# DIGITAL TRANSFORMATION IN ROMANIA

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**Abstract:** *Digital transformation means bringing together people, data and processes. A digital transformation strategy that focuses on these three pillars will help us create value for our customers and maintain our competitive edge in a digitized world. Although technology has a central role in digital transformation, digital transformation is not just about technology: it is about profound transformation of the company, of the processes and skills needed to integrate and take advantage of the opportunities of new technologies. In this context, the use of technology is only a means of generating digital transformation and not an end in itself. Digital transformation is a massive effort, especially for larger and more stable organizations. If well done, it will result in a company better suited to customer requirements and resistant to the rapid evolution of technology.*

**Keywords**: digital transformation, digitalization, digitization, disruptive technologies, cyber security

## 1. INTRODUCTION

Digital transformation is the integration of digital technology into all areas of a company, fundamentally changing the way it works and providing value to customers.

It is a cultural change that requires organizations to continually provoke the status quo, to experience and to face failure [1]. This may sometimes mean giving up traditional processes that have been the basis of the company for a long time, in favor of relatively new practices that are still being developed. To begin with, we will try to answer the question: What is digital transformation?

- Digital transformation is the integration of digital technology in all business areas, fundamentally changing the way it works and delivering value to customers.
- Digital transformation is described as the "*total and global effect of digitalization*". As we know, digitalization allowed digitization.
- Digitization (conversion), digitalization (process) and digital transformation (effect) speed up already existing, horizontal and global processes of change in society.
- Digital transformation is the deep transformation of organizational business activities, processes, competences and models to fully influence the changes and opportunities of a combination of digital technologies and their accelerating impact on society in a strategic and priority-oriented manner, taking into account current and future changes.
- Digital transformation is a fundamental change in how an organization gives value to its customers.

This is what "*digital transformation*" means - and how we can find out if organizations are on the right track. Most Fortune 500 business leaders have mentioned the rapid pace of technological change as the biggest challenge they face today [2].

208

*Fiabilitate si Durabilitate - Fiability & Durability   No 1/ 2019*
*Editura "Academica Brâncuşi" , Târgu Jiu, ISSN 1844 – 640X*

**2. DIGITALIZATION IN THE BUSINESS ENVIRONMENT IN ROMANIA IN 2019**

Digital transformation in the Romanian business environment is a continuous process of adoption and adaptation, 66% of respondents [3] considered it has a positive impact.

The study [3] shows the perception of Romanians, specialists and managers in companies with a turnover of up to EUR 5 million, the degree of digitization and changes reflected at the business level and in the automation of processes, which sectors need improvement and which is the impact of large-scale digitization on the private business environment.

Employees are the leaders in adopting digital office technology. According to the study [3], leaders in the assimilation and implementation of digital technologies in Romanian companies are employees of the IT and marketing departments followed by the CEO and the management of the company, compared to other countries in Europe, such as France, Germany, UK, where the process digitization begins with CEO and company management and is extended to employees.

Approximately 60% of respondents believe that the digitization process in the companies they work in is rather self-sufficient, as they seek and implement at digital level digital technologies to help them optimize their daily professional work.

Even though CEOs and business executives do not appear to be the first promoters of business digitization, the same study [3] shows that over 89% of respondents noticed increasing "*top management*" interest in assimilation of digital systems and their deployment to companies who lead them.

Over the last 4 years there has been a growing interest from Romanian business managers to interact and understand how digitization can help them develop their business, which we feel through increasing CEO participation and decision-makers from companies to promotions.

Also, the positive impact of digitization is also seen in increasing the development of custom digital solutions (29%) which exceeds by two percentage points the acquisition of digitally implemented digital technologies in different industries worldwide.

The report [3] also leads to a top of digital processes that will impact the private sector in Romania, thus focusing investment budgets over the next 3 years: process automation (62%), followed by Big Data & Cloud (56%) and predictive analysis (55%).

Interviewed about the degree of digital maturity of the company they are operating in, 30% of respondents believe that the professional environment in which they operate is in the "*digital disruptor*" stage, that is to embrace the digital revolution with small steps and plan in time, at macro level, its full absorption into the DNA of the business.

Regarding the impact of digitization on Romanian companies over the next 3 years, 1 out of 2 respondents with management function consider this approach a disruptive one in business activity.

Interviewed about public sector digitization, respondents surveyed believe that Education and Health need an improvement in the digital technologies that are used, all the more since they both have continuous interaction and almost uninterrupted communication with the country's population. In fact, both sectors of public activity are dynamic, educational and informational environments.

