

## DEVELOPMENT PARTICULARITIES AND INVESTMENT TRENDS OF THE TELECOMMUNICATION SECTOR IN THE REPUBLIC OF MOLDOVA

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### ABSTRACT

*The purpose of this article is to provide the development particularities of the telecommunication sector of the Republic of Moldova. Also, the article aims to show the main investment projects made in this sector. In this paper were used such research methods as: documentary method, data grouping method, graphic method, synthesis and comparison method. As a result of this research, are elucidated the development and investment trends as a result of technological developments.*

**KEY WORDS:** telecommunication, investment, investment project, telephony services, internet acces services, IT parks.

**JEL:** E22, L86, O33.

### 1. INTRODUCTION

Telecommunications have ceased to be considered a luxury service taking into account that the right to communication and information is recognized as a fundamental right of the citizen. In recent years, the telecommunication sector of the Republic of Moldova (Moldova) has had a quite dynamic development, which has been characterized by restructuring and liberalization process along with spectacular technological developments.

The fixed telephony market has been liberalized in Moldova since the beginning of 2004. So far, there have been registered more than 10 companies authorized to provide fixed local telephone services. The national telecom operator is S.A. „Moldtelecom”, which provides fixed telephony services, data transmission and Internet access, including wholesale Internet access to other Internet Service Providers (ISPs). The fixed telephony density increased a lot since 1998. However, it differs in rural areas from those in the urban areas, where the density is higher.

Mobile telephony services were launched in Moldova in 1996. In October 1998, S.A. „Voxtel” (now called S.A. „Orange”) launched its first GSM network. The second operator S.A. „Moldcell” got its license to provide cellular mobile telephony services at the end of 1999 (Strategia de dezvoltare a domeniului telecomunicațiilor (2004)). Later, S.A. „Moldtelecom” started to provide cell telephony services as well. Therefore, in 2013 the mobile telephony penetration exceeded 119%. In the European Union (EU) this indicator has an average of 128% (Strategia „Moldova digitală 2020” (2013)).

Data transport (Internet) services in Moldova have been launched since 1995. In

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2017, around 250 licensed companies provide internet access services. The fixed-line broadband Internet reached a penetration rate of 11.72%, while the EU average is 27.2%, and the broadband mobile Internet - 4.7%, while the EU average - 7.5% (Strategia „Moldova digitală 2020” (2013)).

## 2. DEVELOPMENT OF THE TELECOMMUNICATION SECTOR

The information and communication technologies (ICT) sector plays a significant role in Moldova’s economy. In 2015, the ICT sector's contribution to the country's GDP was 7% (MDL 7 billion). Moreover, the monthly wages in the IT sector are much higher than the average wage (from 800 EUR to 1500 EUR compared to average salary of about 160 EUR). ICT penetration and access indicators show that mobile telephony covers 99% of Moldova’s territory, fixed telephony - 33.8%, fixed broadband internet - 11.7% and mobile Internet - 4.7% (Emerson, M. and Cenusă, D. (2016)).

About 35% of households in Moldova have broadband Internet connections. According to the ICT Development Index included in the „Measuring the Information Society 2015” report, Moldova is ranked 66th out of 167 countries.

**Table 1.**

ICT Development Particularities in Moldova, Romania, Ukraine and Georgia

	Fixed telephone subscriptions per 100 inhabitants		Mobile-cellular subscriptions per 100 inhabitants		Share of households with a computer (%)		Share of households with access to the Internet (%)	
	2010	2014	2010	2014	2010	2014	2010	2014
<b>Moldova</b>	32,5	35,2	71,4	108,0	37,0	52,4	34,7	47,5
<b>Romania</b>	20,6	21,3	111,4	105,9	47,9	63,8	42,2	60,5
<b>Ukraine</b>	28,1	24,6	117,1	144,1	25,2	52,4	22,2	43,0
<b>Georgia</b>	25,3	25,4	90,6	124,9	18,2	45,8	16,6	41,0

(Source: Emerson, M., Cenusă, D., 2016, p. 158)

The data presented in table 1 show that Moldova’s ICT connectivity, as in other countries, has increased significantly in 4 years. However, when it comes to Internet access services, Moldova has a higher position in comparison to Ukraine and Georgia, but lower in comparison to Romania.

