

EVOLUTIONS AND CHALLENGES IN THE DEVELOPMENT OF THE INFORMATION TECHNOLOGY SECTOR IN THE REPUBLIC OF MOLDOVA

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Abstract

The purpose of this article is to provide particularities of the IT sector in the Republic of Moldova. At the moment, the IT industry is quite an actual topic in the country, since it had and still has a very fast development and growth, being one of the most popular destinations for foreign investments. Therefore, the article contains a synthesys of statistical data concerning the investments made in the IT sector, the obtained results and applied innovations as effects of the investments made and describes the challenges that the national IT sector still faces and need to be addressed.

Key Words: *information technology, innovation, IT park, investment, foreign investors.*

JEL: *E22, G18, L86, L96, O31.*

1. INTRODUCTION

The information technology (IT) industry has the potential to become one of the most dynamic and productive economic sectors in Moldova. Moreover, the IT industry can become a catalyst for growth, efficiency and innovation for the traditional economic sectors of Moldova and for the whole society.

Currently, the IT industry in the Republic of Moldova is growing steadily, especially as a result of the actions already taken. At the same time, the IT share is not yet so significant, although the interest of investors is very high. According to studies conducted by various international experts, the Republic of Moldova could be more competitive in the world in the IT field due to its mobility and the promotion of certain products in various niche markets, advantageous geographical and intercultural positioning, linguistic diversity, creative interest and implementation of certain technologies of latest generation, including IT training. Startups and, in general, small IT companies have a transformative impact on the economy and society, they are able to influence consumption patterns due to the innovative use of technology. At the same time, startups also have a major impact on creating high-tech and well-paying jobs.

However, there is a need for a new impulse, a new set of actions to achieve the objective of strengthening the IT industry in the Republic of Moldova and to give IT companies real opportunities for growth and development. In this

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context, a very important role belongs to the Government, which must intervene with measures to facilitate the emergence of dynamic ecosystems through close collaboration with entrepreneurs, investors, corporations and other stakeholders, as well as multiplying IT solutions horizontally.

Research methodology

In this article were used such research methods as: documentary method, analogy and grouping of quantitative and qualitative data method, graphical method, method of synthesis and comparative analysis method. The analyzes is based on data provided on the official web pages of the public authorities and relevant institutions from the Republic of Moldova: Government of the Republic of Moldova, Ministry of Economy and Infrastructure, National Regulatory Agency for Electronic Communications and Information Technology (ANRCETI), Moldova IT Park.

Specialized literature and contributions of the study

The IT sector is a popular topic in the Republic of Moldova due to the fact that most of the foreign investments are directed for its development. Therefore, among a wide range of investigations and researches made by local experts on this topic, the development of the IT sector is addressed in a lot of policy documents approved at the Government level, such as: annual action plans, road maps and strategies (Moldova 2020, Moldova 2030, Digital Moldova 2020, Development of the information technology industry and the ecosystem for digital innovation for the years 2018-2023 etc.).

Therefore, the study presented in this article aims to reflect a synthesis of the actions already made in the Republic of Moldova in order to develop the IT sector and to elucidate the challenges that the sector still faces despite the taken measures. The results of this study can be used in the process of reviewing the national policy documents in order to adjust their provisions at the existing realities in the IT sector.

2. INVESTMENTS AND THEIR ROLE IN THE REPUBLIC OF MOLDOVA IT FIELD

Investments in the IT market in the Republic of Moldova are increasing, which demonstrates the country's competitive advantages in this industry. According to the statistical data aggregated by ANRCETI (the public authority which regulates the activity in the IT sector) in 2018, the total volume of investments in the field of electronic communications increased, compared to 2017, by 8.9% and amounted to 1 billion 194 million lei (figure 1).

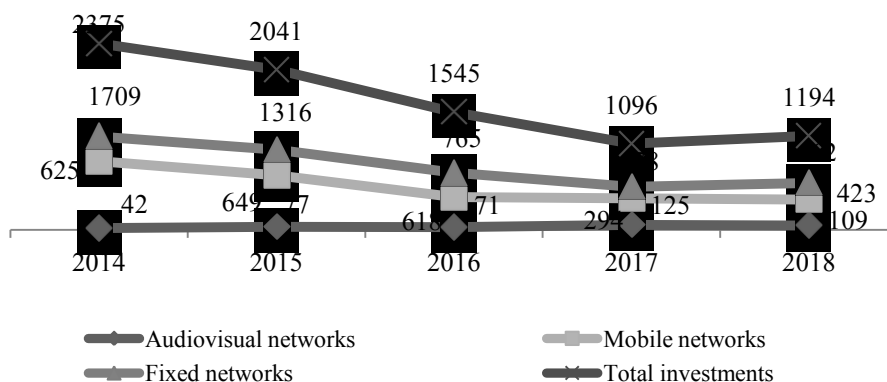


Figure 1 – Investments evolution in the field of electronic communications (million lei)

(Source: Made by authors based on ANRCETI Report, 2018, p.10)

This increase was determined by the increase of approximately with 44% of the investments in the fixed electronic communications networks, which totaled 423 million lei. At the same time, the value of investments in mobile electronic communications networks decreased by 2.3% and constituted 662 million lei, and investments in electronic communication networks for the transmission and retransmission of audiovisual programs decreased by 12.8% and totaled 109 million lei.

