

## PRIORITY ASPECTS IN THE EVOLUTION OF THE DIGITAL ECONOMY FOR BUILDING NEW DEVELOPMENT POLICIES

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### ABSTRACT

*At present, the Romanian information society faces a number of essential problems, which are characterized by a good level of training of specialists in the field. Given that the economic development gap at the level of economic development regions at the level of the regions' development, we consider that an important issue is the provision of regional information through digitization, and only so we can lay the foundations for the construction of society and the knowledge economy. Respectively, we will be able to ensure regional development if we can build networks.*

*Another current issue for Romania is the severe digital skills gap. In order to fully develop the digital economy and digital society, Romania needs to implement educational programs for the development of citizens' digital skills, including all social groups in Romanian society. Last but not least, it's the massive digitization in Romanian companies, they need to take advantage of the possibilities offered by the online trade.*

### KEYWORDS

*Digitalism, digital technologies, cultural expressions, energy and data demand, digital adoption index*

### 1. THE NEW BIBLIOGRAPHIC STUDY OF DIGITAL ECONOMY DEVELOPMENT

The Digital Agenda for Europe [1] is one of the seven pilot-initiatives of Europe 2020 Strategy [2]. Its purpose is to define the crucial driving role that the use of IT&C will have to play in reaching the Europe 2020 objectives. The goal of this Agenda is to mark the path needed to use the maximum of represents a vital support for the economic potential, especially the internet, that represents a vital support for the economic and social activities, be it business, work , games, free communication or expression. Authors Bowen, J.P., and Giannini, T. ( 2014, p.1) [3] claim: "Today's society is becoming more and more digital, with mobile phones being routinely transported and used by a significant percentage of the population. This provides an enhanced experience for the individual who does not depend on their geographical separation in the community of friends and other contacts. It changes the nature of relationships between people." The authors analyze these terms, exploring from alternative perspectives, including sociological and philosophical aspects, and trying to identify more precisely some of these terms, especially in the cultural and artistic context. "Digitalism, in the context of this work in the various disciplines, within IT and sociology, is the huge omnipresence of a digitally improved lifestyle by people in companies with access to advanced technologies. Digital experience combines with reality to become an integral part of a person's life. It's interesting to see where the digitalism leads to the next decade, with the combination of digitization and reality. "

In another context, author Kulesz O. (2016) [4] study the impact of digital technologies on the diversity of cultural expressions in Spain and Hispanic, claims: "In the past two decades, digital technologies have transformed culture deeply. New forms of creation, production, distribution, access and participation have revolutionized the entire industry, such as books, music and film editing. The changes have brought both opportunities and challenges to the creative chain in a process that has affected both the North and the Global South ". In this paper, author O. Kulesz examines: "the impact of digital technologies on the diversity of cultural expressions in Spain and the Hispanic America, paying particular attention to the books, music and film industry." The author focused on five countries: Argentina, Colombia, Ecuador, Mexico and Spain. In the author's opinion: "Public policies have a decisive influence in defining results in both directions. When it comes to protecting and promoting the diversity of cultural expressions in the new environment, the progress made by some countries could be extremely useful for others. Indeed, many of the policies and measures we have studied in terms of access, creativity, cultural industries and social involvement are clear success stories that could be reproduced. "

There are few less explored areas, mainly opportunities that are not fully used or challenges that are not adequately addressed. From the point of view of creativity, countries have invested in platforms and applications that make local artists more visible, training to help them experiment and create digital technologies and various measures to protect copyright. Cultural policies often remain too anchored in the analog creation model - where the message is communicated in one direction - and lose a bit of the paradigm of a new environment, characterized by interaction and collaboration. In terms of cultural industries, there are key initiatives in supporting professional networks, training and upgrading, as well as creating platforms to help strengthen the book, music and film industry.