At the same time, every second citizen in Moldova is an Internet user, more than half of households have at least one computer, and the country is ranked by the speed of Internet access among the top 20 in the world (Hîncu, R. (2016)).

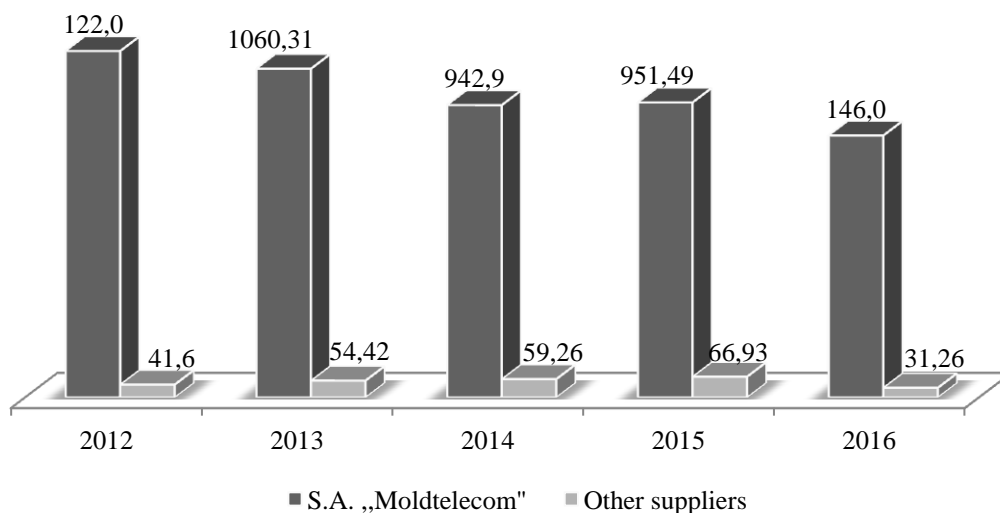
Further are stated more details related to development trends of different types of communication networks.

### 2.1. FIXED TELEPHONY SECTOR

In 2016, the total volume of sales related to fixed telephony market recorded the most significant decrease in the last five years (14%). This decrease was caused by the decrease in the number of subscribers and in the voice traffic related to fixed telephony networks. Almost all fixed-line providers have experienced revenue cuts. Thus, sales of

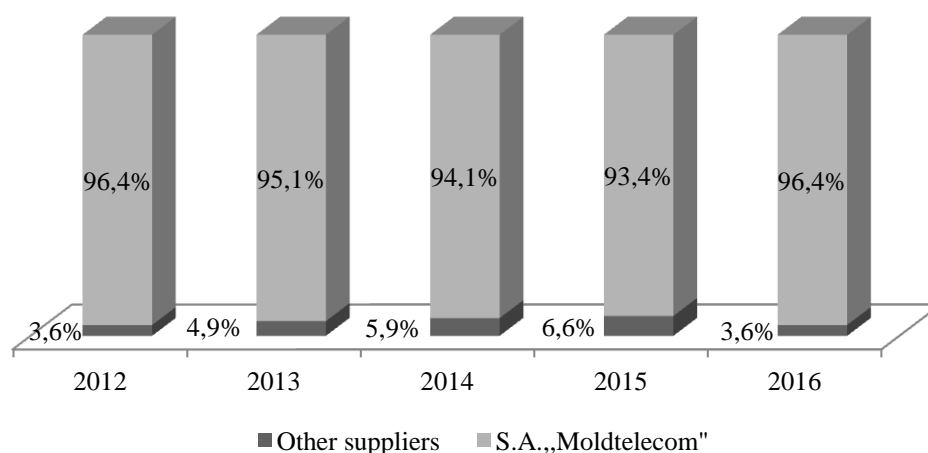
S.A. „Moldtelecom” decreased by 11.2% and those of alternative providers - by 53.3% (Figure 1).

