ANALYSIS OF THE ROMANIAN TELECOMMUNICATIONS SECTOR IN THE CONTEXT OF MODERN CHALLENGES

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In the context of the modern challenges, the telecommunication industry is the center for growth, innovation, and disruption for various industries. Although according to the digitalization index, Digital Economy and Society Index (DESI), Romania has one of the fastest Internet speeds in the European Union and there are around 1000 providers according to the National Authority for Management and Regulation in Communications (ANCOM), Romania is on the last places for public services digitalization and integration of digital technology. The purpose of this paper is to provide a SWOT analysis on Romanian's telecommunications sector in the context of the modern challenges, using DESI 2018 and ANCOM 2017 reports.

Keywords: telecommunications, classification, Romania, DESI, SWOT.

1. Introduction

The telecommunications industry is one of the most competitive markets in the world nowadays. The telecommunication system touches nearly all of us. Strung together by complex networks, telephones, mobile phones and internet-linked computers, the telecommunication system can be the world biggest machine. It allows us to speak, share thoughts with nearly anyone, regardless of where in the world they might be [1].

In the context of the modern society, one of the biggest challenges that the telecommunication industry is facing is the development of the Fifth Generation (5G) networks and all their implications. They will revolutionize the mobile users experience in terms of availability, response and recovery time, bandwidth, providing an improved Quality of Service (QoS) [2].

With the advent of 5G services, telecommunication vendors will need a model that combines tools, techniques and products to deliver services to users over the Internet and not on-site anymore. "Anything as a Service" (ANYaaS) model will allow a network operator to create and manage 5G services on demand and in a dynamic way [3].

In the modern society, seeing as the third wave of the information technology (IT) industry revolution, Internet of Things (IoT) will be a part of people's lives, enabling the connection between the objects and the Internet. 5G

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will unleash the full potential of the IoT applications, by providing increased data-transfer speeds and a more stable connectivity [4].

As the 5G will emerge and the IoT will benefit from them, the telecommunication industry will become the center for growth, innovation, and disruption for various industries. IoT applications, for example machine to machine connectivity or intelligent data analytics, will innovate various industries and 5G will be the enabler [5].

Another modern challenge is the migration from the old generation networks such as radio, TV, old Internet to Next-generation networks (NGN). Apart from the benefits that consist of greater control and availability, this migration will raise some challenges such as the distribution depending on the region, few security issues and respecting the legislation in each country [6].

Another modern challenge that the telecommunication industry is facing is the Robotic Process Automation (RPA). Being able to work 24/7, making less mistakes and costing less than an employee, a robot will increase the companies' profitability if they decide to delegate those manual and repetitive tasks towards robots [7].

This paper will analyze the state of the Romanian telecommunication sector in the context of these modern challenges and developments.

Firstly, three different telecommunication industry classification systems will be analyzed and compare to provide a systematic and holistic view of the industry in the global economy.

Then, the state of the telecommunication sector in Romania will be presented, using analyzing the Digital Economy and Society Index (DESI) and placing the country's state in the context of the European Union (EU) digitalization state.

The telecommunication sector in Romania is further analyzed using the National Authority for Management and Regulation in Communications (ANCOM) data. These data have been used to provide an overview of the Romanian market in terms of providers, subscribers and market share.

Then, under DESI and ANCOM experimental data, SWOT analysis on the telecommunications sector in Romania will be conducted, emphasizing the strengths and weaknesses and providing information on the opportunities and threats.

The EU adherence has provided Romania with access to the western technology and increased the opportunity for foreign investments in the information and telecommunications technology infrastructure [8].

Previous research performed on the Romanian telecommunication sector under the digitalization index categories has been focusing on the e-Government adoption in general [9] and compared to the European Union under the e-Government development index (EGDI) [10].

The digital public services use under DESI indicator has been discussed before, providing the current state and the gaps between Romanian other European Union states [11].

Therefore, there is a shortage in findings of the Romanian telecommunications in the context of the modern society, addressing the current technology and market opportunities and using all the digitalization index information, DESI, and ANCOM data.