Authors Morley, J., Widdicks, K., and Hazas, M., (2018, p.128) [5] raise questions about the last decade, raised questions and had concerns about "the growth of electricity used by information technologies, other electronic consumer devices, data centers and, to a much lesser extent, Internet distribution networks. "At the same time," smart "innovations are widely anticipated to help reduce energy demand in different sectors of society. In the view of the authors: "Such potential savings and the increasing use of other digital services are based on the continued expansion of digital infrastructures. Therefore, the paper focuses on "phenomenal growth in 2009". Internet traffic as a trend with important implications for energy demand. It describes an agenda to

better understand how the data request changes. Based on the findings of the authors, their research, in combination with the secondary data analysis, we analyze the peak demand for electricity and data. Data peaks seem to fall later in the evening, reflecting the use of online entertainment, but this is far from being fixed. In this paper, the authors stated that: "The electricity consumed by information and communication infrastructures is increasingly important as part of global electricity consumption and as a potential contributor to the increasing demand for electricity at national level. So far, this topic has not received much attention in energy research literature, nor in energy policy talks: Beyond the efficiency of network devices and data centers. "By highlighting the prominent trends associated with increasing flows large data in these infrastructures, the goal of the authors was "to highlight a series of questions and research approaches in investigating the data request".

Author Castells M., (2007, p.238) [6] presents a set of grounded assumptions about the interaction between communication and power relations in the technological context that characterizes the network society. Based on the selected communication literature, a number of case studies and examples, he claims that the media has become the social space in which power is decided. This shows the direct link between politics and political media, scandal policy and the crisis of political legitimacy in a perspective world. Suggests that the development of interactive tools, horizontal communication networks have prompted the emergence of a new form of communication, mass communication, the Internet and wireless communications networks. Under these circumstances, insurgent politics and social movements are able to intervene more decisively in the new space of communication. Corporate media and mass policies have also invested in this new concept of the communication space. As a result of these processes, media and horizontal communications networks are converging. The net result of this evolution is the historical change of the public sphere from the institutional realm to the new space of communication.

Expands this analytical perspective on the historical dynamics of counter-power, as a new form of alternative social and political change, by using the opportunity offered by new horizontal networks of digital era communication, which is the technical and organizational infrastructure specific to the network society. Therefore, not only is the public space largely defined in the space of communication, but this space is an increasingly controversial ground, as it expresses the new historical stage in which a new form of society is born, like all previous societies through conflict, fighting, pain and often violence. The new institutions will eventually develop, creating a new form of public space that is not yet known to us, but they are not yet there. What scientific research can be observed is the attempt by power holders to reaffirm their domination in the field of communication once they have recognized the downward capacity of institutions to channel projects and demands of people around the world.

In the work of the Fiedler S. Etc., (2018) [7], the authors contend: "The scientific consensus is that rapid and aggressive greenhouse gas (GHG) reductions are needed in where significant climatic disturbances and irreversible environmental impacts are to be avoided. The required changes require large-scale investments and governments at all levels respond with combinations of regulatory mandates, incentives and market-based solutions. At this time of the Kyoto Protocol, there is an increasing application of pricing mechanisms, in particular markets, in several contexts to address emissions mitigation. "The new generation of climate markets can therefore be developed as a network of decentralized markets, which are linked at regional, national and sub-national levels. The Paris Agreement (the Agreement) recognizes the heterogeneity of the approaches. In order to encourage greater ambition and sustainable development and encourage widespread funding to adopt the most effective mitigation measures, Article 6 recognizes that parties can engage in cooperative approaches, including the use of the results of mitigation measures transferred at the level International Organization (ITMO).

Block chain is a distributed book technology implementation, which broadly combines a distributed registry (ie a copy of the registers is owned by all network participants), public / private key encryption and a decentralized infrastructure. The register is organized into blocks of information, each block containing information, such as a collection of transactions. Once there is a consensus, the block is added to the register, which is immutable and accumulator. These features support data integrity.

Significant factors that characterize the changing landscape of the needs of stakeholders and drivers to prolong the transition from current to emerging technologies include:

- Increasing diversification of regulations, MRV systems, climate assets and mitigation results within and between jurisdictions;
- A demand for more robust MRVs that meet the financing needs of climate change for ITMO;
- the size and scale of the post-2020 climate markets, as well as the links with climate change and other markets;
- Expectations for new cross-jurisdictional commercial arrangements (eg clubs, regional trading schemes, sectoral trading schemes); and
- More financial flows and types of transactions, such as peer-to-peer financing and results.

