day cities are human-centric, focusing on smart living and well-being. „Cyber cities" are places where the citizens „are called to play a crucial role as co-designers and actuators of urban developments" (Scardovi 2021). In this respect, sustainable living involves three pillars – economic, social, and environmental – and represents a goal for the city's development, upgrading the quality of life for the present citizens and ensuring that future generations will benefit from necessary resources. The principles of sustainability have permeated the constantly changing industry of cosmetics. Many corporations in this field have put serious effort into adopting sustainable practices and delivering better products. Generally, consumers buy cosmetic products according to hedonic and utilitarian motives but also as a symbol of social prestige. Those who are sensitive to sustainable policies tend to trust the brands that implement them and thus make their purchasing decisions accordingly. Our exploratory study investigates whether there are differences between female and male customers in terms of perception of sustainable cosmetics brands (SCB). We collected data from consumers through an online questionnaire via social media, using an online survey platform. Thus, the snowball sample consists of 288 valid responses from male (50%) and female (50%) consumers of sustainable cosmetics brands. Because we were interested in comparing the female and male groups of sustainable brand customers, this ratio in our convenience sample was a precondition. We tested eight variables that received particular attention in the literature: brand attachment, brand authenticity, brand trust, corporate credibility, intention to join a brand page, social prestige, resilience to negative information, and purchase intention. We performed a Mann-Whitney U test to assess group comparison, and the findings show meaningful differences in perception of brand authenticity and intention to join a brand page. The results contribute to the literature and have a series of managerial implications.

Keywords: sustainable living, sustainable cosmetics brands, male-female perception differences, brand authenticity, intention to join a brand page

THEMATIC EVOLUTION OF SCIENTIFIC PUBLICATIONS ON SMART CITY FORESIGHT

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Abstract: The development of smart cities requires consideration of a wide range of serious societal, economic, environmental and governance challenges. Smart City Foresight is a complex and multidisciplinary subject that includes a multitude of fields of research and practical development. The purpose of our paper is to reveal insights into the thematic evolution of smart city foresight research. Starting from the assumption that the article title, article abstract, and keywords constitute adequate descriptions of its content and reflect the topics the article covers, we used R-Stata Bibliometrix, a software specialized in Science Mapping Workflow, to create word maps capable of revealing the main streams of research in this field and the thematic connections between the different fields. The methodological approach also assumes that the co-occurrence of two or more keywords within the same article indicates a link between those topics. The results show that the domain is growing in complexity, covering an increasing number of multidisciplinary areas. The results are useful for the understanding of potential new research areas that can be used in focusing and designing future research.

Keywords: smart city, foresight, city planning, word networks, bibliometric analysis

ENHANCING CITY MOBILITY THROUGH DIGITAL APPS: A STUDY ON THE EFFECTS OF E-SOCIETY

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Emil Andrei TOESCU, „Alexandru Ioan Cuza" University of Iași, Romania

Abstract: By delivering accessible and targeted transportation options, the integration of digital apps in urban contexts has the potential to revolutionize metropolitan mobility. This research looks at the influence of digital apps on city mobility and their implications for e-society. We investigate the influence of these apps on road congestion, public transportation utilization, environmental sustainability, and user experiences using a combination of data analysis and focus group interviews. The study employs a mixed-methods approach, combining qualitative observations from focus group interviews with app users with an extensive survey of the literature that lays the groundwork for comprehending the existing knowledge and research needs in the field of e-society and urban mobility. This research has ramifications for politicians, urban planners, and developers, who can use the findings to optimize urban transportation networks and improve city mobility. The study underlines the importance of ongoing research and collaboration among academics, industry, and policymakers in order to properly integrate digital apps into urban surroundings, providing equal access and long-term mobility. This investigation adds to the expanding body of knowledge in the subject of e-society by shining light on the effects of digital apps on city mobility. It emphasizes the potential of digital technologies to alter urban mobility and establishes the framework for future research into this critical convergence of technology and urban living.