2. The telecommunications industry structure

An industry classification system provides a standard framework for individual area research and for company classification. An industry classification system allows users to track the performance and evolution of industry, sectors, and companies over time. The scholar literature provides useful classification frameworks for analyzing the telecommunication industry structure.

In general terms, the Nomenclature of European Economic Community statistics (NACE) is the statistical classification of economic activities in the European Community, a classification to which all Member States have to adhere [12].

The Industry Classification Benchmark (ICB) is a global classification framework for global markets, a standard for corporate classification, managed by the Financial Times Stock Exchange Group (FTSE) which owns Russell Indexes or FTSE Russell. FTSE Russell is a pioneer in company classification. In 1962, the FT-Actuaries All-Share Index (now denoted the FTSE All-Share Index) made the first classification of companies by industry type. It consisted of eight groups of industries: capital goods, consumer goods, durable goods, chemicals, oil, transport, finance and miscellaneous, with companies allotted to homogeneous subgroups within four of these industrial groups. The classification structure was revised and modified in 1970 and again in 1994 to reflect the changes in the UK capital market structure. Between 1999 and 2000, the system was expanded and adapted to be used in the classification of global markets [13].

The American Productivity & Quality Center (APQC) is the world's most important authority in benchmarking, adopting best practices, improving processes and performance. APQC has partnerships with over 500 member organizations around the world in all industrial sectors. With over 40 years of experience, APQC is the world leader in transforming organizations [14].

The Process Classification Framework (PCF) is a standard developed by APQC to facilitate improvement through organizational processes management and benchmarking, independent of industry, size and location. It provides taxonomy of inter-functional business processes designed to allow objective comparison of organizational performance within and between organizations [15].

In the next section, these industry classifications will be analyzed under the following criteria: scope, classification criteria, activity′s sector and telecommunication industry specifications.

2.1 Scope

NACE is the classification of economic activities in the European Union. NACE is a four-digit classification that provides the framework for collecting and describing a wide range of statistical data by economic activities.

ICB is used globally to divide the market into more specific categories, allowing investors to compare industry trends between well-defined subsectors.

The Process Classification Framework has been developed by APQC to facilitate process improvement, regardless of industry, size or location. APQC offers for each industry a series of business processes within it. This type of process classification helps identifying duplicate information systems for the same business process and whether the information system gives value to a particular business process.

2.2 Classification criteria

NACE uses four hierarchical levels, where first level comprises 21 sections, followed by 88 divisions, then 272 groups, then 615 classes. The first four digits of the code, which represent the first four levels of the classification system, are the same in all European countries. National implementation may introduce additional levels. The fifth digit may vary from country to country.

ICB uses a system of 11 industries, divided into 20 macro- sectors, which are further divided into 45 sectors, which then contain 171 subsectors.

APQC classifies processes in 9 industries, across 5 levels: categories, groups of processes, processes and activities.

2.3 Industries

NACE consists of 21 sections (code 1), identified by letters from A to U, identifying sectors of activity such as: information and communication, financial and insurance activities, professional activities, health.

ICB comprises 11 industries including: technology, telecommunications, health, finance.

APQC comprises 9 industries including: energy and utilities, financial-banking services, telecommunications.

2.4 Telecommunication industry classification

As far as the telecommunications industry is concerned, the classifications proposed by NACE, ICB and APQC are similar, with the object of activity being the classification criteria.

According to NACE, the telecommunication industry is presented at level J61. In the section there are the following subsections, divided by the economic activity: J61.1 for wired telecommunications activities, J61.2 for wireless telecommunications activities, J61.3 for satellite telecommunications activities and J61.9 for other telecommunications activities.

ICB classifies the telecommunication industry into the following: the telecommunication macro sector, split into these two sectors: telecommunications equipment and telecommunications service providers. The telecommunications equipment is then spilt into the telecommunications equipment subsector. The telecommunications service providers sector is then split into the cable television services and telecommunications services subsectors.

APQC classifies the telecommunications industry into operational and management and support categories, each with specific groups of processes, processes and activities.