At the same time, it should be noted that the number of companies in the IT field with total or partially foreign capital constitutes 20% of the total number of companies existing in the Republic of Moldova. The level of efficiency of foreign capital enterprises, reflected by indicators such as average sales revenue per employee, is significantly higher than local ones, which indicates the more intensive use of innovative technologies.

According to the latest data, the investment allocations for informatization constitute over 800 million lei annually, of which about 12% - from the state budget. The share of IT investments constitutes about 11% of the total investments in the economy. The basic services such as the purchase of hardware components, software implementation and support services have about $\frac{3}{4}$ of revenues, and the IT consultancy has an estimated share of 10%. The public sector is the largest consumer of IT services, among the private clients being only the big companies in the telecommunications and production sector, as well as the commercial banks.

Among the most outstanding achievements in the IT sector in 2011-2017 are:

in 7 years, the sector managed to double the turnover from 1.3 billion lei to 2.6 billion lei;

compared to 2011, in 2015 the IT sector had 61% more registered companies, and the average sales per company reached 3.3 million lei;

between 2011-2016 this sector managed to create over 3 thousand well-paid jobs (above the national average), the total number of employees being 9 300 people. At the same time, the growth was also a qualitative one, as the productivity level increased: sales per employee in 2015 (279 thousand lei) are almost 40% higher than in 2011 (IT Strategy (2018)).

Also, in the mentioned period of time, in the Republic of Moldova have been established different IT centers (iHUB, Tekwill) aimed to contribute at the development of the IT sector. On the same note, the local authorities came with an innovation in 2016, when the legal framework was approved and there was an IT Park created - „Moldova IT park”. The main purpose of this Park was to create an organizational platform with a set of innovative mechanisms and facilities needed to drive the growth of the IT industry, create new jobs and attract local and foreign investments. The park aims to capitalize on the opportunities for growth of the IT industry by implementing a predictable and motivating regulatory framework by facilitating the fiscal and business administration system.

At the same time, „Moldova IT park” also pursues specific objectives such as:

- providing consulting and support mechanisms for new IT companies;
- increasing the volume of investments in the activities of the park's resident IT companies;
- increasing the number of innovative IT products created by park residents;
- establishing international partnerships for the transfer of knowledge and technologies in the IT field, including through the involvement of foreign IT professionals.

The format of the park is a virtual one, with the possibility of creating the physical infrastructure in perspective. At the same time, according to the plans, its term of operation is 10 years, during which time it is expected to be attracted approx. 400 IT companies.

The analysis of the static data allows to find that, at the end of 2018, 346 companies had the status of resident of the „Moldova IT park”. At the same time, there was an increase in the number of foreign capital companies, reached from 27 countries, which demonstrates the interest of foreign investors towards the Park. Thus, the number of residents with foreign capital, at the end of 2018, reached 96 companies. The top 5 countries according to the source of invested capital are: USA (15), Romania (13), Great Britain (8), Italy (8), Germany (7).

In addition, it is noted that during the year 2018, 94 newly created companies became residents of „Moldova IT park”, representing about 1/3 of the total number of residents of the Park. Of the total number of newly created companies, 20 of them represent companies with foreign capital from 14 countries, which constitutes about 1/5 of the total number of residents with foreign capital registered in the Park (Moldova IT Park Report (2018)). The positive dynamics of the number of companies established in 2018 demonstrates the interest for the creation of new companies in the IT sector, which is due to the favorable fiscal environment in the sector. At the same time, the increase in the number of companies with foreign capital speaks about a flow of foreign investments in the sector.

The increase in the number of residents of the „Moldova IT Park” has directly influenced the growth rate of the turnover of the companies registered in the Park. The 339 active residents, registered in the Park until the end of the last year, forecast for the year 2018 a total income of 1 878.1 million lei. The share of 2/3 of the total forecasted income belongs to the 96 resident companies with foreign capital, reaching the amount of 1 233.5 million lei. This proportion shows the major impact of the foreign investments on the formation of the national IT sector and on its profitability. Also, an important factor to be noted is the cost of sales on the allowed activities in the Park, which constitutes 1 326.1 million lei.