Keywords: digital apps, city mobility, e-society, urban transportation, technology adoption

THE EVOLUTION OF SMART CITIES: DRIVERS, CHALLENGES AND OPPORTUNITIES

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Abstract: Although there is no consensus on what a „smart" city is, as cities have different approaches and definitions of what it means to be a smart city, more generally, they are concerned with the integration of information and communication technologies (ICT) to increase efficiency, sustainability, and quality of life in the urban environment. Their development requires a multidisciplinary approach involving collaboration between government, the private sector, academia, and citizens. In recent years, smart cities have become increasingly popular as a solution to address the challenges of urbanization and digital transformation. Although the concept of smart cities has been around for some time, it has evolved significantly over time in response to technological advances and societal needs. Despite some initial reluctance, the usefulness of technology in improving the lives of citizens has been recognized, leading to its widespread integration in various areas. This paper aims to provide an overview of the evolution of smart cities, reviewing the relevant literature and case studies, highlighting the drivers and challenges that have led to their growth and providing a more comprehensive understanding of their evolution over time.

CULTURE AS INDICATOR OF SUSTAINABLE URBAN DEVELOPMENT AT THE LEVEL OF THE EUROPEAN UNION

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Abstract: The cultural sector, a generator of creativity and innovation and factor of enhancing community awareness and shared identity contributes to more sustainable, connected and citizens-friendly urban environments. Sustainable development is a priority in EU policies, and exploring the cultural domain can add value by boosting cultural indicators as part of the development strategies. The general objective of the paper is to analyse the level of influence of cultural indicators on the Sustainable Development Goals especially in urban areas. The paper discusses the implications of the cultural domain in relation to the Sustainable Development Goals with a focus on four of the goals: SDG 4 (Quality Education), SDG 8 (Decent Work and Economic Growth), SDG 11 (Sustainable Cities and Communities), SDG 13 (Climate Action). The analysis is based on national and city statistical datasets at European Union level. The paper results are based on correlation and regression analysis, allowing us to make assessments on the role of the cultural domain in sustainable development. Using the XLSTAT software, a statistical analysis model was built based on the hypothesis that the SDGs' achievement level is influenced by the level of cultural development in the EU member states and cities. As a result, it was found that the Sustainable Development Goals achievement depends on the share of the cultural domain, while certain cultural infrastructures activities and policies are closely linked to the notion of national and city development. In this consideration, a policy approach including the cultural domain could support sustainable development.

Keywords: Sustainable Development Goals, culture, urban development, correlations

SMART WORKPLACES AND THE NEED TO HAVE A PLACE – IS THE PSYCHOLOGICAL OWNERSHIP TRIGGERED AMONG ROMANIANS WHO WORK IN AGILE ENVIRONMENTS?

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Abstract: Researchers study psychological ownership in the context of architecture and urban planning to explore how the design of spaces influences feelings of ownership and attachment. When is associated with a work environment, the psychological ownership can lead to an increased motivation, greater commitment and high loyalty to the organization, and improved performance. The purpose of this paper is to identify if agile working spaces, that promote the idea of „our" space, can lead to psychological ownership. Specifically, we investigated how the space influences three mechanisms through which psychological ownership emerges: the control over the ownership target, the level of knowledge gained over the ownership target and the investment of the self into the target. We collected the data by conducting 20 in-depth interviews with employees who work in an agile environment. Results highlight that most of the employees do not feel like they have their own space mainly due to the lack of privacy and the impossibility to personalize the workspace according to their needs. Concerning the three mechanisms studied, the findings indicate that employees perceive limited control over the space and most of the time they have to compromise or negotiate with other team members in order to adjust all the needs; however, they agree that this type of space facilitates knowledge sharing and communication within team members, cross teams or even cross countries. Additionally, participants consider that the space encourages collaboration but often represents a blocker for productivity due to constant distractions. This study also provides recommendations for companies on how to improve employee satisfaction and to foster a sense of psychological ownership.