Compared to ICB and NACE, APQC classification presents the activities of each process specific to a telecommunication company. ICB and NACE focuses on object of activity, dividing the industry into specific groups (or sectors, as ICB classification does) under the economic activity.

The results of the telecommunication industry classification comparison are presented in the Table 1.

Table 1

Comparative analysis on the telecommunication industry classification

Criteria	NACE	ICB	APQC
Area of use	Europe	Global	Nivel global
Scope	Classification of economic activities in the European Union (EU)	Classification of economic activities at global level	Process Classification Framework
Classification criteria	Object of activity	Segments (industries, macro-sectors, sectors, subsectors)	Processes
Activity sector	21 sections	11 industries	9 industries
Telecommunications specifications	J61 (cable, wireless, satellite, other activities)	Macro-sectors: Telecommunications Service Providers (subsectors: Telecommunications Services, Cable Television Services) Telecommunications Equipment (subsector: Equipment)	Operational processes, management and support processes, process groups, processes, activities

In the next section, we will provide a state of the telecommunication sector in Romania, which will represent the entry data for the further SWOT analysis and discussion.

3. State of the telecommunications sector in Romania

3.1 The level of digitalization in Romania

The Digital Economy and Society Index (DESI) is developed by the European Commission and indicates the level of integration of digital technologies in the economy of the European Union states [16]. DESI is an index calculated on the basis of over 30 indicators, which include information relevant to the telecommunications industry, information technology such as: connectivity (fixed and mobile broadband services), human capital (use of the internet, digital skills), Internet use (communication, online transactions), integration of digital technology (e-commerce), digital public services (e-Government, e-health) [17].

According to the DESI index, Denmark, Sweden, Finland and the Netherlands have the most advanced digital economies, followed by Luxembourg, the United Kingdom and Belgium. Romania is the last of the 28 countries in the European Union in terms of economy digitalization.

In terms of connectivity, Romania is on the 22nd place from 28 European Union countries. According to the data reported by DESI 2018 [18], the Internet speed in Romania is among the fastest in the European Union. Romania registers almost three times more subscriptions with over 100Mbps (43.8%) than the European Union average (15.4%). However, at the household level, the use of broadband services is 67%, below the European Union average (75%). In terms of coverage of 4G mobile services, Romania is once again on the last place, although it has evolved from 45% in 2016 to 72% in 2017.

In terms of human capital, Romania is on the last place in the European Union. According to the data reported by DESI 2018 [18], Romania is the last in terms of basic digital skills, 29% compared to almost double, 59%. The percentage of specialists in information technology is almost half of the European Union average, 2% compared to 3.7%. The number of graduates of faculties of sciences, engineering and mathematics is below the European Union average, 14.4% compared to 19.1%.

In terms of the use of Internet services, Romania is on the last place in the European Union. Romania is the state that registered the biggest improvement in this dimension compared to the previous edition (almost 6 percentage points).

According to data reported by DESI 2018 [18], regarding the Internet use, Romanians prefer to listen to music online, read, browse social networks and make video calls. There is a certain lack of confidence in online services, such as shopping and Internet banking.

In terms of integration of digital technology, Romania is on the last place in the European Union. According to the data reported by DESI 2018 [18], Romania is not making any progress. The score decreased compared to 2017, while the European Union average increased by 9%. In Romania, the percentage of e-commerce companies has decreased.

In terms of digital public services, Romania is on the last place in the European Union. According to data reported by DESI 2018 [18], Romania is above the European Union average in terms of e-Government services, by the number of users who can submit forms. It ranks the 10th in terms of promoting open data policies. However, Romania is in last place in terms of online public services.

This current analysis shows that, although Romania has one of the fastest Internet speeds, the country is the last in terms of digital economy as per the DESI categories.

3.2 Analysis of the Romanian telecommunication market

The telecommunications sector is one of the most competitive sectors of the Romanian economy, in 2017 generating 1.8% of Gross Domestic Product (GDP), respectively 15.6 billion lei. [19].

According to the National Authority for Administration and Regulation in Communications (ANCOM), in Romania, in 2019, there are 932 providers of authorized communications networks and services [20].