The decrease of the total sales volume on fixed telephony market generated a decrease in the monthly average revenue per user (ARPU) as well. Therefore, compared to 2015, in 2016 the ARPU was lower by 12.3% and amounted to 61.5 MDL. ARPU of S.A. „Moldtelecom” registered 66.5 MDL (-8.9%) and of the the alternative suppliers - 20.4 MDL (-54.7%). The monthly average income per subscriber - individuals amounted 24.3 MDL (-9.8%) and per companies - 73.2 MDL (-13.9% ).



**Figure 1** - Revenues evolution by fixed telephony service providers, mil. MDL  
(Source: ANRCETI Report, 2016, p.16)

In 2016, the market shares of fixed telephony service providers, taking into account their revenues, didn't change significantly in comparison to the previous years. The main supplier of fixed telephony services in Moldova remains S.A. „Moldtelecom”, whose market share increased by 3 pp. and made 96.4% at the end of 2016 (Figure 2).



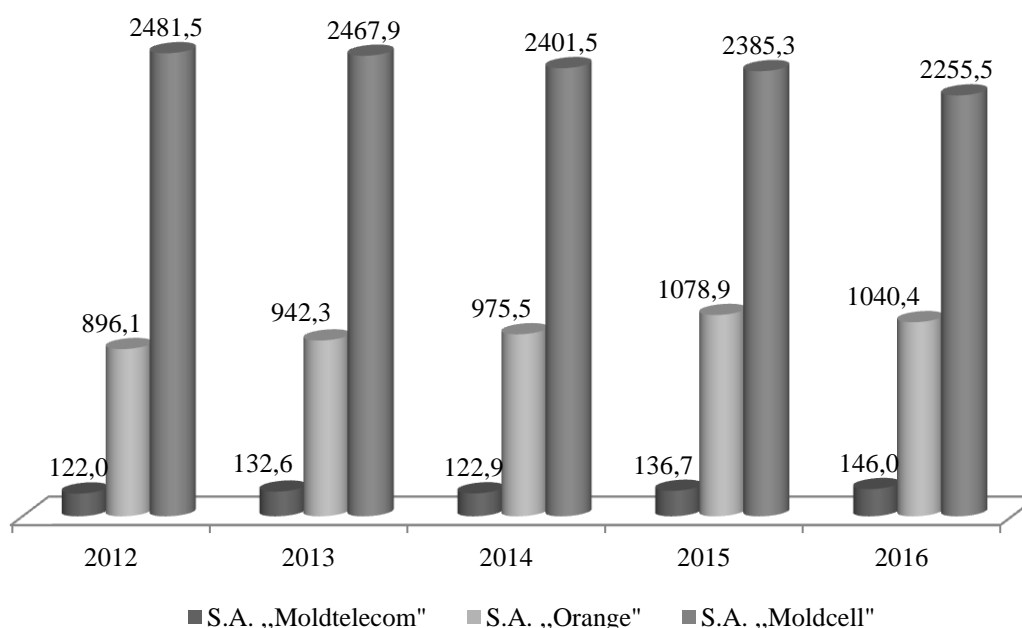
**Figure 2** - Evolution of market shares of fixed telephony service providers according to turnover  
(Source: ANRCETI Report, 2016, p.17)

In 2016, the number of subscribers to fixed telephony services decreased by 2.6% compared to 2015 and amounted to about 1 171.3 thousand. In general, this decrease was generated by the decrease in the subscriber base of S.A. „Moldtelecom”. The cumulative subscriber base of the other 24 alternative fixed-line providers didn't change significantly. Moreover, the penetration rate of fixed telephony services per 100 inhabitants in urban localities is 43.2% and in the rural area - 25.5%.

At the end of 2016, 89 % of subscribers to fixed telephony services were individuals and 11% were companies. More than half of the total number of subscribers - 641.6 thousand (54.8%) - were resident in urban localities, and 529.6 thousand (45.2%) - in rural localities.

## 2.2. MOBILE TELEPHONY SECTOR

The mobile telephony services providers in Moldova are three companies: S.A.„Moldtelecom”, S.A. „Orange” and S.A. „Moldcell” (Litocenco, A. (2016)). For the first time in the last five years, the total volume of sales on this market registered a decrease of 4.4% compared to 2015. This decrease was due to the decrease in sales realized by S.A. „Orange” (5.4% decrease) and S.A. „Moldcell” (3.6% decrease). At the same time, revenues earned by S.A. „Moldtelecom” from providing mobile telephony services grew by 6.8% (Figure 3).