The ideal digital company - how close are we? Fully digitized at the beginning of the process or in the prospect of implementing, the perception of almost 50% of the respondents is that the organization in which it operates is close to the concept of the "*ideal digital*

209

*Fiabilitate si Durabilitate - Fiability & Durability   No 1/ 2019*
*Editura "Academica Brâncuşi" , Târgu Jiu, ISSN 1844 – 640X*

*company*", over 80% of who believe that we have already entered the digital age. And with an encouraging percentage of curiosity (84%) and optimism (74%), we look forward to the results and long-term effects of the digitization phenomenon.

The Business Digitalization Report [3] of Romania (2018, 2017) is based on a relevant sample of 1361 respondents, of which 758 respondents in 2017 and 603 respondents in 2018, the latter having the following demographic characteristics: average age 35, 61% men and 39% women in executive and decision-making positions (managers, CEOs) from medium and large companies in IT, Internet and E-Commerce, Advertising, Financial Services and more. 29% of the companies involved in the study exceed EUR 5 million in turnover. Comparative country reports were based on studies conducted in the years 2017 and 2018.

## 3. WHERE IS ROMANIA IN ADOPTION OF DIGITAL TRANSFORMATION?

Each year, the European Commission publishes the DESI report [4] - the degree of digitization of the economy and society. According to the report [4], Romania is on the last place in the European Union in terms of digitization.

The DESI index is calculated for each of the countries of the European Union, taking into account five aspects:

1. ***Connectivity*** - fixed broadband, mobile broadband and pricing;
2. ***Human Capital*** - the use of the Internet, basic digital skills and advanced skills (e.g. the number of IT employees, the number of IT graduates);
3. ***How to use the internet*** - the use of content, communication and transactions by citizens;
4. ***Integration of Digital Technology*** - Business Digitalization and E-Commerce;
5. ***Digital public services*** - e-government and e-health solutions.

Overall, Romania ranks last in the EU, with 37.5 compared to the EU average of 54.0. While the ranking has remained unchanged from 2017, its score has increased due to improved performance in four of the five dimensions above [3].

However, progress in 2017 has been slow, and Romania has failed to advance from the last place. Of the 5 aspects above, what drives us the best is the 4th point, the integration of digital technologies, i.e. the digital transformation within the companies - 17.8 Romania vs. 40.1 EU.

Few companies emit electronic invoices (10.9%), use cloud services (6%), exchange electronic information (only 17%), use social media platforms to promote (9%) or sell their products online (8%).

### 3.1. Romanian managers and digital transformation

Digitalization is equally about technology and how it transforms people's lives in the workplace. When an organization undergoes a digital transformation, it often omits the main factor determining the success of this process: the employees.

If employees remain faithful to old processes, you will not be able to build products and experiences that meet today's consumer demands.

According to the study [5] conducted by *Valoria* in collaboration with *Doingbusiness.ro*, 6 out of 10 Romanian companies (59%) do not have at the top management level sufficient knowledge and expertise for managers to evaluate and develop a digital business model. Here are some of the most important findings of the study:

- 60% of respondents say they have capitalized on digitization to have a competitive edge;

210

*Fiabilitate si Durabilitate - Fiability & Durability   No 1/ 2019*
*Editura "Academica Brâncuşi" , Târgu Jiu, ISSN 1844 – 640X*

- More and more companies make digital transformation the central part of their business strategy (51% in 2018 compared to 42% in 2017);
- 40% of companies say the main obstacle to digitization is that they do not have digital consumers. On the second place, 40% of companies say that the main obstacle is too high, and third place 38% of companies recognize their resistance to change as an obstacle to digitization;
- The main benefits of digitization are seen as follows: process simplification (58%), cost savings (48%), increased operational efficiency (48%), revenue growth (31%) and better performance measurement (28%);
- 29% of companies expect digital business models to turn their industry to a great extent in the next 1 to 3 years.

### 3.2. Digitalization of companies will lead to doubling of time for protection against cyber security

The challenge of cyber security will increase for companies more and more as they adopt more digital solutions so it is expected that in the next ten years companies will have to allocate twice as much time to defend against computer attacks [6, 7].

We go through digital transformation companies have to align and become competitive and attractive because they will have different connections with customers, suppliers and employees. Cloud migration is increasingly present, companies tend to work and give up physical data storage systems, which is a new challenge with new associated risks.

## 4. TRENDS IN DIGITAL TRANSFORMATION IN 2019
### 4.1. Embedded Intelligent Processes

As technology progresses, we are getting closer to the concept of singularity (the invention of "*artificial super intelligence*" will trigger an accelerated technological development, which will lead to inconceivable changes for human civilization).