Based on the challenges and opportunities outlined in this report, the following recommendations aim to support a rapid phase of capacity building and implementation of emerging digital solutions.

Recommendation no. 1 It is advisable to develop a roadmap for the implementation of digital blocks and other emerging digital technologies in the climate markets in order to make substantial progress on overall design, demonstration and implementation. It is strongly recommended that there be close coordination with the technical policy agenda, both at international level, for example on the working timetable and the phases of Article 6 as well as on the national level.

In the paper, Fiedler S. etc. (2018) [7], In the context of the Eurosystem, this information paper examines the legal nature of privately issued virtual coins, the CP's implications for the central bank's monetary policy and the monopoly of issuing notes, as well as the risks to the financial system as a whole. The paper also looks at some of the proposals for virtual money issued by the central bank.

The authors Kelly, T., Liaplina, A., Tan, Shawn W. and Winkler, H., (2017) [8] In the ECA region, the level of digital development varies, based on country economic development, as well as differences in their history and geography. This book has proposed a framework for policy-making that takes these differences into account and seeks to overcome them. The proposed policies are summarized, which sets out policy and regulatory recommendations for ECA countries, covering both the ICT sector and

connectivity issues, as well as the analogue complementary that will help countries to derive maximum benefit from digital technologies.

A national digital strategy can be built on the following axes: (1) Connectivity (quality of Internet access): international and national connectivity, access to wireless and fixed services and digital security; (2) Citizens (skills and labor markets): training, schools and education; (3) Governance (Institutions): public service platforms, digital identity, interoperability and standards, citizen and business oriented government, efficient government and open government. Innovation, ecosystems and competition policy.

The strategy should include appropriate performance indicators and performance targets for measuring progress. The regional and international co-ordination of the digital market of the ECA.

In addition to national digital strategies, regional and international coordination seems to be necessary at different levels of the regulatory framework.

A digital single market is a market in which local, regional and global barriers and restrictions have been removed so that individuals and businesses can access and use digital activities and services under data protection and fair competition, regardless of nationality or their country. Potential benefits include stimulating investment, promoting growth and innovation, and empowering citizens. The implementation of a digital single market implies the successful overcoming of challenges, including the potentially conflicting management of the political and economic interests of each Member State and the significant investments that may be needed.

The work of the World Bank "*Information and Communications for Development, Data-Driven Development 2018*" (2019) [9] has the following objectives: (1) Focuses on the opportunities and challenges of data-driven development. Since 2006, information and communications for development have been a flagship report of a World Bank team that this year has been raised in a department for its own sake and has changed its name from Information and Communication Technologies to Digital Development. (2) Reflect how governments in developing countries can improve their use of data to provide better services to citizens. (3) Reflect how the business sector starts to capitalize data for a competitive advantage. In support of citizens, the report argues that the new tools can allow more control over personal data and benefit directly from that value. (4) The growth of data platforms changes the profile of competitive markets and business models, away from subscriber-funded networks and advertising-funded services, with important implications for infrastructure financing. (5) Reflects the analysis of data policies for the digital economy and the reconciliation of conflicting demands (eg the EU Data Protection Regulation, this paper tries to contribute to the debate).

The growth of the data economy therefore requires competition policy and privacy regulation. In a traditional or unilateral market, dominant firms are bad for global market development. As the importance of data increases in market modeling, they can strengthen trends towards monopoly and monopolistic profits, unless the competition rules are changed to deal with new concepts of domination. The emergence of multisite platforms explored in Chapter 5 presents new challenges for regulators. Data and the Internet were predominantly considered by pioneers and campaigners as a decentralized and self-regulating community.

The paper analyzes: (1) the connectivity and data capability, taking into account the dates of origin, the way they are stored and the place where they are stored. (2) Analyzes the technological drivers that make data cheaper for collection, storage and transmission, and the relationship between data and growth. (3) Examines data technology, especially large data analyzes and artificial intelligence, and how it contributes to development, especially in humanitarian interventions." The use of these new tools is tempered by the awareness of ethical issues. Part II of the paper refers to data sector "demand": "(1) focused on the use of data by the population and asks whether there is a scope for a new model for a data market where people might trade their access to their personal data. (2) The data itself is of no value, but its use has. Examine the potential costs of a data market in case of loss of confidentiality, control and agency. (3) The paper examines how businesses use digital platforms in the data economy and how they contribute to competitiveness, especially for small and medium-sized enterprises (SMEs). (4) Several platforms for developing countries and emerging business models are presented and ending with consideration of how SMEs in developing countries can better use data to improve competitiveness and compete against dominant companies in the international social media field.

