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Analysis of Digitization in Romanian Society

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Abstract

This paper presents aspects of the digitalisation of the public and private sector in Romania. The work begins with a theoretical presentation of the notion of digitalisation and short statistics of this concept taken from the records of Eurostat. The motivation of the treated theme derives from the fact that this concept is increasingly met in the public press and in the specialty works of the recent period. It has also become a "must have" that any public or private organization must care to survive in the 21st century, which is characterized by a growing economy based on the online environment. Digitisation considers it to be the fourth industrial revolution and will affect all economic or public entities due to the increased appetite of users to order goods and services through the digital interfaces available on Mobile devices. The work shall be completed with a review of the mutations produced by digitisation in the accounting services industry in which the accounting expert will operate and report the information, Thanks to the innovations in the ITC sector.

Keywords: *ICT; digitalisation; composite index of economy and digital society; computer platforms for public administration; reshaping business processes; cloud accounting.*

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1. Introduction

Digitizing in people's personal life has already happened through smart phones and fast internet connections. Their activity in the online environment means 207 billion e-mails submitted, 8.8 billion views of video content, 4.2 billion searches of key terms in Using Search engines. This short statistic gives us an insight into the digital activity of users who want all information flows and work procedures to be done through flexible software platforms. The online environment has become such for many companies first or second important communication channel, but also a way of practicing online trends. From communicating on Facebook, Instagram or Snapchat to creating apps through which people can shop easier by paying with mobile device support, many companies with businesses of hundreds of millions of euros, struggle to keep up with technological changes and try to become present in the eyes of consumers, to be close to them and to consolidating their image.

2. Problem Statement

Aspects of the use of the concept of digitization in the business and services provided by the public and private sector in Romania were studied in:

- The specialized press that debated the opportunities and limits of digitization in Romanian economy [1-6].
- Reports of research institutions conducting specialized studies on various topics of interest [7-8].
- Authors articles in the academic environment that presented theoretical concepts, views and solutions for the use of cloud platforms in various aspects of economic management. It is noted the use of cloud accounting applications in modern societies, characterized by openness to the opportunities offered by technology [3, 9-11].

The identified elements represent only a small part of the rich bibliographic resource on the internet regarding the concept of digitization.

3. Research Questions/Aims of the research

Due to the multitude of studies and presentations of examples of business / service digitization, the author wanted to find out how: How to report and connect to technological developments private and public entities, so as to harness the information technologies currently available?

4. Research Methods

The research methodology used is the fundamental type based on the study of literature in the field, highlighting the implications of digitalisation on the private and public sector in Romania.

5. Findings

5.1. Analysis of the digitalisation stage in Romania

Digitization [6] is a phenomenon of which no business model will escape and no field of activity due to the guidance of leading factors for the use of computer technology in business. Digitization should not be confused with the digital. Digital refers to a wide base of affordable and potentially disruptive technologies, such as social media, mobile application, cloud computing, analytics. The digital implies additional transformations at the organizational level that optimize the business models.

The National Digital Strategy (Romania 2020 agenda) [7] considers that "full implementation of the strategic vision of ICT in Romania will lead to total investments of about 2.4 billion euros. The direct and indirect impact on the economy can be translated into an increase in GDP of 13%, increasing the number of jobs of 11% and reducing administration costs by 12% in the period 2014-2020".

At international level there are research is analyses the degree of digitalisation of a country. The most important research on how to interact digitalisation in contemporary economies are [8]:

- **UN study**, which measures the degree of digitisation through a composite index ("**EGDI**"), which represents the weighted average of the telecommunications infrastructure Index, the human capital Index and the online Services index.
- **Study European Commission** on the digital performance of EU countries. A composite index of the economy and digital society is calculated in the study ("**DESI**"), which synthesizes relevant indicators

of the digital performance of countries in the European Union area (connectivity, human capital, Internet use, union of digital technology, digital services with free access).

- **Study of IMD World** On the degree of digitalisation of 63 economies, which analyses three dimensions: knowledge for digital transformation in economics, technological factor and absorption capacity of digital technologies [8].

The characteristic elements of the three studies described are detailed in table No. 1.