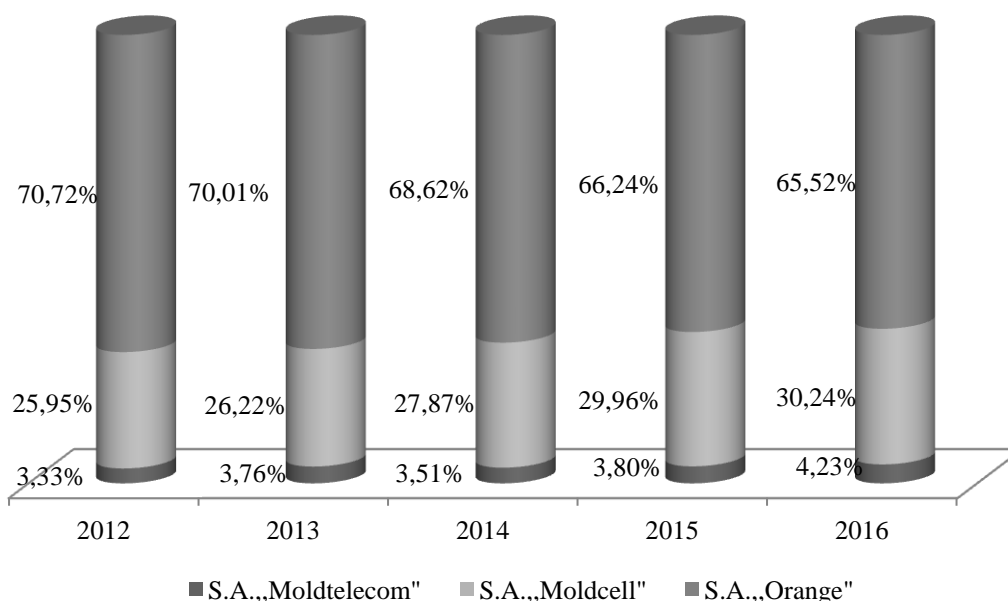
**Figure 3** - Revenues evolution by mobile telephony services providers, mil. MDL  
(Source: ANRCETI Report, 2016, p.10)

More than half of the revenues obtained from the users of mobile telephony services (54%) were individuals or 80% of the retail market, the rest of the revenues being obtained companies. Moreover, the revenues obtained from services provided to the companies increased in 2016 by 3.1% in comparison to 2015.

The ARPU of mobile telephony services decreased by 4.1% compared to 2015 and amounted to 66.2 MDL. The highest ARPU was recorded by S.A. „Orange

Moldova" - 75.3 MDL. S.A. „Moldcell” had an ARPU of 57.6 MDL and S.A. „Moldtelecom” - 36.5 MDL. At the same time, the monthly average income per user - physical person is lower (44.4 MDL) than per user – company (112.9 MDL).

In addition to this, the market shares of the three mobile service providers, according to their turnover, underwent few changes in 2016. At the end of 2016, the market share of S.A. „Orange” has slightly declined and accounted for 65.5%, while market shares of S.A. „Moldcell” and S.A. „Moldtelecom” have increased and accounted for 30.2% and 4.2%, respectively.



**Figure 4** - Evolution of market shares of mobile service providers according to turnover  
(Source: ANRCETI Report, 2016, p.11)