Keywords: psychological ownership, smart workplace, agile working environment, control over workspace, employee satisfaction

PLAYING FAIR: ETHICAL CONSIDERATIONS IN MARKETING TOYS AND GAMES TO CHILDREN

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Abstract: Advertising and advertising content are important components of the consumer socialization process. Advertising helps children discover products available on the market and shapes their desires, attitudes, and behaviour. Advertising targeted at children is subject to specific regulations. It must follow certain ethical standards that contribute to protecting the interests of the vulnerable public, children. This research is based on a literature review. It aims to achieve two objectives. The first objective is to identify the main ethical aspects related to advertising for games and toys aimed at children. The second objective of the research is to illustrate the main regulations in the field of marketing for children's games and toys in Romania. We illustrate these aspects by comparing the regulations in the European Union. Some countries have made significant changes, which we present to compare the regulations in Romania with those in other EU states. We aim to identify whether there are aspects in Romania that have been regulated in the European Union but have not yet been regulated in Romania, which could improve the ethics of marketing products aimed at children. The research proposes new regulations and standards based on the literature reviewed.

Keywords: marketing, children toys and games, ethics

DIGITAL SKILLS OF PRIMARY SCHOOL PUPILS FROM ROMANIA

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Abstract: The covid 19 pandemic has shown us that education and training are essential and that digital skills are needed, not just basic but developed for the digital age we are in. Perhaps this pandemic would not have been necessary, but the medical situation imposed by the covid-19 pandemic has shown that it is absolutely necessary that the digitisation of the educational process starts at primary school level and not at secondary school level, because it is at this level that digital education and training tools are used. So far, few schools in Romania have introduced Informatics and ICT as an optional subject at primary school level, although pupils have native digital skills that should be further developed and improved. Starting from these premises, the aim of this paper is to find answers to the following questions: What is the level of digital competences of primary school pupils? Which digital competences need to be developed from primary school onwards? What digital skills should pupils have at the end of primary school? The methodology used to obtain answers to these questions is based on the literature, official documents published by European Commission offices and statistics issued by specialised bodies. The conclusion that emerges is that a pupil at the end of primary school should have at least basic digital skills.

Keywords: digitization, education, digital skills

THE ROLE AND IMPLICATIONS
OF TECHNOLOGY IN SMART CITIES

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Abstract: The repetitive activities have become automatic or dependent on robots, so, it was expected that digitalisation would optimize day to day activities. Smart cities have been developed through community efforts of innovation and technology integration in developing life-quality improving infrastructure. Whether the development be vertical or horisontal, it results in different developmental patterns impacting logistics, fabrication models regarding improved efficiency, and access to public and private services. These cities rely on metadata and advanced technology use in order to sustainably and actively manage their resources, thus providing diversified and personalized offer. The technological trends for the smart cities are set by the IT giants, digital natives, innovative universities, or governmental projects. The vision and the motivation are different from those who created the before mentioned technologies and should include preexistent infrastructure that reduces the planned options or determines additional costs when being implemented. Therefore, it is natural that, in the future, a high percentage of the administrative budget will have the goal of creating infrastructure, or of contributing to the maintenance of technology. Hence, digital nomads would be a high risk if they were not open to contribute to the administrative finances; however, they wish for a high level of life quality.

Keywords: digitalisation, smart city, innovation, digital natives, digital nomads

SMART CITIES: SUSTAINABLE SOLUTIONS TOWARDS A GREEN ECONOMY

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Abstract: Due to the exponential increase in greenhouse gas emissions, air pollution is one of the biggest challenges of the 21st century. The main causes of rising greenhouse gas emissions are industrial manufacturing processes and increased road traffic, which is not exactly friendly to the environment and human health. Cities, constantly affected by traffic congestion, are the starting point for viable, efficient, and sustainable solutions to reduce pollution. The objective of our paper is to analyse the relationship between these three interlinked concepts to highlight their potential synergies in creating sustainable and resilient cities. First, we want to empirically explore how the circular economy contributes to the sustainable development of smart cities. The circular economy, which is based on resource efficiency and waste minimization, closely aligns with smart city principles. Second, the study also examines the role of renewable energy in the development of smart cities across the European Union.