Table 1. Components of studies indicating the degree of digitalisation in a country

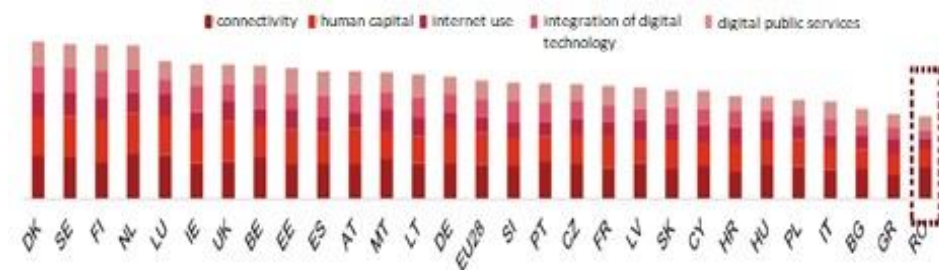
Name	Descriptions	Position RO in the world	Position RO in the UE
ONU Study	EDGI index is a composite index based on the weighted average of: telecommunications facilities index; human capital index; online service index	67/193	last position in EU countries
DESI Report	DESI index consists of: connectivity; human capital; using the Internet; integration of digital technology; digital public services	the study analyses only EU countries	28/28
IMD World	IMD World study analyses three dimensions: knowledge for digital transformation in economics, technological factor and absorption capacity of digital technologies.	54/63	20/21

Source: PwC Study [8].

As can be seen from table 1, the position of Romania in the year 2018 In the rankings carried out by the abovementioned studies, it is: Place 67 of 193, according to the UN study, but in the last place in EU member countries; 28th place of 28, according to the DESI report; Ranked 54 of 63, according to the IMD World report, being on the penultimate place in EU member countries. The last place on digital competitiveness is

explained by the position occupied in the elements that make up the composite index.

Figure 1. Position of Romania According to the composite index of the economy and Digital Society ("DESI")



Source: European Commission [3]

The causes explaining Romania's position in the last place are explained by detailing the position of the EU rankings for each element that makes up the DESI index. In Table No. 2 These explanations are provided.

Table 2. Causes of the placement of Romania in the last place in the EU regarding digitalisation

Index Element DESI	Rank
Connectivity	The 22nd in the EU, due to the gaps in mobile and Internet connections between urban and rural areas
Human capital	The 28th place in the EU, due to the difficulty of attracting and retaining specialists for the development of efficient digital public services
Using the Internet	The 28th place in the EU, due to the fact that 25% of the population has never used the Internet, only 17% of companies use online technologies or means of communication
Integrating digital technology	The 28th place in the EU, due to poor integration of IT systems from public administration

Index Element DESI	Rank
Digital public services	The 26th place in the EU because of the low level of trust in using online banking and digital platforms

Source: Pw Cstudy [8].

The question is: *how can Romania position **in** the last place, when I.T. guys know Romanians are among the **best** in **the** world, employed by major technology companies and among the **best** paid Romanians?* [5]

Interpreting the data from the DESI report provides answers to the question of "How to occupy the last place":

1. In vain we have the best I.T. guy if the rest of the population is not connected to technology. Our parents and grandparents look at it with reluctance: card payment, online shopping, news reading are largely foreign.
2. In vain we have the best I.T. guy if they are far too few towards the needs of firms. The best of the best go abroad, which also explains the fact that we are ranked 17th at graduates but in the 27th place at the number of employees.
3. In vain we have the best I.T. guy if companies that operate in Romania are reluctant to adopt new technologies.
4. For nothing, we have the best I.T. guy if salaries in the government environment are totally unrelated to the market, and as a result, there are, in the vast majority of people who went to college 20-30-40 years ago and are not connected to innovation.

The conclusion of the place mention the last place in respect of digitalisation is given by [12]: The difficulty of integrating digital technologies into public administration infrastructure; The low level of trust and knowledge of innovative systems by the population; The legislative framework unfavourable to progress in this area; Development of the education environment (high school level and academic level) to practice an education centred on acquiring and consolidating knowledge with the support of the technological elements currently available.

5.2. Digitisation in public and private entities

Entities in the public sphere, as we have shown in the preceding paragraphs, are last to the adoption of computer technologies in the services they render. The Central and local administration taking good practice from countries that have managed to overcome this obstacle should develop the

following services: Digital identification and signature systems; "One-stop shop" platforms with centralised information in the field of administrative services; Enhanced self-service applications in the area of medical, social, real estate, transportation.

