DIMENSIONS OF INNOVATION AS COMPETITIVE ADVANTAGE IN ROMANIAN ENTERPRISES

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Abstract
During the years, many authors have focused their attention on the importance of innovation for the progress of society, concentrating their efforts especially on understanding this concept from two main points of view: as a process and as a product, defining it mainly as an element of new brought to the market. The present paper tries to highlight the main aspects regarding innovation as a concept, the second and the third part focusing on presenting the practical data at global and national level.

Key words: *competitiveness, enterprise, innovation, research, development*

JEL Classification: *O30, O32*

I. INTRODUCTION

Given that the period which we live is in a "pronounced transition" process (Popescu, 2016), that involves a multitude of changes and transformations on a wide variety of plans and fields of activity, the capacity of opening up to new is essential. The volume of knowledge assimilated by an individual is increasing, while there is an abundance of information in all areas.

However, any achievement involves primarily work and research.

Society is becoming increasingly concerned, at a global level, with research and innovation, considering also the permanent technological evolution, and also taking into account that research and innovation "improve the living and working conditions" (European Comission) of individuals, contributing as well to a significant increase in the level of competitiveness of a region. Other aspects taken into account in this regard are the contribution to economic growth and also to facilitating access to the labor market.

The contribution of research to improving the quality of life at both regional and national or even at global level can not be denied, thus countries with a higher level of innovation index being generally countries with a higher standard of living. There are also areas where both research and innovation are absolutely necessary, for example in the filed of medicine or IT.

No organization can survive the change if it does not make progress over time, while adapting to the changes that take place through the actions of the environmental factors. We can talk about a complexity of the processes, but also of the implemented policies.

Innovation "is the culmination of a strong global network that, when combined with local expertise, forges and deepens understanding of the needs and dynamics of markets - ultimately triggering an unconstrained flow of ideas." The OECD defines innovation as a complex process involving diverse actors and proposes a series of interactions between the innovation system and the economic and social context, being a "global process of technological and commercial creativity, the transfer of a new idea or a new concept to the final stage of a new product, process, or activity accepted by the market ".

"The current economic environment has become increasingly difficult and in these conditions the only solution is represented by innovation" (Ciurea, 2013)

If we analyze the approaches in the literature, we note that they refer mainly to innovation from the perspective of "introducing the new" (Popescu, 2016), or an element of change (Marquis, 1969), regardless of whether we consider the educational, social, economic, etc. field. It is impossible for a culture or enterprise to stagnate for a long time, progress becomes inevitable and the new discoveries in the field are meant to facilitate the improvement of lifestyle.

The activities indicated by Schumpeter as being included in the act of innovation are: creating a new product, introducing a new manufacturing method, entering a new market, calling for a new raw material and a new organization of the company.

When speaking about innovation, researchers from Princeton University reminded the issue of knowledge as being indispensable for an entity being able to carry on an innovational process. They also state

that „knowledge can be codified, as in a chemical formula or computing algorithm, or it can be tacit, as when a person knows how to do something that is not written down" (Princeton research), the stages of innovation process depending on a great level on the volume of information gathered.