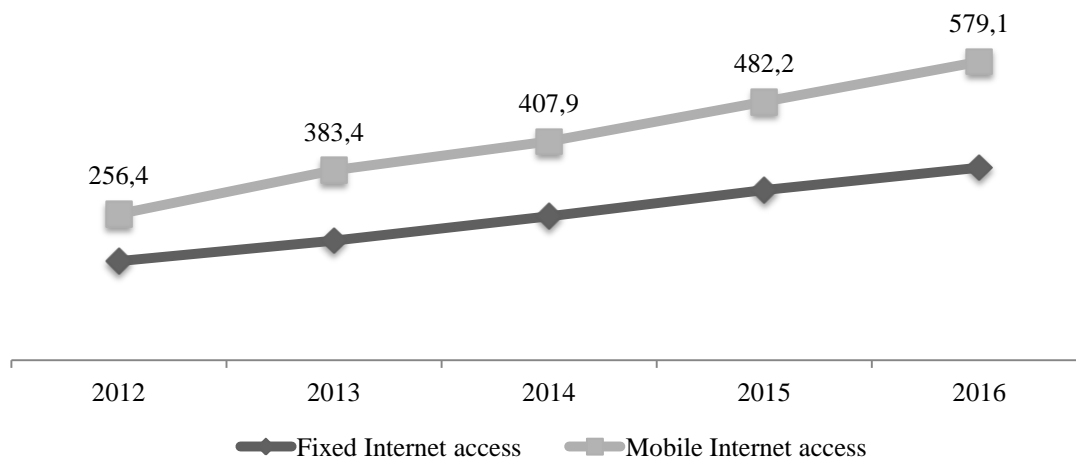
Despite the fact that the revenues from the sale of mobile telephony services decreased, the number of users of the same services increased by 2.4% compared to 2015. This increase was driven by the expansion by all three mobile service suppliers of its customer base. Thus, at the end of 2016 the customer base of S.A. „Moldtelecom” reached 350.7 thousand clients (+ 9.2%), S.A. „Orange”- 2 567.8 thousand (+ 2.3%) and S.A. „Moldcell” - 1 510.7 thousand (+ 1.2%).

In addition to this, according to the situation as at 31.12.2016, 85.5% of the total number of users of mobile telephony services were active users and 14.5% - passive users. In the period of 2014 - 2016, the Active Users - Passive Users report basically didn't change.

### 2.3. FIXED AND MOBILE INTERNET SECTOR

In 2016, the fixed and mobile Internet access services continued to be, as in previous years, the most dynamic markets in the ICT sector. The main indicators of these markets (number of users, data traffic, sales volume) increased significantly. The upward trend of these markets has been boosted by increased demand for Internet access services, the development of global network access infrastructure based on 3G, 4G and fiber optic technologies, and increased competition between suppliers.

Therefore, according to the statistics (ANRCETI Report, (2016)), the total volume of sales on these two segments of the market increased by 12% compared to 2015 and exceeded the threshold of 1.6 billion MDL, which represents about 27% of the total value of the ICT market. The highest revenue growth rate (36%) was recorded on the market for mobile Internet access services (Figure 5).

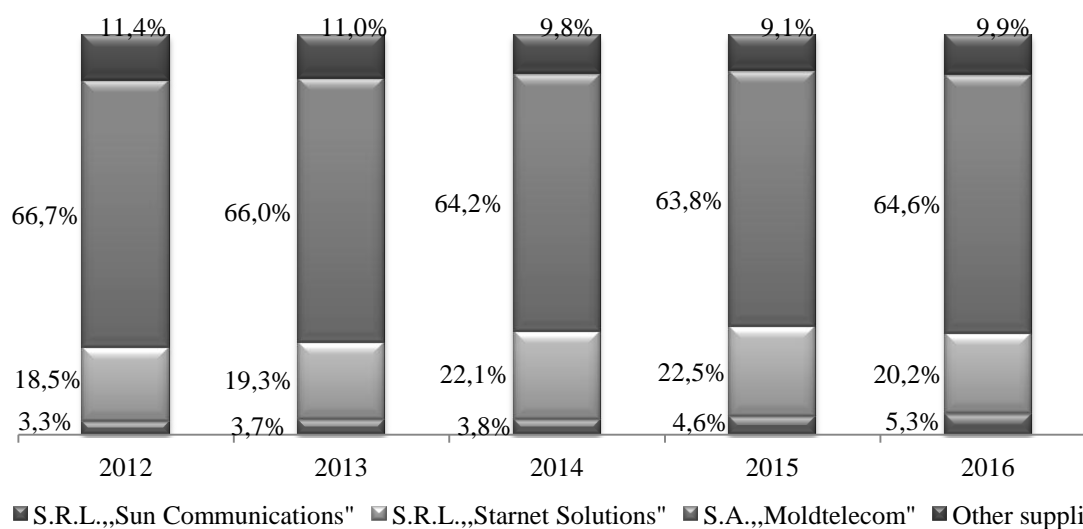


**Figure 5** - Evolution of revenues obtained from fixed and mobile internet access services, MDL mil.

(Source: Made by authors based on ANRCETI Report, 2016, p.19)

As a result of the increase in revenues, the ARPU related to fixed Internet access services increased by 0.7% compared to 2015 and amounted for 169.4 MDL. The ARPU - individual was 158 MDL, and the ARPU - company - 395 MDL. The ARPU related to mobile Internet access services increased by 3.3% compared to 2015 and amounted for 77.1 MDL.