To provide an overview of the Romanian telecommunications market, we will analyze the last ANCOM report available at the moment of the study.

The last report on the situation of the electronic communications services market in Romania contains the statistical data from the first semester of 2018 [21]. This report on the main indicators in the telecommunications sector in Romania contains updated data for the period January 1, 2016 - June 30, 2018, as well as the recorded developments [21].

In the telephony services provided through land-based public networks, the number of operational suppliers is 36, increasing compared to the second semester of 2017 (35).

Mobile telephony comprises the telephony services provided through terrestrial mobile public networks. The number of subscribers to mobile services and the number of SIM cards allocated to them, as of June 30, 2018 are: approximately 6.8 million mobile phone subscribers, 12.3 million allocated SIM cards, with an average of 1.8 SIM cards / subscriber.

Regarding fixed and mobile Internet services, the number of Internet access service providers in the first half of 2018 is 561.

Regarding, TV retransmission, the market shares of the main providers of TV retransmission services, according to the number of subscribers, between 30.06.2016 - 30.06.2018, is 48%.

This study shows that the Romanian telecommunications market in terms of number of providers and subscribers is developed and highly competitive.

In the next section, based on digitalization information provided by DESI and subscribers and market share information provided by ANCOM, we will analyze the telecommunications sector in Romania using the SWOT method.

4. SWOT analysis of the telecommunications sector in Romania

A SWOT analysis evaluates the strengths, weaknesses, opportunities or threats of an entity [22].

Strengths and weaknesses are identified from the internal field, comprising the resources, competences and competitive advantages of the entity. Opportunities and threats derive from the external environment and they are represented by market opportunities, industry environment and general environment.

The scope of the SWOT analysis is to use the knowledge to formulate a strategy for the future, accordingly.

Table 3

SWOT Analysis of the telecommunications sector in Romania

Strengths	**Weaknesses**
Second place in EU on for the Internet speed	Late adopters in technology (last place in the European Union for integration of digital technology and digital public services)
High customer potential (number of subscribers)	Low DESI human capital score – population's digital skills (number 27 from 29 EU countries)
1.8% of GDP	
Opportunities	**Threats**
5G technology	A market strongly regulated by Government
IoT applications	Competitive market with major players
Robotic process automation (RPA)	
European Union Investments	

4.1 Strengths

Strengths of the Romanian telecommunication sector derive from the types of assets and the source of the profit. Generating 1.8% of GDP, the telecommunication sector is highly competitive and it has a huge potential for development, as presented in the Opportunities section.

One of the greatest strengths that the telecommunication sector in Romania has is the Internet speed. With almost three times more ultra-fast broadband subscriptions (43.8% of subscriptions at > 100 Mbps, second place in the EU), Romania far exceeds the European Union average (15.4%).

Therefore, there is a high customer potential, as DESI reported. ANCOM data from 2018 reported that there were around 1.8 SIM cards / subscribers.

This current study reinforces the statement that Romanians benefit from fast Internet speed and people with Internet experience will be likely to use it [9]. Good phone quality and fast Internet speed are assets that the telecommunication sector has that increase the number of potential customers.

Therefore, we can conclude that the strengths on the Romanian telecommunication sector reside in: the fast Internet speed, the number of SIM subscribers and the 1.8% GDP generated by the sector.

4.2 Weaknesses

The telecommunication industry changes quickly and it is essential to be honest and upfront what the current weaknesses are so that they can be eliminated in the future.

One of the greatest weaknesses is the lack of digital skills that Romania reported, as only a third of Romanians have basic digital skills and only 14.4% of Romanians are Science, Technology, Engineering and Mathematics (STEM) graduates [18].

As DESI human capital indicator shows, Romania is on the last place when it comes to the people having digital skills. The basic digital skills level is very low compared to other member of the European Union, for example Romania has 29%, whereas Luxembourg has 85% and Netherlands 79%.

The Romanian market is a late adopter in new technologies.

In terms of business digitization and e-commerce and integration of technology in public services (e-Government and e-health), Romania is on the last place in the European Union.