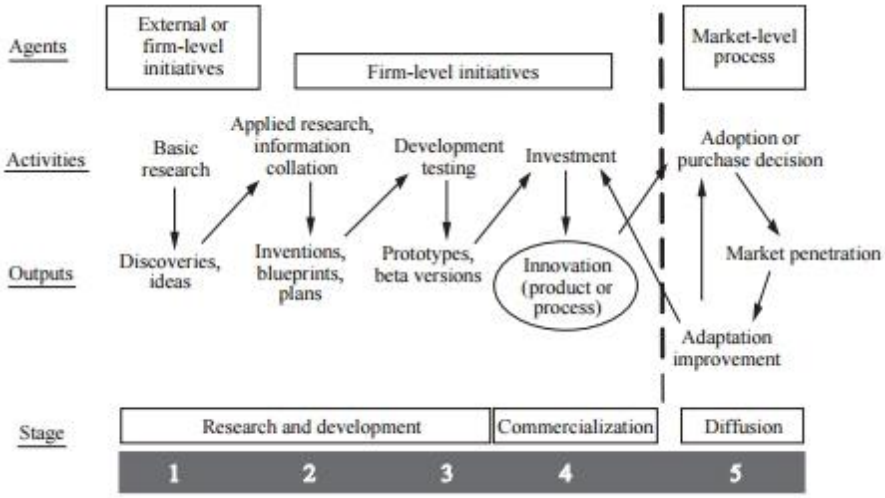

Figure 1 – Stages of innovation and research
Source: Princeton University Report

Innovation becomes a tool of great value used by entrepreneurs, whether we refer to it from the perspective of a "first-time invention" (Mansfield, 1989), or treat it from the perspective of "technical, industrial or commercial steps" (Zuckerman comittee).

Innovation can also be seen as a competitive advantage, and also "a source of gaining and enhancing a company's performance" (Lăcătuș). The enterprise, from an open system perspective, must have the ability to adapt to all the changes that take place, by objectively evaluating the influences of external factors on organizational processes.

Research, on the other hand, is defined as a "human activity that analyzes, examines, studies systematically in order to know something; It is, in fact, plasticly speaking, an investigative activity" (Ciobotaru, 2008). The research activity has become prominent in both specialized institutes and universities, although the level at which it is carried out depends on a variety of factors, depending on its typology.

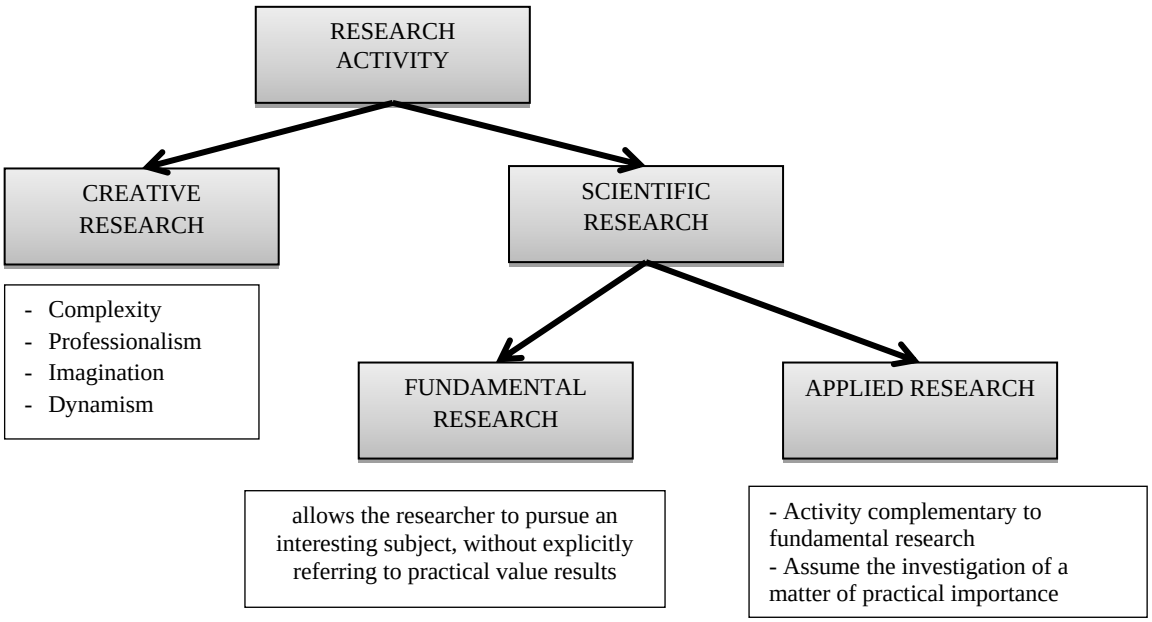

Figure 2
Source: adaptation after Ciobotaru, 2008

If we discuss fundamental research, we find that it is part of each country's strategy, aiming at contributing to the overall development. Applied research, on the other hand, finds its justification in practical necessity.