Keywords: renewable energy, smart cities, circular economy, European Union

THE IMPORTANCE OF SOCIAL HEALTH INSURANCE FOR THE ECONOMY

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Abstract: As a process influenced by social, economic, and scientific progress, the development of the social health insurance system has always been conditional on obtaining funds to support the treatment of patients. The issue of public healthcare and social healthcare insurance represents a global challenge that evolved over time from population health surveillance to eradicating epidemics, then to identifying health needs, developing strategies to promote health, and finally an assessment of health services. There are detailed studies on social health insurance mechanisms, especially for workers, who have formed a very important social category with rights and freedoms since the 19th century. The issue of ensuring the health and social protection of the individual takes into account aspects of prevention, healing, and reintegration of individuals into society, by developing a coherent economic-political-legislative framework, thus ensuring the evolution of the nation. Starting with the fall of communism, and especially with Romania's accession to the European Union, numerous country reports have been developed to link national data reporting to European and world data. There are many studies in the field but given the complexity of the subject and the economic, political and social dynamics, it remains an open field for interpretations and solutions in order to improve the protection of the population against disease and accidents. This article aims to analyse the evolution of social health insurance, highlighting its importance and role in the economy.

Keywords: development, economy, social health insurance, evolution

DIGITAL EDUCATION AND CYBERBULLYING: A COMPARATIVE ANALYSIS OF BULGARIA, GERMANY, THE NETHERLANDS, AND ROMANIA

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Abstract: The Covid-19 pandemic triggered the biggest disruption of the education system, affecting children in terms of cognitive performance, psychological stress, social isolation or (cyber-) bullying. The current qualitative study highlights the teachers' perceptions regarding the psychological and social effects during the COVID-19 pandemic, their strategies to cope with different educational, social, communication, and psychological problems of their pupils and the effect of these measures during the Covid-19 pandemic. We explore the impact of the loss of face-to-face contact and the increase of social platform use on the motivation to learn and the negative online experiences of pupils. Against this background, a qualitative study was carried out in Bulgaria, Germany, the Netherlands, and Romania. Semi-structured interviews were conducted with a sample of 16 to 27 teachers in each country, gathering a total of 81 participants. Each interview was audio-recorded and transcribed. The content analysis focused on children's mental problems and how they coped with the extra demanding situation, the increased use of digital platforms and negative online experience of their pupils. Overall, the results indicate that in most cases the schools initially adopted a decentralized approach in terms of teaching activities, to cope with the sudden closure of schools and remote learning education continuity. In all countries, teachers observed performance deficits and increased levels of stress and anxiety within pupils. In all countries there was a general consensus with the lack of supportive government measures (e.g., specific training on methods how to organize online learning).

Keywords: cyberbullying, distance learning, school politics, digital infrastructure

STUDY ON THE MAIN VULNERABILITIES
OF ENVIRONMENTAL WELLBEING IN ROMANIA

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Abstract: In the development theory, sustainability synthetizes the larger perspective in which, besides the human and economic concerns, environmental issues are considered and emphasized as essential for wellbeing and closely linked to the other major societal dimensions. Accordingly, centering our debate on environmental performance, the main aim of this study was to analyze its main vulnerabilities for observing if Romania follows different environmental paths comparatively to the other two dimensions of sustainability and which are the effects of society's performance (with its economic and social parts) upon it. In such context, our study revealed the salient differences between the levels of each dimension in Romania in the period between 2006 and 2020, while also investigating the effects of economic and social sectors on the main weak points of environmental wellbeing. The results showed that the most vulnerable environmental indicators were found to be the ones regarding renewable energy and energy savings, with main susceptibilities, especially in regard to their relationship with a healthy life, population growth, and public debt. Considering them, recommendations could be formulated in regard to the necessity of more careful strategical actions for the improvement of renewable energy and energy savings in such a way as not highly contribute to the degradation of the environment.

Keywords: environmental wellbeing, natural resources, climate & energy, human and economic wellbeing, Romania, path analysis

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