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**Article**

## Resilience and economic intelligence through digitalization and big data analytics

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# Resilience and Economic Intelligence through Digitalization and Big Data Analytics

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The concept of “resilience” has gained popularity during the COVID-19 pandemic, especially from the perspective of networking of issues that had mostly been treated separately before. It has become clear that the interconnected systems of economy, environment and society need consistent and solid approaches for building resilience to similar shocks, thus avoiding cascading and widespread failure. The digital transformation process has been accelerated and it proved to be the lifeline for many businesses and public systems. However, digitalization exacerbated the social divide and put pressure on the companies that did not have the resources to face the challenges of new technology integration. The *onlife* digitalization is the new phase of society digitalization where big data and smart algorithms based on artificial intelligence changed the decision process mechanism in the public and private sectors. During 2020, leaders found themselves at historic crossroads, taking decisions under remarkable pressures and uncertainties. However, new opportunities are available to shape the economic recovery, restore the health of the environment, develop sustainable business models, strengthen regional development, revitalize global cooperation, harness Industry 4.0, and redesign the social contracts, skills, and jobs.

The relevant papers selected from the fourth edition of the International Conference on Economics and Social Sciences – *Resilience and Economic Intelligence through Digitalization and Big Data Analytics* (ICESS 2021) contain empirical work that is broadly consistent with the general theme, providing an opportunity for all those interested in Economics and Social Sciences to analyse and exchange new research ideas, especially in the light of the recent crisis determined by COVID-19.

The articles included in this issue of the journal deal with a series of topics listed above, as follows:

Changes in production methods and employment patterns resulted from technology advancements, which enhance the position of the ICT sector as a competitiveness driver even before pandemic. Considered to be the most dynamic in the race of digitalization, businesses in the ICT sector have seen their activities increasing in importance, which validated the top position in the competition becoming a “winner” of the pandemic. The article “**What drives profitability in the Romanian ICT sector?**” uses the variance components technique and aggregate profitability as a measure of profitability to explore the variables behind the profitability of Romanian firms in the ICT sector within the company-industry-localization framework.

More and more international studies have started to emphasize the importance of resilience and sustainable development, where the Gross Domestic Product (GDP) is considered one of the most significant tools to achieve resilience and sustainability goals. In this regard, the objective

of the study **“Resilience of the European Union economies. An analysis of the Granger causality at the level of the Gross Domestic product”** is to analyse whether the selected elements, which participate in the formation of the GDP, along with the proposed indicators of energy consumption, have the capacity to determine the economic evolution of a country and which have the capacity to forecast this evolution and the resilience of the national economy, using an approach based on the Toda-Yamamoto method of the Granger causality.

Aiming to approach the suitable policies in the aviation industry towards the achievement of national and international sustainability goals, the paper **“Enhancing the sustainability of the aviation industry: airlines’ commitment to “green” practices”** examines airlines’ environmental commitments, as well as their readiness to embrace sustainable aviation fuel and sustainable growth methods. The results of this study show that different measures, such as the establishment of carbon offset programs or the use of digital technology like online CO2 emission compensation, might be used to increase airline sustainability. Using statistical analysis based on a sample of air carriers operating flights on global scale, the analysis reveals that sustainable development and climate change mitigation depend either on companies’ commitment or consumers’ behaviour, and environmental-related issues should be investigated under both airlines’ and passengers’ side in a holistic and systematic way.

The 2030 Agenda for Sustainable Development has served as the principal guideline for European Union Member States in attaining economic success, environmental sustainability, and peaceful, inclusive, and innovative societies. Entrepreneurship, innovation, and R&D activities are critical components for the European Union in solving global social issues and paving a route to long-term economic development. In this context, the objective of the paper **“Sustainable development disparities in the EU-27 based on R&D and innovation factors”** was to explore sustainable development disparities among the EU-27 Members. Based on a cross-sectional multiple linear regression model, the results show that countries in Northern and Western Europe are leading the way for the European Union to take a more innovative and sustainable course. Even though no European country is on track to reach the Sustainable Development Goals yet, Central and Eastern European countries have also made significant progress in this perspective.

The level of global income inequality has become one of the most notable political and academic problems, showing that inequality has increased dramatically, primarily in developed countries as well as in the case of EU countries. The analysis performed in the study **“Income inequality shift paradigm. From economic approach to sharing responsibilities”** using the panel data regression model on European countries with different development levels reveals that this phenomenon is highly influenced by historical-political-cultural factors, and especially by those of a socio-demographic nature. The paper proposes a new approach to the economic growth paradigm, and a new vision on support policies to mitigate rising inequalities, in the context of designing a robust resilience strategy and sustainable post-pandemic development.

The impact of the COVID-19 pandemic also produced changes in the economic sentiment and expectations during COVID-19 pandemic on the ground that economic sentiment patterns in European Union countries has not been deeply investigated to confirm the nature of discrepancies among countries considering both household and business perceptions. In this sense, the paper **“Economic sentiment perceptions during COVID-19 pandemic – A European cross-country impact assessment”** fills a literature gap by relying on several complementary official sentiment indicators that illustrate population’s and companies’ perception on the economic development and prospects. Based on an exploratory data

analysis technique represented by a hierarchic agglomerative clustering and a probabilistic GLM panel regression framework, the findings reveal that pandemic awareness and an increase in new deaths have a greater influence on firms' and consumers' confidence and expectations than other pandemic proxies.

There are many challenges for entrepreneurs, especially for small and medium sized enterprises to get financing for their business, especially in the pandemic era. Crowdfunding has recently acquired popularity as a source of alternative capital, particularly for start-ups and high-risk businesses. The paper **“Predicting entrepreneurial and crowdfunding intentions – A study of Romania and South Korea”** compares the intentions to use crowdfunding in their future ventures of the Romanian and South Korean students using the impact of the Theory of Planned Behaviour variables on entrepreneurial intentions. The study contributes to practical implications by helping crowdfunding platforms from the perspective of an entrepreneur when selecting a platform for this purpose.

Due to contradictory effects on both countries (home and destination), international migration has become one of the most popular themes among academics and policymakers in recent decades. Using factor analysis, the article **“Socio-Psychological dimensions of students migration. A pilot study”** identifies two factors that could explain benefits of emigration (perceived social performance of destination countries, social and personal integration ability) and three factors that could explain motivation to remain (trust in society from the country of origin, risk aversion, as well as family and friends). The paper also reveals that an accurate designation of determinants for potential migration could be of use to policymakers, as these factors are not only financial or material, but also socio-psychological, proposing a set of specific policies that could change perception and encourage qualified young people to remain in the home country.

Since individual happiness in an organization has had a significant impact on production for many years, social researchers are specifically concerned with self-reports of subjective well-being. The paper **“A real data-driven clustering approach for countries based on happiness score”** proposes a useful clustering approach with a very high degree of accuracy to classify different countries of the world based on several economic and social indicators. The utility of the study stands in encouraging economists and other social scientists to pay closer attention to subjective well-being as a causative force. Through the ability to visualize subjective well-being (SWB) and the factors influencing it from a global perspective, this research would be useful for managers and human resources professionals for decision making and strategic planning,

Stable governance, political leadership and community engagement, business continuity and sustainable recovery are key instruments to respond resiliently to the pandemic impact. Timely response strategies, effective knowledge transfer between research and policy, transparent and clear communication among all stakeholders are relevant tools for business and policy makers to reduce the potential adverse effects of the pandemic crises towards sustainable recovery.

**Vice-rector for Research, Development and Innovation,  
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