Although according to DESI data, Romanians use the Internet for social networks [18], a large majority doesn't do Internet transactions (e-banking) or shop online (e-commerce).

To confirm this data, according to a e-government survey conducted in 2008, although five years earlier the portal www.e-guvernare.ro designed for online public services has been launched, only 37% of Romanians were using e-governance services [9].

This current study reinforces the statement that Romanians are late adopters in public services digitalization [9] and adds to it that in terms of e-commerce and e-health the affirmation is the same. The cause might be the lack of basic digital skills as shown in DESI data, supporting the affirmation that a successful e-government implementation requires the public employees to have at least basic IT skills [11] [18].

Therefore, we can conclude that the weaknesses on the Romanian telecommunication sector reside in: the lack of basic digital skills for the majority of the population, the low number of STEM graduates and the late adoption of new technologies such as e-government, e-commerce, e-banking. These

weaknesses cause not only a late digitalization of the public services, but a late digitalization of the entire economical field.

4.3 Opportunities

Since technologies that the telecommunications industry supplies change so frequently, it is essential that the businesses know what types of products are soon-to-be-supplied, so they can have the proper marketing prepared.

The introduction of the newest technologies and the development of the efficient economic branches represent opportunities for the Romanian telecommunications sector.

The Fifth Generation Mobile technology (5G) is a new, enhanced version of Fourth Generation (4G) for new mobile generations. 5G provides a suite of advantages such as: a faster Internet speed, reduced latency (the delay between the commands and the responses) and concentrated platform, enabling operators to be competitive, from a price and performance perspective, with wired networks [23].

This new technology may increase the competitiveness between the major telecommunication players in Romania, offering the opportunity to provide faster Internet and services to keep and gain new customers, as presented in the Threats section.

Currently, according to DESI, the percentage of Internet use in Romania is the lowest from the European Union.

A big opportunity for the telecommunication sector is the 5G technology. Research shows that it will provide a faster Internet and it will reduce the response and the recovery times, therefore it might help increasing the Internet use among the population [2].

5G will enable more reliable, scalable and cost-efficient connections, enabling Internet of Things (IoT) applications development [24].

IoT will give the Romanian telecommunication sector the opportunity to develop, by connecting the physical world with the cyber space. In other words, IoT will connect using sensors any physical object (devices, home appliances) with the Internet, allowing the population to control all these objects using a communication device [4].

This current study reinforces the idea that this third wave of the information technology industry revolution, the Internet of Things, will represent a big opportunity for the Romanian telecommunication sector to develop [4].

Robotic Process Automation (RPA) is a new technology that enables computers and robots to perform human actions. RPA robots capture data and manipulate applications just like humans do. In the telecommunications sector, RPA robots are used to automate human activities [25].

In the telecommunication sector, the high number of customer contacts, installations and product provisioning per year, have a direct impact on quality, customer experience and financial results. To provide an enhanced customer

experience, telecommunication companies use RPA robots to automate the repetitive tasks and to ensure service continuity [25].

A research shows that RPA will provide more quality reporting and better service order management [7]. Therefore, we can conclude that Robotic Process Automation represent an opportunity for the Romanian telecommunications sector as enhanced services can attract more customers.

European Union adherence opened up investment opportunities for Romania. As telecommunications infrastructure plays an important role, investments are needed. For 2014-2020, the Romanian Operational Program for Competitiveness (2014-2020) allocated 100 million Euro from the European Region Development Fund, whereas the Operational Program for Rural Development (2014-2020) allocated 25 million Euro from the European Agricultural Fund for Rural Development for the implementation of telephone and internet networks in selected areas [17].

This can be an opportunity, but although investments exist, but it is hard to use them properly as the telecommunication sector is highly regulated by the Government, as presented in the Threats section.

This current study reinforces previous researches on the 5G opportunities for IoT developments [4][5] and RPA benefits for the telecommunication industry [7], being seen as opportunities for the Romanian telecommunication sector to develop, with the contribution of the European Union and their investments.