The main suppliers of fixed Internet access services are S.A. „Moldtelecom”, S.R.L. „Starnet Solutions” and S.R.L. „Sun Communications”. Over the last five years, the market shares of these providers didn’t change significant (Figure 6).

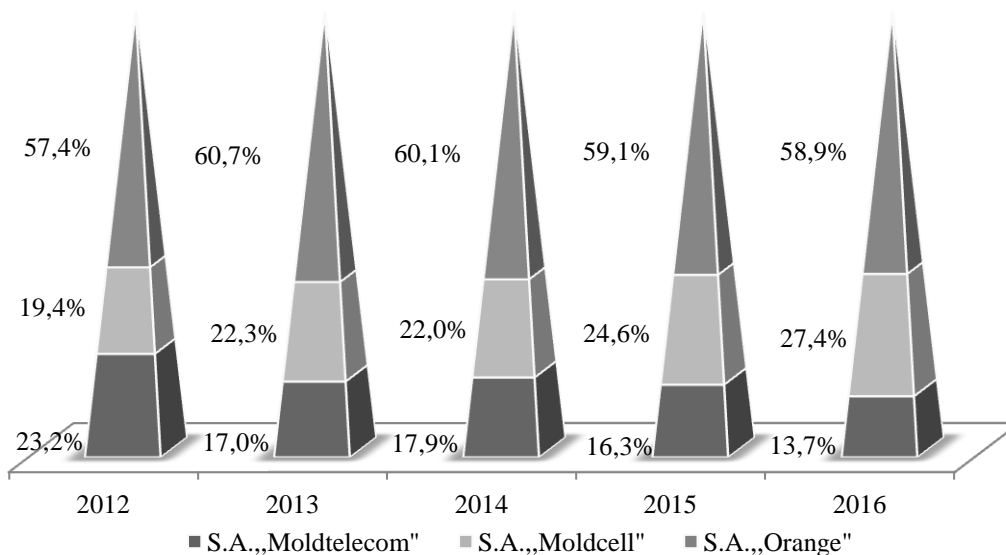


**Figure 6** - Evolution of market shares of fixed Internet access service providers according to turnover

(Source: ANRCETI Report, 2016, p.20)

The largest market share is still hold by S.A. „Moldtelecom” (2/3 of the market). However, the market shares of S.R.L. „Starnet Solutions” and S.R.L. „Sun Communications” has increased slightly in comparison to 2015.

Regarding mobile Internet access services suppliers, in 2016, as in previous years, S.A.„Orange” was holding the largest market share (58.9%).



**Figure 7** - Evolution of market shares of mobile Internet access service providers according to turnover  
(Source: ANRCETI Report, 2016, p.22)

However, as it can be seen in Figure 7, the market share of S.A. „Orange” is constantly decreasing since 2013. The same situation is appropriate to S.A. „Moldtelecom”. S.A. „Moldcell” has a market share of 27.4% and it has been constantly increasing for the past three years.