At the heart of all technological innovation are the data: we can not do anything without the use of analytical tools. According to research, over the past year we have created 90% of global data, but we actually use only 1% of this information. There is still much to do in terms of capturing data in a structured way and extracting the right conclusions from this process.

With better processing power that can improve automated learning, all leaders need to improve their efficiency in how data is used, and this can be achieved through automatic learning and artificial intelligence. The goal is to increase the current data usage rate of 1%, 2 to 3 times, which may seem a little, but it would mean a huge increase in data usage.

### 4.2. Multi-Cloud: Public, Private and Hybrid

As organizations realized that private cloud platforms, public cloud, or data centers are not the best option, they began to combine them. This is how cloud platforms have progressed and are constantly advancing to meet the growing needs of organizations. This process incorporates all the elements, from cloud, network, security, and application deployment [7, 8].

Commitment to cloud platforms is best reflected by *Microsoft* through *Azure*, *HPE* through *Cloud Technology Partners*, and *CloudHealth Technologies* acquisition by *VMWare*. Multi-Cloud is the last in the field and is here to stay. Because from now on, organizations

211

*Fiabilitate si Durabilitate - Fiability & Durability  No 1/ 2019*
*Editura "Academica Brâncuşi" , Târgu Jiu, ISSN 1844 – 640X*

will use cloud combinations, and these apps need to be extra-secure and up-to-date.

Initially, many organizations chose multi-cloud because they had reservations about cloud security. Multi-cloud has since been seen as a means of preventing data loss and dead times caused by certain cloud malfunctions. Also, avoiding single-seller dependency has been a further boost for multi-cloud adoption.

### 4.3. IT as a service

There is a growing need for increased flexibility in terms of high volume of workloads as well as the ability of rapid reduction according to business needs. This is the growth of the "*IT as a Service*" market for companies that opt for the "*a-la-carte*" menu when it comes to adapting to changing needs.

"*ItaaS - IT as a Service*", the concept of scalability, the latest technology, shorter acquisition cycles and improved agility, gives companies the opportunity to be as competitive as the market, but without paying the market price.

It is perfectly justifiable for companies to prefer this model to maximize investment benefits while concomitantly implementing the digital transformation process across all departments.

### 4.4. The adoption of the Blockchain

Although it is a relatively new technology, blockchain is definitely a hot topic. It has begun to develop as a technology option in 2016 and can change IT in the same way that "*open source*" software has made it a quarter of a century ago. What started from a technology designed to make safer online transactions started to be easily integrated into multiple opportunities in many industries.

For example, in the health sector, the "blockchain" concept is used to improve the management of medical care at the patient's level. Technology can provide governments with a way to monitor their use of national currency [7].

Ride-sharing companies can mediate all transactions through a blockchain system. In the education sector, blockchain solutions can supervise verification processes by reducing the number of study diplomas obtained illegally. Infrastructure and Internet of Things (IoT) can use blockchain technology to build a decentralized network of IoT devices.

In short, the blockchain system allows transactional transparency across a wide range of commercial functions: almost any decentralized trading process can benefit from the blockchain accounting records.

Blockchain offers as a service are multiplying, helping companies build apps based only on blockchains. Due to rapid adoption in application development across multiple domains, it is believed that blockchain will generate revenue of more than $ 10.6 billion by 2023. It is estimated that most of this revenue will come from sales and software services.

As we move forward in 2019 and beyond, it is becoming increasingly clear that organizations that do not change will be behind. Now is the time to start using the full power of content for better decision making.

### 5. CONCLUSIONS

Digital transformation is a term that we have all heard for a long time. At this point, however, it no longer represents a trend that could be adopted for business improvement, but a mandatory requirement for organizations wishing to remain at the forefront.

In essence, digital transformation is about change. And this is not only a technological

212

*Fiabilitate si Durabilitate - Fiability & Durability  No 1/ 2019*
*Editura "Academica Brâncuşi" , Târgu Jiu, ISSN 1844 – 640X*

challenge, but a leadership challenge, management and human resources. Now, when most companies have understood what digitization is and why it is needed, we go into an era where many people have initiated processes of innovation and pushing for change within their own organizations [9]. As we advance over time, technological adoption and strategic planning tandem less with the incorporation of key technologies to achieve a competitive advantage.

One of the biggest confusions that leaders have in charge of digital transformation is that all of their competitors are far more advanced. That's because there is too much admiration for the fastest transformers, but too little criticism of how difficult the transformation is or how long it can take for a typical Global 2000 company.

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213

*Fiabilitate si Durabilitate - Fiability & Durability   No 1/ 2019*
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