Thus, the cost of sales reaches the share of 69.5% of the total income of the companies, and as a result the profit of the companies constitutes 30.5%. These results give good reasons to conclude that the positive dynamics of the increasing income of resident companies directly influences the ability of companies to reinvest in themselves and in industrial projects related to the sector, as well as in human resources, which are an integral part of the business development process.

At the same time, in 2018, the volume of exported sales, as well as of sales directed to the local market, registered a steady increase (figure 2).

The growth rates ranged from quarter to quarter, doubling in Q2 compared to Q1 of 2018. In Q3, there was a 10% increase in local sales and 20% in exports, compared to the Q2, and in Q4 these figures increased by 35% and 30% respectively. The uneven growth of local exports and sales is due also to the number and size of the companies in terms of profitability, which have obtained resident status in each of the periods examined (Moldova IT Park Report (2018)).

At the same time, the ratio of export revenues to local sales is 4.32. This fact is also due to the competitive costs based on: labor cost, low operational costs, attractive business environment, and the facilities offered by the new tax regime.

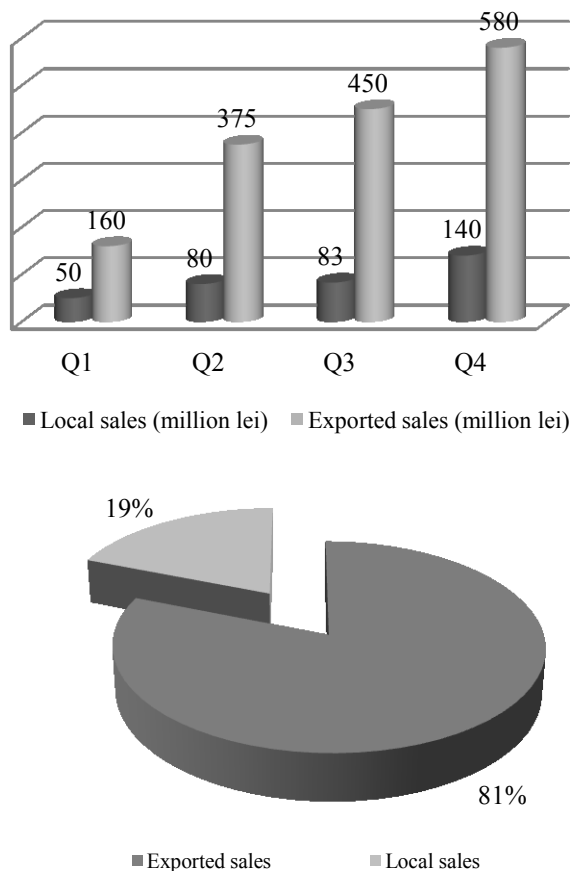


Figure 2 - Dynamics of the local and exported sales of the Park residents in 2018
(Source: Moldova IT Park Report, 2018, p.11)

The increase in the volume of exported sales contributes simultaneously to the increase of the visibility of the local companies as well as of the Republic of Moldova on the international market, which leads to the development of the sector through the infusion of foreign investments in the IT sector and other sectors of the economy, attracting new customers / beneficiaries of services / local products, knowhow and technology transfer. As far as the local market is concerned, its size does not ensure a similar volume of sales, being relatively small in order to generate requests and requirements similar to the international ones in the IT field. At the same time, the increase in local sales denotes the attractiveness of services and products in this field on the domestic market, and the number of local sales is significant.

3. CHALLENGES IN THE IT SECTOR IN THE REPUBLIC OF MOLDOVA

Although the IT sector in the Republic of Moldova has experienced a spectacular growth and development, the business environment in this field is not perfect. The IT industry needs a favorable ecosystem for business development, including innovative business. To further ensure a steady and dynamic growth of the IT industry, an innovative vision and an ambitious but realistic action plan are needed to address the following challenges:

The capabilities and number of IT specialists do not meet the needs of the local IT industry and the potential of large-scale IT investment projects. The core asset of IT business is human capital. Although in the approximately 750 companies active in the IT field operating on the territory of the country, approximately 12.5 thousand employees are active, of which directly in the IT industry - about 8 thousand people, there is a shortage of qualified specialists estimated at 1000 persons. This is despite the fact that in 2016, the number of graduates in this field was about 823 people. According to the assumptions made, the causes of the shortage of employees reside in the training methods that do not satisfy the demands of the labor market.

Insufficient marketing capabilities and poorly developed personnel certifications. Teachers who teach IT programs do not perceive complementary disciplines, such as marketing techniques, communication and negotiation art, project management, as important as those they hold of the basic specialty. Thus, the respective disciplines are not taught at all or are taught superficially, without creating the students skills needed to start and develop a business or to ensure marketing or public relations activities in an IT company. The certification culture in the IT field is still poorly developed in the Republic of Moldova. The certification is perceived by the specialists in the sector rather as an employment advantage than as a long-term value. Only a few of them are available to pay significant amounts of money to take internationally recognized courses and obtain the appropriate certificates. International staff certification is funded only by IT companies with larger budgets or with the support of international programs or centers.