### 3. TELECOMMUNICATION SECTOR INVESTMENT

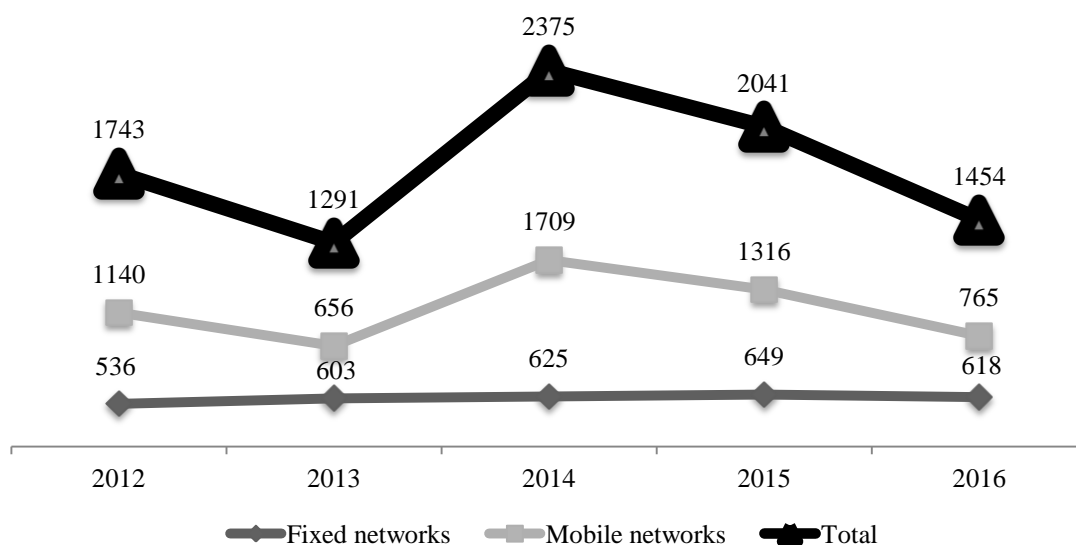
The technological and scientific progress has always generated the development and evolution of both, the economy and the society of a country. Therefore, the development and valorisation of telecommunications and ICT sector is a prerequisite for ensuring a high accessibility of information, saving time, optimizing information storage, etc. These are one of the main reasons why lately most of the investment in the entire world are directed to the ICT sector, and Moldova is not an exception. Both authorities and private sector actors in Moldova, with the support of international donors, are developing initiatives focused on digital education and innovation. Therefore, there are quite important results achieved in this regard, which are stated further.

#### 3.1. INVESTMENT TRENDS

The national authorities acknowledge the importance of the ICT sector and try to support it in different ways. One of these ways is the allocation of financial resources. In general, financial allocations from the state budget in the ICT sector are directed to

public policy making, public policy implementation and public service delivery. In 2015 the financial allocations from the state budget for computerization amounted to about 172.7 million MDL, which represents an increase of 2.6 times compared to 2010. However, compared to 2014, these allocations were reduced by 12.1% (Hîncu, V, (2016)).

According to the statistical data, in 2016 the investments in the ICT sector decreased at a higher rate than in 2015. Their total volume decreased by 28.7% compared to 2015 and constituted 1 454 mil. MDL. The investment diminished in all segments of the market. The value of investments in mobile communication networks decreased by 41.9% compared to 2015 and amounted to 765 mil. MDL, and in fixed communication networks - by 4.6% and amounted to 618 mil. MDL (Figure 8).



**Figure 8** – Investment evolution according to the type of ICT network, mil. MDL  
(Source: Made by author based on ANRCETI Report, 2016, p.9)

In terms of the investment/ income ratio, the highest value of this indicator (30%) was recorded on the fixed network segment. On the mobile network segment, the value of the same indicator was about 21%.

### 3.2. INVESTMENT PROJECTS

Both public authorities and private actors are interested in attracting foreign and national investment in the ICT sector. Therefore, there are taken various measures and organised different events that aim to achieve this goal.

One of these measures took place at the end of 2016 when one of the most **innovative coworking spaces in Moldova – iHUB**, was inaugurated in Chisinau with the support of Norway’s Government and the United States Agency for International Development (USAID).

The iHUB is a new space for coworking that aims to develop startups and to support them in their innovative way. Thus, residents benefit from workspaces perfectly suited to the trends, needs and resources. In addition to this, they have the opportunity to meet potential partners, access entrepreneurial events, take advantage of useful programs and an effective transfer of know-how. Therefore, iHUB aims to bring



together people, resources, experiences and content to support scalable ICT innovation and business, but also to foster community collaboration and culture, transforming ICT entrepreneurs' challenges into opportunities and supporting the development of viable products. Besides this, iHUB is a center that will connect the ICT sector of Moldova with potential investors from outside the country.