4.4 Threats

Threats represent those issues that are coming from the outside that might negatively impact the business: new competition opening their doors, a failing economy or the substitution products. The telecommunication sector sells products that are important for communication, but are not essential, as cheap phones or the use of Internet for communication can be a substitute for that.

One of the major threats in the Romanian telecommunications sector is the Government regulations and policies. It’s a market strongly regulated by Government. Moreover, the Government used to control a part of one major player in the field, the ex-Romtelecom, now controlled by Deutsche Telekom/OTE Group.

This current study reinforces the statement that one of the biggest threats is the lack of a proper legislative framework for digitalization and adds that the government involvement in the telecommunication sector as providers will lead to a slower adoption of new technologies [11].

According to ANCOM data, the telecommunication sector in Romania is a very competitive market. There are three major players which can be a threat for new companies who want to join the sector.

Major telecommunication players are looking to purchase other suppliers to expand their coverage and services. With their acquisitions, major players want

to reinforce their position on the market and make difficult for other companies to enter in the market.

Orange Romania is planning to acquire Romtelecom. They also want to acquire AKTA - the largest independent player in the cable market. The acquisition of the largest independent player on the local cable TV market brought Orange a fixed network that reaches the customers' homes in over 30 counties, with approximately 700,000 subscriptions to cable TV, internet and fixed telephone services [26].

On the other hand, Vodafone Romania, the second largest mobile services supplier in the country acquired UPC, the second largest NGN with 41% households. Together, UPC Romania and Vodafone Romania will be able to offer gigabit broadband internet connections and 5G technology in Romania [27].

Therefore, we can conclude that the threats on the Romanian telecommunication sector reside in: the market being strongly regulated by the government and the strong competition between the telecommunication service providers.

5. Discussion

As previous research shows, the new technologies such as the Fifth Generation networks, Internet of Things, Robotic Process Automation, will revolutionize the telecommunication industry, enabling the people to be more connected [5].

This current study analyzes the state of the Romanian telecommunication sector in the context of these new technologies and their implications and challenges that will occur. By using ANCOM 2017 data, we discovered that the Romanian’s telecommunication sector is one of the most competitive ones, having major players.

The DESI 2018 data, reinforced the idea that the digitalization level in Romania is currently low, regardless of the fast Internet speed and good phone connection.

To reinforce the idea in previous studies, we can conclude that the lack of basic digital skills in almost two thirds of the population leads to a slower adoption of e-government, e-banking, e-health and e-commerce, in other words, the adoption of late technologies [9][11].

Advances in technology cannot stop the progress of a country regardless their digitalization level. The population must adapt to the newest technologies, but the lack of basic digital skills is a major weakness that prevents the sector to explore the opportunities fully and prevents telecommunication companies to establish a proper strategy.

As the telecommunication sector is highly regulated by Government, it is difficult to take advantage of all the opportunities that this sector gets, such as the European Union investments. Moreover, as the telecommunication market is highly competitive, it is difficult for a new service provider to enter the market.

This SWOT analysis on the current state of the Romanian telecommunication sector is the basis for some recommendations and strategy for the telecommunication companies to adopt.

First of all, the telecommunication companies should pay a big attention on the new technologies and outline a strategy that will include them. They should set clear objectives to innovate.

Robotic Process Automation will help the companies save money, reduce the faults in repetitive tasks and provide 24/7 customer service. Telecommunication companies should "hire" robots to execute repetitive tasks. This will increase the customer satisfaction and retention.

The telecommunication company's strategy should include automation and integration of robots in any of the repetitive tasks executed by humans, so that they can improve the response time and provide faster customer service.

As the study shows, a big opportunity on the market is represented by the IoT and 5G. 5G means a much higher Internet speed, instantaneous data transfer and a range of up to 1 million smart devices connected simultaneously via IoT. Telecommunication companies have now the opportunity to innovate if they include these technologies. Whether it is about holograms, commercial drones, smart buildings, self-driving cars, their applications are endless.

Thus, as a strategy, telecommunication companies should include these advances in their services, for example to commercialize 5G subscriptions and IoT devices. For example, Vodafone has deployed the first 5G network in Romania and their plan is to provide subscriptions with this faster network and connected devices for customers [28].