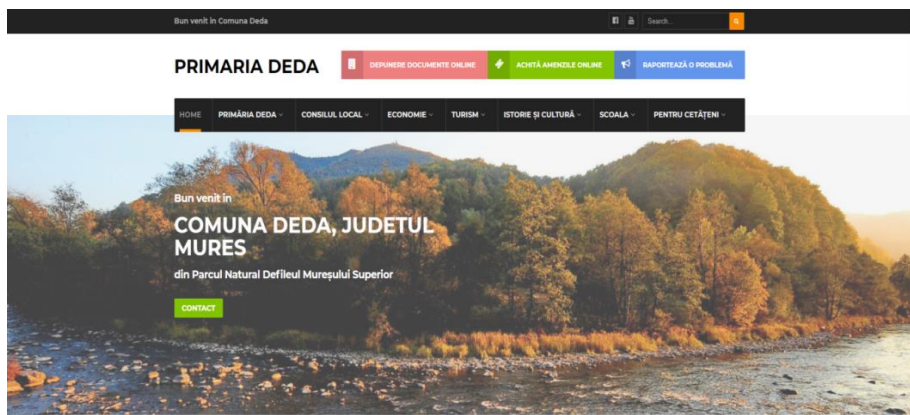
Isolated in local administrations in Romania, decision makers understood the opportunities offered by technology and implemented systems to help them. An example of this, is the city of indolge (JD. Targu Mures) which implemented an online platform that mediate the interaction between local public administration and the citizens [1]. The implemented Informatics solution allows the automatic publication of the information required for common citizens on the institution's website without the support of a specialist who manually upload this information.

Implemented application modules simplify employees ' work and automate the following processes:

5. Module **Registry** Remove manual work on registration of entrances and exits of City Hall.
6. Modules **Decisions and declarations** Allow automatic online management and archiving of these documents as well as accessing them quickly at any time.
7. Module **Public Interest Announcements** It makes it easier for the clerk to work because ads can be managed and automatically programmed into the app.
8. Module **Calendar** Show A single painting on scheduling the activities of all persons in the institution practically constitutes the agenda of each user.
9. Modules **Tasks and Currencies** It covers the delegation of powers in the institution and the pursuit of their status.
10. Modules **Holidays and substitutes** Enable transparent and efficient monitoring in the institution, as well as the streamlining of labour.
11. Modules **Bulletin board, irregularities and legislation** -They also come in support of the official, easing access to information.
12. Module **Control intern managerial** It allows the management of procedures, working methods and organizational structures.

From a taxpayer's point of view (the citizen who entered the digitalisation era), the application allows its digitized interaction with local public administration through the following services: submitting applications online, information via email regarding the status of a request, verification of the status of the documents submitted at any time, signalling problems (anytime and anywhere) through mobile technologies Payment of fines online and also accessing information of public interest.

Figure 2. Screen shot of the site of the city of Deva



On the other hand, the business environment has taken on various technologies that it has integrated into its own business in order to achieve competitive advantages. The most important cumulative benefits of the digitisation process for private companies in Romania are the following: reducing costs, simplifying processes, increasing operational efficiency, capacity to measure better Performance of the company and improving the decision-making process.

The promoters of ICT implementation in the current activity are the banking sector [11] where considerable sums have been invested to dispose of: Customer analytics tools for customer understanding; Digital delivery of products through digital banking services; Establishing relationships with customers via "digital selling" and "social selling" channels; The mass acceptance of payments made with mobile devices; Improve security and authentication in digital banking solutions.

"Digital"[2] is an essential component that has changed the way businesses are built and run. Taking up the Amazon-built model, Uber can evoke a technology company that has no connection with the taxi industry but changes the way this activity is carried out. And the examples can continue with the Airbnb that comes and attacks the hotel industry.

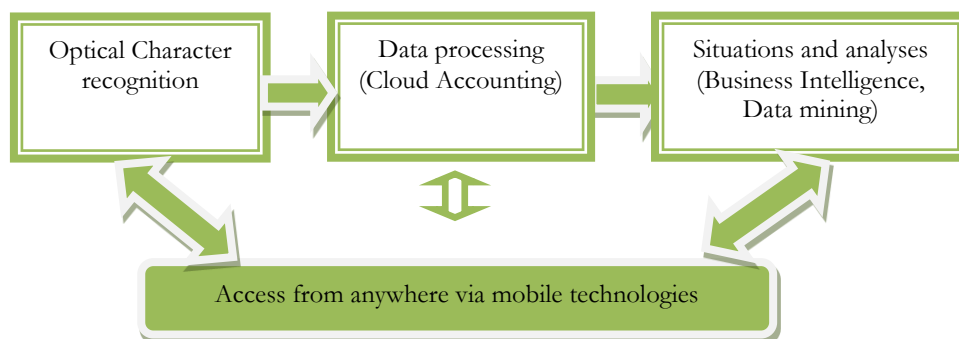
In the industry of financial services, with the widespread introduction of digitalisation, the accounting expert will not disappear but will evolve and get rid of certain clichés which currently lead to underestimating the potential of this professional category. By digitizing it will reduce the time spent on the administrative area and the accounting expert will finally escape the status of "Good Man at All", which introduces

the data for reporting and submitting statements, and will be able to perform the role of Consultant through customer analysis and counselling services.