We live in a very competitive world where both developed and developing countries need to come up with innovative solutions to counter global challenges; ”Simultaneously, they need to address the pressing needs of their respective populations. These twin goals can be achieved by empowering global citizens to think independently and risk transforming their ideas into value propositions."

Both from the perspective of research and innovation, there are a number of gaps between regions and countries, with the European Commission funding framework programs for capitalizing on research results.

In the period 2007 - 2013, the National Plan for Research, Development and Innovation has focused on the following objectives:

- creation of knowledge, ie achievement of globally competitive scientific and technological results in order to increase the international visibility of Romanian research and the subsequent transfer of results into socio-economic practice;
- increasing the Romanian economic competitiveness through innovation, as an impact on the economic agents and the transfer of knowledge in the economic practice;
- increasing the social quality, ie finding technical and scientific solutions that support the social development and improves the human condition.

Innovation is everywhere (Godin, 2008). But the way of action of innovation is a systemic one, "embracing all the activities of the enterprise" (European Comission), manifesting impact on all internal activities, from production to the function of human resources, an enterprise concerned with innovation being characterized by:

- the desire and concern to adopt new technologies;
- openness and high level of responsiveness;
- efficiency;
- adaptability and flexibility.

Through the Research, Development and Innovation Strategy for the period of 2014-2020, on the other hand, it is intended to be achieved a practical impact and also measurable results, but they depend on "building and maintaining a broad partnership for innovation" (Popescu, 2016), as well as the construction of a "coordinated perspective, integrated into the RDI system".

During 2013, even a multiannual financial framework was approved at European level, through which there were allocated 77 billion Euros for the Horizon 2020 program for the period 2014-2020.

II. INNOVATION WORLDWIDE

According to the Global Innovation Index 2016, “innovation is now a critical factor in the growth of dynamic clusters of nations that support policies that empower people beyond national boundaries with the ability to solve problems at all levels—individual, societal, regional, and global. This growing trend of increasing global connectivity necessitates a standardized way of measuring and analysing innovation data through key indicators”.

According to the OECD, innovation at the global level has an important role on multiple plans:

- increasing competitiveness
- economical growth
- general welfare
- improvements in security, climate change, etc.

Data published by Eurostat shows that over the past 10 years, the percentage of GDP allocated to research and innovation in the European Union has increased very little, from 1.74% in 2005 to 2.03% in 2015, well below the level of South Korea, the United States of America, close as percentage being China. European countries are still below the level of others globally, a proof being the volume of investment in research and innovation, where by comparison, we note that the European Union allocates just over half of US investment in this area, being overtaken by Japan or China.

Considering certain indicators, the Innovation Union Scoreboard cataloged the European Union countries in four specific innovative performance groups. Thus we can identify the following groups of countries:

- Innovation Leaders: Sweden, Finland, Denmark, Germany - countries which have innovation scores well above the European Union average;
- Innovation followers: France, Austria, Netherlands, Cyprus, Ireland, UK, Slovenia, Belgium, Luxembourg – countries which have scores close to the European Union average;
- Moderate innovators, like Malta, Spain, Hungary, Portugal, Slovakia, Czech Republic, Greece, Italy Poland, Lithuania, Croatia, with scores below the European Union average;

- Modest innovators: Bulgaria, Romania – countries with score significantly below the European Union average.

In order to counteract the negative effects of current innovation policies, the European Union has thus developed the notion of the "Innovation Union" in the desire to promote world scientific progress, eliminate unnecessary obstacles and establish an effective system of cooperation between public and private environments.