For business customers, telecommunication companies should provide solutions to innovate the sectors that can benefit from 5G and IoT, for example a SIM card for a wearable device to monitor a patient's health status.

The threat of all this advances in Romania is represented by the late adoption of new technologies as the DESI data report showed.

Thus, telecommunication companies should establish a strategy to work in conjunction with the Government and the Minister of Education. They should establish objectives to educate the population, provide a clear view to them on all the benefits and moreover, providing technology to those who aren't familiar with it. Telecommunication companies should develop a strategy to help Romanians to gain digital skills. As the lack of basic digital skills and the low number of STEM graduates in Romania is one of the biggest weaknesses in the sector, telecommunication companies should invest in education by sponsoring summer

schools, advertising their work in high schools and providing internships and graduate jobs in their companies.

Partnerships with universities, organizing open doors and providing guidance to students can lead to a better understanding of the newest trends in technology. In the future, educated individuals will have a good exploitation of the networks and Internet of Things and better understanding of the Robotic Process Automation benefits. Advances in the technology will happen regardless of how much a society is prepared to embrace them, therefore, digital skills will be needed to keep up with the changes.

Telecommunication companies should set an objective to create e digital society, meaning to provide the means for innovation and to develop the societies digital skills in order to exploit them.

The concept of digital society includes connected communities and devices, access to fast Internet in any areas, enabling citizens to access a wide range of services. In a digital society, in healthcare, for example, 5G will enable remote surgery, wearable sensors, and faster CT scans. Transport will become smarter and safer, enabling automated emergency calling and crash alerts [29].

All these innovations can be achieved if the telecommunication companies establish clear objectives to digitalize the society. Partnerships are essential to create a digital society: universities, Government, even healthcare, transport and all the other areas that can benefit from these new technologies. Telecommunication companies should work in conjunction with these stakeholders to provide services that are suited to their needs.

To reduce the threats caused by the local market regulations, telecommunication companies should partner with the Government. By presenting the benefits and showing examples of success stories from other countries, they should make the Government aware of the importance and the future trends that need to be adopted. Although Romania is a late adopter of new technologies, the country must advance because it has the full potential for it: fast Internet speed and good phone connection are two important strengths to exploit.

The strong competitivity between the major telecommunication players creates barriers for new entries. Therefore, to keep their position on the market, telecommunication companies should invest in their innovation and to always update their services with the new technologies available on the market.

Innovation is the keyword for the strategy the telecommunication companies should establish.

A good way to start innovating is to build a hub within the company, inviting the employees to come up with innovative ideas. At organizational level, companies can even establish an innovation department to support such ideas. Contests to propose and develop ideas that take into consideration all the new available technologies and solutions to create a digital society can be organized.

The solutions proposed by them can be further developed and put into place with the support and partnerships established.

Therefore, telecommunication companies need to develop a strategy that will exploit the opportunities on the market by investing in innovation and keeping their portfolio updated with the latest trends in technology, and reduce the threats by investing more in developing people's digital skills and partner with the Government, universities and other institutions to achieve all their objectives.

6. Conclusion

This current SWOT analysis shows that Romanian telecommunications sector is a competitive one, but the infrastructure and the digitalization level is low compared to other European Union countries. Investments from the Government and the European Union will help Romania to digitalize, as it has potential being one of the countries with the fastest Internet.

Although a late adopter of new technologies, Romania cannot stop the progress that the telecommunication industry faces and it will have to adopt the newest changes in terms of the Fifth Generation networks, Internet of Things and Robotic Process Automation.

Therefore, telecommunication companies will need to invest more in digitalization and they will need to develop a strategy that encompasses innovation in all possible levels and they will need to invest more in developing people's digital skills.

This study shows that the Romanian telecommunication sector has the strengths such as the second place in terms of Internet speed and a large number of phone subscribers, to exploit the opportunities available on the market.

But some weaknesses related to the low level of population's digital skills and lack of integration of digital technology prevents them to exploit fully these opportunities and telecommunication companies should establish a strategy to work on those.

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