The fragmented local IT industry, focused on peripheral segments (testing, software development, etc.) with insignificant added value under the conditions of an underdeveloped digital economy. Although most private companies are with local capital, they generate only about 42% of the turnover in the sector and employs only 40% of its employees. On the other hand, many of the companies

with foreign capital, being part of international groups, use branches in the Republic of Moldova only for the elaboration of intermediate products, and less for final products.

Limited capacities of local IT companies for digital innovation. At the moment, in the Republic of Moldova the innovations are oriented towards the creation of products for international markets, in general the EU and CIS, and less for the local market. These companies develop projects that do not have a substantial, sustainable impact or that do not meet the needs of the internal market. This, in part, leads to the slow implementation of innovative IT products and services in the country, and the relevant innovation projects are carried out only for external markets, further reducing the perceived value of IT internally.

Lack of access to venture financing and exploration of the possibilities for startups to attract investments through the initial offer (public offers, etc.). The access to finance is considered to be one of the 4 critical problems in the social-economic development of the Republic of Moldova and the main concern for SMEs in the country. According to the Global Competitiveness Report 2016-2017, the business environment in the Republic of Moldova has indicated access to finance as the biggest impediment to business. Limited access to finance for IT companies has been identified as one of the main issues. The difficult access to finance for companies in the IT industry especially affects start-ups and the implementation of innovative projects within the entrepreneurial activity, due to the high degree of investment risk involved. As a rule, companies in the IT industry, like any company in the process of starting a business or starting new business activities, do not have assets that could serve as a guarantee (pledge) to obtain bank loans and loans from non-banking credit organizations. The capital market does not offer financing solutions, and the issuances and public offers of financial instruments are not applied by companies in the Republic of Moldova as a mechanism for attracting investments. Equally, leasing is not applied locally as a tool to support the innovative projects of companies in the IT industry. Traditionally, leasing provides resources for fixed assets, while investment and innovation projects, especially startups in the IT industry, involve costs of another nature, such as administrative expenses and current assets. Under these conditions, the creation of financing instruments adapted and intended for start-ups and investment projects in the IT industry is imperative.

Insufficiency of co-working platforms and consulting in business development for IT startups. In the Republic of Moldova there is a very poor network of co-working spaces, which, on the one hand, makes the process of knowledge transfer and other useful information difficult for potential entrepreneurs in the field, and on the other hand, lacks the advantage of sharing indirect costs, such as: payment for the location, Internet access, specialized software. The lack of common spaces also makes it difficult to access the various systematic support activities of newly created IT companies, including business consulting, promotion support, budgeting, human resources management.

The lack of branding, marketing strategy and attracting investments for the IT industry. The IT sector in the Republic of Moldova leads to a lack of synchronization in the promotion of investments. Although IT companies in the country participate in various international events and have conducted a series of information campaigns, due to the lack of a coherent sectoral strategy, these efforts have not been very successful. The lack of business development capabilities is also noted, as the IT sector of the Republic of Moldova is fragmented, smaller

companies dominating the landscape. Small businesses face challenges in building long-term strategic capabilities such as business development and marketing. The lack of visibility and brand awareness is another challenge. The IT sector of the Republic of Moldova needs a unique brand positioning, as it is currently eclipsed by the countries of Central and Eastern Europe, with a much larger and diversified IT sector, such as Romania, Ukraine, etc.

4. CONCLUSIONS

The initiative to create IT parks in the Republic of Moldova has made a major contribution to the growth and development of the IT sector, its activity giving results far beyond expectations. Thus, in about 2 years of activity, the Park has achieved the objectives established for 10 years, and this fact indicates that the innovative initiative to create the Park has generated a major interest of the companies in the sector both nationally and internationally, becoming a catalyst for foreign investments in the national economy.

The increase in interest from foreign investors is due to the low tax rate, the high level of qualification of the labor force and the relatively low operational costs. The flow of foreign investments within the Park directly affects the development of both the IT sector and the economy, allowing the expansion of opportunities for local entrepreneurs to create new partnerships and sharing experiences, which increases the competitiveness of local products on the regional and international market.

However, the IT sector faces certain challenges, which does not allow it to develop at full capacity. The measures taken so far in the field development have focused on certain fragmented elements of the sector. Although significant foreign investments have been attracted to the sector, the local market is still not able to assimilate the products generated by this sector, most of them being exported.

Given that the IT field is connected to all branches of the national economy, it is imperative to look at this area as a whole and to ensure sufficient development of all branches of the national economy, so as to ensure full utilization, but also assimilation in the internal market of the final products generated by the IT domain.

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