The business model in the digitalisation era of the accounting services Industry [9] has the following components: i) The data entry area where invoices and other tax documents will be scanned and sent by email to the client, after which an Optical Character recognition (OCR) application will convert those documents into data that will be imported directly into The financial-accounting application, thereby reducing the time spent on data entry; ii) Data output area. The current part of the reports will turn into a Business Intelligence area where data will get a graphical and interactive form for end users, thus reducing the processing time of the final data and thus reducing the Data entry error Rate; iii) The "mobile" area that will focus on the possibility of viewing and approving invoices or viewing reports directly from mobile devices (phone/tablet), which will lead to increased transparency and efficiency of the department's activity Financial accounting.

Synthetic business model with the help of technologies available through digitalisation can become like the one in Figure 3.

Figure 3. Business Model in the accounting services industry



Investments in the hardware and software infrastructure of an economic consultancy cabinet will aim at adopting technological platforms located in the cloud through which accounting offices will provide online accounting services and Business Administration. In support of this claim one can invoke a study by Aberdeen Group, research company and market studies, which shows that Cloud applications implemented in the flow of accounting processing lead to an immediate increase in productivity with 25%, a 50% reduction in invoice processing costs and a 91% improvement in customer satisfaction.

According to the authors Ionescu, Prichici, Tudoran [10] the most important transformations made by moving the accounting into the virtual

space refer to a redefinition of the accounting operations flows. These changes in workflows in terms of integration in an online accounting are highlighted in Table No. 3 in which it is observed that a large proportion of time-consuming repetitive operations are eliminated and the accounting expert redefines its status by executing a work of analysis and identifying trends/opportunities in carrying out financial operations.

Table 3. Changes to workflows in the perspective of an online

Traditional	Cloud Accounting
Collection and entry of data into the system	Removing the data collection and input process in the system
Handling of physical documents	Electronic document management
Electronic documents	Digital documents in the Cloud associated with Journal Ledger transactions
Physical financial Statements	Dashboards in the Cloud
Travel to Customer headquarters	Online data 24/7 from any location
Accounting Systems in House	SaaS-Type Accounting systems
Submission of tax reports and declarations	Posting accounting documents on online portals
Traditional Software and accounting records	Budgetary mechanism and decision making process more efficient
Accountant	Financial Advisor

Source: Adaptation by Harshman Phillips report quoted from Ionescu, Prichici and Tudoran [10]

6. Conclusion

Technological progress in ITC has meliorate the ration between professional life and private life through minimize transport time and rise autonomy on the organisation of time for work. On the other hand, it has led to a longer work time and greater ambiguity between paid work and the personal time made available to the employer, which requires the constant availability of people. Looking ahead, as these new jobs will amplify in the age of digitalisation, the regulations of labour hours will have to reflect this new perception in an effort to harness the opportunity and advantage offered by IT, and to address any potential inconvenience and risks to

welfare. It is clear that digitisation fundamentally transforms the business environment in Romania, bringing new products, services and business models to the forefront. This conversion takes time, forcing economic operators to adopt and embrace new technologies in order to develop a renewable strategy for their business.

Development from the point of view of technological innovation has brought with it major variation in customer behaviour and expectations. An increased number of citizen are using new technologies, business models are changing, too, radically. The use of smart phones for products and services in the financial-banking sphere, trade, is examples of technologies designed to improve the accessibility of the general public to them. Currently, digitisation in the Romanian business environment (financial industry and consumer goods) is at the beginning, focusing in particular on optimizing and digitizing a fairly low range of existing products and services. The future belongs to a generation that will avoid the maximum physical contact with the place where these products and services are located, wanting them to be accessible to "a click away". At the same time technologies in the sphere of artificial intelligence will radically change the labour market by moving the human factor from simple, repetitive jobs to complex jobs where the skills in the field of analysis and optimisation will be in great search. The future is the digitalisation of all things that surround us, and to maximize efforts to keep up with the snowballs of perpetual transformation. This way of doing things is a new industrial Revolution (No. 4) in which technologies and robots will take over time-consuming and effort operations and the human factor will become a knowledge aggregator [4].

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