The Global Innovation Index at world level analyzes through annual reports the Innovation Effectiveness Rate Criterion from the perspective of innovation both as input and output. From an institutional point of view, are considered factors such as: the political or business environment from the perspective of human resources are considered: education, research and development. Also, the infrastructure, the ecological side, the investment, the competitiveness, the skills and the skills of the employees are considered as innovative input factors. The results or outputs, on the other hand, concern the impact and distribution of assimilated knowledge, intangible assets, online creativity.

"Given the fact that global competition has evolved from competition between enterprises to competition between regions, the economic success of a country or region is based on the offer specialization and focus development efforts on key areas where they have competitive advantages, resources and skills" (Maticiuc, 2015).

The OECD states that nowadays, the process of innovation becomes "a crucial determinant of competitiveness and national progress". Also, the importance of this aspect lies in the fact that it contributes in addressing "global challenges, such as climate change and sustainable development".

The 2016 Global Innovation Index reports show the following ranking of the innovation index for countries worldwide:

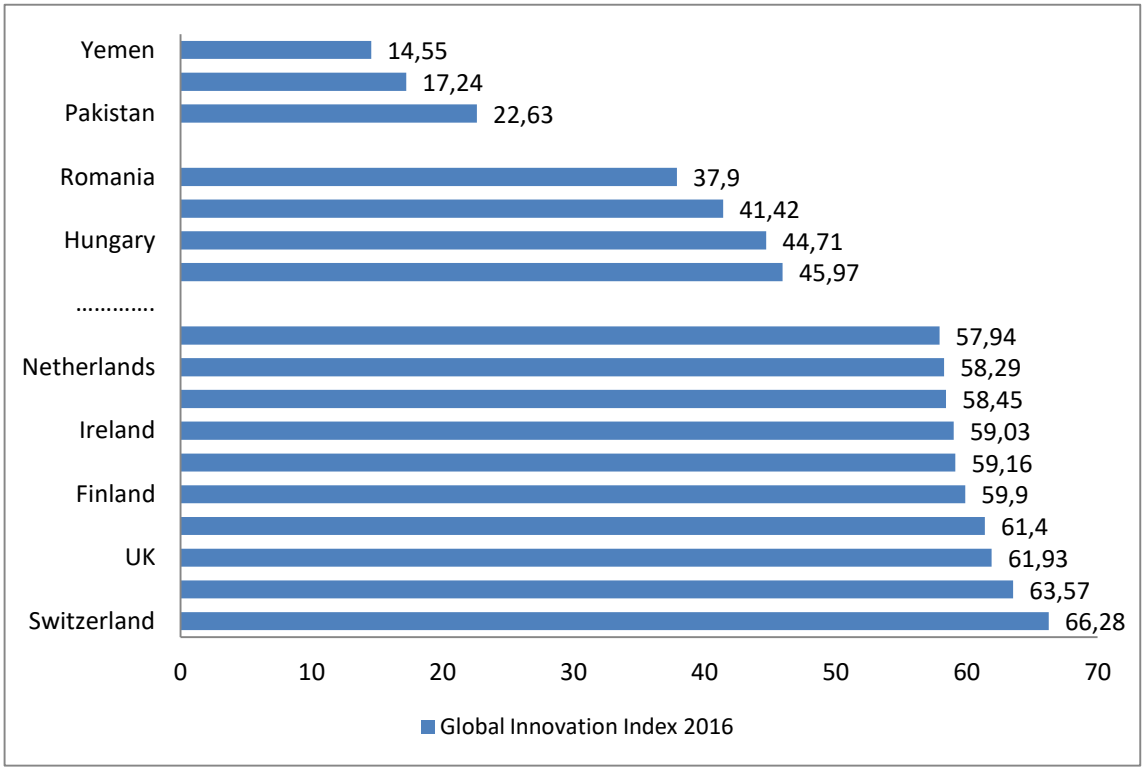

Figure 3 – Rankings of the innovation index
Source: Global Innovation Index, 2016

According to the above ranking, we can see that the top ten positions worldwide are occupied by Switzerland, Sweden, UK, USA, Finland, Singapore, Ireland, Denmark, the Netherlands and Germany, these being the countries with the highest index values, also the most innovative countries. A common point is that all ten positions coincide with states that are also characterized by a high level of well-being.