## 2. DIGITAL ADOPTION INDEX

The Digital Adoption Index is a global index that measures the digital adoption of countries in three economic dimensions: people, government and business. The index includes 180 countries on a scale from 0 to 1 and highlights the digital adoption offer to maximize coverage and simplify the theoretical links. The global index is the simple average of three sub-indices. Every sub-index, includes the technologies necessary for that agent to promote development in the digital age: increasing productivity and accelerating large-scale growth of business, expanding opportunities and improving people's well-being;

Increasing the efficiency and responsibility of providing government services. Although the theoretical data and constraints prohibit the index from providing a complete picture of an economy, the Digital Adoption Index (DAI) provides a useful framing mechanism for digital adoption economic agents and countries. By measuring relative adoption of digital technologies, the index can help policy makers in designing a digital strategy with policies geared to promote digital adoption across different user groups.

Normalized data is advertised so that the constituent elements of the DAI indicators have the same weight at each level. For example, the governmental indicator of core administrative systems is composed of four categorical variables collected by the World Bank. Once the scores are normalized, the average is calculated. The resulting average is the country for the core administrative systems. The core score of the administrative systems is then covered with scores for digital identification and online public services that are generated using a similar process. And the average result at this level is the Government's sub-

index score. Business and people sub-indices follow the same process. Global DAI ranges from a scale of 0 to 1 because its source indicators are normalized to this scale. As with sub-index, 0 is the lowest score possible on DAI, representing no adoption of digital technologies and 1 is the highest possible score, representing the full adoption of digital technologies. In theory, a country can score a perfect one with the best score for all DAI indicators or a perfect 0 if it has the lowest score on all the indicators. But, in practice, DAI scores varied between 0.14-0.87 in 2014 and 0.15-0.87 in 2016 (Table DN.4).