Being an innovative model for business collaboration and development, iHUB can be replicated at country level. Therefore, the national authorities intend to expand such centers in other regions of the country, projects which will be done in 2017 („iHUB vine să susțină antreprenorii IT din Moldova” (2016)).

Another important event related to investment development in the ICT sector in Moldova took place in September 2017 - **IT Business Forum „Government for ICT”**, dedicated to starting the process of creating IT parks in Moldova.

The Forum hosted discussions and exchange views of Government and IT industry representatives, potential investors, diplomatic corps representatives and development partners on the opportunities and prospects of developing the ICT industry in Moldova through the implementation of the new adopted Law on Information Technology Parks. The business community and potential investors had the chance to learn from the authorities' representatives important details about the virtual regime of IT parks residents and how to operate and simplify their interaction with state institutions by applying the 7% single tax rate on sales.

The creation of IT parks are an important step in foundation a strong ICT industry and a competitive regional business environment by simplifying the launch, management and business development of the industry.

The creation of IT parks is an effective measure for increasing the competitiveness of the sector thanks to the favorable environment offered for the development of IT business and the attraction of foreign investments. Moreover, the IT parks represent an effective measure for increasing the competitiveness of the sector thanks to the favorable environment offered for the development of IT business and the attraction of foreign investments („Prime Minister encourages ICT companies to participate in creation of IT parks” (2017)).

At the same time, in March 2017 was opened the **Tekwill Center for ICT Excellence**, created with the support of the USAID and the Swedish Government through the Swedish Agency for International Development and Cooperation (SIDA). an educational platform and entrepreneurial hub meant to amplify the role and potential of the Moldovan IT industry.

Tekwill aims to develop the IT sector's competitiveness through industry-related educational initiatives, supporting IT entrepreneurship, product creation and innovative services. It will help address the acute human resources shortage faced by the ICT sector in Moldova (only 22,000 people are currently employed in this area), as well as the lack of a favorable ecosystem for IT business development. Through Tekwill, residents will have the opportunity to be trained according to international standards, will get support for entrepreneurial activities and access to the international IT services and products market. The educational programs offered here will cover a wide range of subjects, from basic technologies to the most up-to-date trends, with emphasis on practical projects.

Moreover, Tekwill will play an important role in developing IT entrepreneurship by supporting accelerated, mentoring programs, facilitating the effective transfer of know-how; providing coworking, enterprise and community events; and assuring the

connection to local and international investors. In the future, Tekwill will launch and strengthen the direction of IT research and innovation in Moldova. It is expected that over 1000 people will benefit annually from the activities and initiatives launched through Tekwill. In addition to this, USAID aims to support the Chisinau authorities in developing the IT sector not only in Chisinau, but also in other regions of the country by creating TekWill IT centers of excellence in Balti, Cahul and Comrat („Proiectul Tekwill și sectorul IT în Republica Moldova”, (2017)).

#### 4. CONCLUSIONS

The digital sector is rapidly developing and is a vital part of the economic reform and modernization process in Moldova. The analysis of the statistical data shows that the trends that have been prefigured over the last three - four years have been emphasized in 2016. After a period of stagnation, the mobile market recorded for the first time in the last five years a marked drop in the volume of sales and the fixed telephony market has been recessionary in recent years, which led to a decrease in the volume of sales on this market.

The declining trend of fixed and mobile telephony markets is driven by changing consumers' preferences for voice services from fixed telephony to mobile telephony and from mobile to alternative internet communication services that are cheaper (applications like Skype, Viber, Messenger, WhatsApp, etc.). Moreover, it is expected that this trend, which is also witnessed in European telephony markets, will be more pronounced in the coming years, when most population will use mobile communication services through smartphones.

Despite the backdrop on fixed and mobile telephony markets, mobile Internet and fixed Internet access services continued to register the highest increases in the ICT sector. The upward trend of these markets is boosted by increased demand for Internet access services, increased competition between suppliers, the development of global network access infrastructure based on 3G, 4G and fiber optic technologies. That is why, the mobile and fixed Internet access services markets will continue probably to be the most dynamic markets in the ICT sector in the coming years, being the main engines for growth in this sector.

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