Table 1. Digital Adoption Index and sub-index, by country and year

	Digital Adoption Index		Business Sub-index		People Sub-index		Government Sub-index	
	2014	2016	2014	2016	2014	2016	2014	2016
Austria	0.81	0.86	0.84	0.88	0.82	0.87	0.79	0.85
Belgium	0.76	0.78	0.84	0.85	0.68	0.73	0.75	0.76
<b>Bulgaria</b>	<b>0.57</b>	<b>0.63</b>	<b>0.67</b>	<b>0.69</b>	<b>0.57</b>	<b>0.62</b>	<b>0.46</b>	<b>0.57</b>
Cyprus	0.62	0.68	0.76	0.82	0.68	0.77	0.42	0.44
Denmark	0.78	0.79	0.93	0.92	0.88	0.90	0.52	0.56
Estonia	<b>0.77</b>	<b>0.83</b>	<b>0.76</b>	<b>0.85</b>	<b>0.73</b>	<b>0.80</b>	<b>0.81</b>	<b>0.85</b>
Finland	0.79	0.81	0.92	0.92	0.84	0.83	0.61	0.67
France	0.74	0.75	0.76	0.77	0.69	0.73	0.78	0.76
Germany	0.80	0.84	0.85	0.87	0.74	0.78	0.81	0.87
Greece	0.58	0.61	0.69	0.71	0.61	0.68	0.43	0.42
Ireland	0.64	0.66	0.81	0.83	0.62	0.65	0.49	0.50
Italy	0.73	0.77	0.73	0.75	0.64	0.68	0.83	0.87
Latvia	<b>0.69</b>	<b>0.73</b>	<b>0.70</b>	<b>0.77</b>	<b>0.63</b>	<b>0.71</b>	<b>0.74</b>	<b>0.71</b>
Lithuania	<b>0.75</b>	<b>0.79</b>	<b>0.77</b>	<b>0.80</b>	<b>0.67</b>	<b>0.75</b>	<b>0.80</b>	<b>0.83</b>
Luxemburg	0.84	0.86	0.93	0.94	0.85	0.87	0.74	0.77
Malta	0.78	0.86	0.92	0.94	0.72	0.79	0.71	0.84
United Kingdom	0.74	0.76	0.88	0.90	0.77	0.80	0.55	0.59
Netherlands	0.83	0.84	0.92	0.91	0.75	0.80	0.81	0.81
Poland	<b>0.65</b>	<b>0.69</b>	<b>0.73</b>	<b>0.76</b>	<b>0.64</b>	<b>0.68</b>	<b>0.58</b>	<b>0.63</b>
Portugal	0.74	0.79	0.72	0.76	0.66	0.68	0.58	0.87
Czech Republic	<b>0.69</b>	<b>0.72</b>	<b>0.82</b>	<b>0.86</b>	<b>0.64</b>	<b>0.66</b>	<b>0.61</b>	<b>0.65</b>
Romania	<b>0.62</b>	<b>0.64</b>	<b>0.64</b>	<b>0.65</b>	<b>0.51</b>	<b>0.57</b>	<b>0.71</b>	<b>0.72</b>
Slovakia	<b>0.65</b>	<b>0.69</b>	<b>0.69</b>	<b>0.75</b>	<b>0.59</b>	<b>0.67</b>	<b>0.66</b>	<b>0.64</b>
Slovenia	<b>0.64</b>	<b>0.71</b>	<b>0.83</b>	<b>0.86</b>	<b>0.59</b>	<b>0.63</b>	<b>0.51</b>	<b>0.65</b>
Spain	0.74	0.77	0.76	0.78	0.62	0.67	0.85	0.84
Sweden	0.80	0.83	0.92	0.94	0.85	0.85	0.64	0.70
Hungary	0.64	0.69	0.67	0.77	0.61	0.65	0.63	0.65
Croatia	0.58	0.65	0.70	0.75	0.54	0.58	0.51	0.61

(Source: Table DN.4. Digital Adoption Index and subindex, by country and year, pag. 125-130 [3])

Only a number of countries have increased their DAI scores between 2014 and 16, with most countries maintaining their relative positions. In general, DAI was highly correlated with per capita income in 2014 and 2016, and there was no improvement in the income spectrum.

The results for Romania are as follows (I) Digital adoption Index in 2014 0.62 and in 2016 0.64

II.) Business sub-index, in 2014 - 0.64, 0.66 in 2016 (III. ) People sub-index in 2014 0.51, in 2016 0.57

IV.) Government sub-index, in 2014 0.71, and in 2016 0.72.

In the paper of IMF (2018) [4] Measuring the Digital Economy about digitization: "Digitization includes a wide range of new information technology applications in business models and products that transform the economy and social interactions. Digitizing is an asset and a disruptor of business. The lack of a generally accepted definition of "digital economy" or "digital sector" and the lack of industry and product classification for Internet platforms and associated services are obstacles to measuring the digital economy. Welfare indicators of free digital products can and should be developed in the context of



measuring non-market output beyond the GDP limit. Increasing productivity in the use of households' time for non-commercial production can be an increase in well-being in ways that are not measured by consumption or GDP. Therefore, the old debate on measuring non-market output of households is now even more relevant. International and national institutions need to accelerate efforts to develop indicators of welfare growth from non-market output beyond the GDP threshold."

(1) Since the early 2000s, a new phenomenon of rapid growth has changed our societies: digitization. The digitization of economic activity can generally be defined by incorporating data and the Internet into production processes and products, new forms of household and government consumption, fixed capital formation, cross-border flows and financing.

(2) Measuring the digital economy in GDP statistics and productivity has become a topic of discussion.

(3) Digitization raises measurement problems and new data needs for external monetary and financial sector statistics. Improving the measurement of digital products and transactions could improve the measurement of inflation, balance of payments developments affecting the stability of the external sector and the stocks and financial flows relevant to combating money laundering and tax evasion.

(4.) The paper provides a more in-depth discussion of these issues than the informal briefing by the Executive Council on the Digital Economy of June 2017.

*Box 1. Policy development of Digital economy*

(1) Slow growth in productivity is the phenomenon that requires political responses, not a measurement error in statistics. Arguments that attribute a low productivity growth from the financial crisis to the measurement error reflect misconceptions about the scope and scope of GDP and productivity statistics and the exaggerated impressions of GDP share of potentially erroneous products.

2) Strongly symmetrical effect on price statistics, generating slight overestimation of inflation. As a result of adjusting for quality change and delays in bringing new products and suppliers into price index samples, it often results in an overestimation of price changes for digital products that incorporate advanced technology.

(3) The rapidly growing digital sector and digital transactions present measurement challenges that may affect the quality and relevance of data used for surveillance.

(4) This approach requires the development and international agreement on upgraded, improved or improved definitions, classifications and techniques. It is recommended: a) to improve the coverage of digital platforms and services related to digital platforms in the main classification system; and b) Develop aggregated classifications covering the digital sector, digital products and digital transactions.

(5) The national statistical offices call for additional resources and better access to source data in order to be able to implement compilation and data enhancement improvements. International guidelines and recommendations are needed, but they are not enough.

(6) The fundamental conceptual framework of GDP remains valid, but the way in which digitization has affected welfare is a relevant issue for politics. The definition of GDP should continue to be a market and near-market production at market prices where they exist.

(7) The analysis of this article on high digitization issues for each statistical domain also involves technical recommendations. With regard to price statistics, the main compilation challenges are improving quality adjustment procedures for ICT goods and services, timely inclusion of new varieties and suppliers of digital products in detailed indexing and timely inclusion of new digital products in the basket and the weighting structures of high-tech enterprises.

(8) For national accounts, the key compilation challenges involve deflation and full coverage of digital platforms and platform-based activity. Enhanced quality adjustment procedures for products that benefit from digital technology are part of the deflators solution. It is recommended that: (a) national account compilers and price statisticians work together to align the composition of deflators for digital products with the composition of the aggregates to be deflated by ensuring that deflators reflect the current mix and supply of digital products and, where possible, using sets of data containing prices and quantities to simultaneously calculate deflators and nominal values.

(9) With regard to external sector statistics, the measurement includes the increase in the number of small transactions and cross-border services and payments using digital platforms. It is recommended that: a) Statistical Agencies update assumptions about small transactions facilitated by digital orders and digital service provision; b) improving the collection of information on cross-border services provided by or through online platforms; and c) Developing methods for estimating international payments through new types of digital channels, such as remittances through mobile money.

(10) In the case of monetary and financial statistics, in the future, new liquidity and credits generated by fin-tech could become important. It is recommended: a) to add market lending platforms to provide own funds for credit statistics and to report additional peer-to-peer loan data; and b) Investigating methods of compiling statistics on digital coins.

(Source: Measuring the digital economy, The Staff Report prepared by IMF, 2018) [4]

## CONCLUSIONS

As a result, we can make some important conclusions both for Romania and for other developing countries as well as to prioritize the digital economy. Today's society is becoming more and more digitized, mobile telephony is commonly used by a significant proportion of the population.

It provides an improved experience for people who do not depend on geographic separation in friends and other contacts, changing the nature of relationships between people.

It is welcome and even necessary to develop digitization in the priority sectors of the economy, which are found in numerous studies, analyzes and development strategies.

In addition to these branches, experience shows that digitization in the field of culture, media and communication is important.

In the last two decades, digital technologies have transformed the field of culture. New forms of creation, production, distribution, access and participation have revolutionized the entire industry.

A special place in the digitization of the branches is addressed in the energy sector article, which will radically change the management and management activity of this important branch.

Over the last decade, concerns have been growing over the increase in the use of information technology in the field of electrical engineering, the creation of new consumer electronic devices, the development of data processing and management centers and, to a lesser extent, distribution networks via the Internet. At the same time, "smart" innovations are widely anticipated to help reduce energy demand in different sectors of society.

Digitization issues applied in the field of statistics (in different branches of statistics) imply some technical recommendations, as statistical agencies focus on adapting the quality of a selective list of products that are based on quality adjustment activity in other countries, international organizations are developing approaches appropriate compilation for compilers facing severe resource and data constraints).

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