At a fairly large distance, occupying middle positions, there are countries such as Slovenia (32nd place), Hungary (33rd place), Bulgaria (38th place) or Romania (48th place), where the degree of innovation is considered as being average. However, they are at a quite large distance from the last positions in the ranking, since the last places - 127 and 128 are occupied by countries such as Guinea or Yemen. The registered scores are 66.28 - the highest value of the index, corresponding to Switzerland, 37.90 - Romania - average value, respectively 14.55 - Yemen, the last position.

Switzerland is at the top of the list for the sixth consecutive year, while the rest of the top ten countries have undergone ranking changes over the past few years.

Leaders in terms of innovation can also be considered Denmark, Sweden, Finland, characterized primarily by performing research and innovation systems, but also with good collaboration with the business community in general. Investment in innovation is high, and research is a branch that benefits from continued and consistent involvement and support from both the public and private environments.

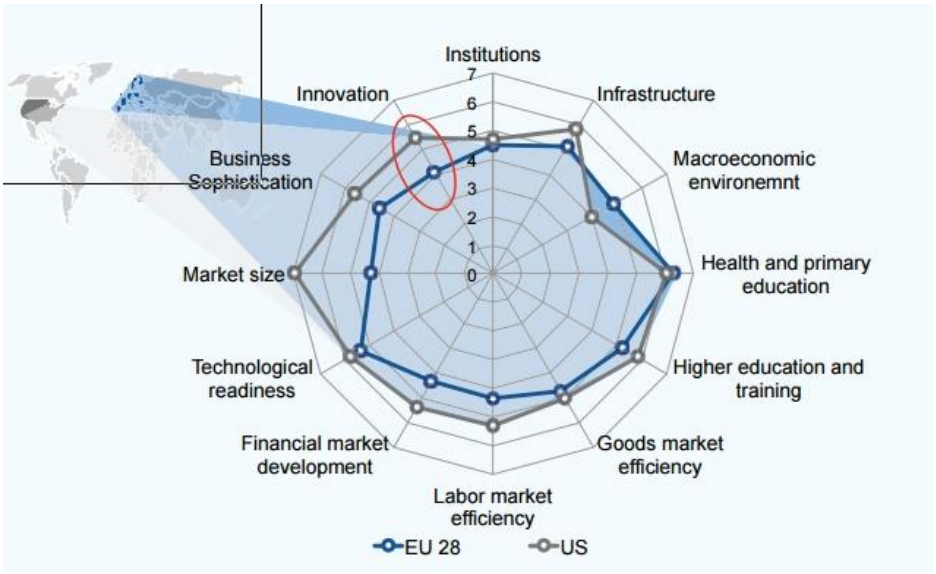

Figure 4
Source: Global Competitiveness Index, WEF Regional Agenda 2015

Still, despite the importance of innovation, "many OECD countries face difficulties in strengthening performance in this area" (OECD), making small improvements in terms of productivity performance in recent years, "despite the new opportunities offered by globalisation and new technologies, especially the information and communication technologies (ICT)".

III. INNOVATION IN ROMANIA

"In today's economic climate, innovation—technological innovation in particular—is considered to be a major force for economic growth. The convergence of data analytics, commerce, and technological progress is seen as a key driver of innovation in the global economy." (Global Innovation Index, 2016). In terms of innovation, Romania is one of the modest innovators, with an innovation performance below 50% of the EU average (according to IUS - Innovation Union Scoreboard). In the ranking of the 27 European Union member states, Romania ranks 25th (Stroie et al).

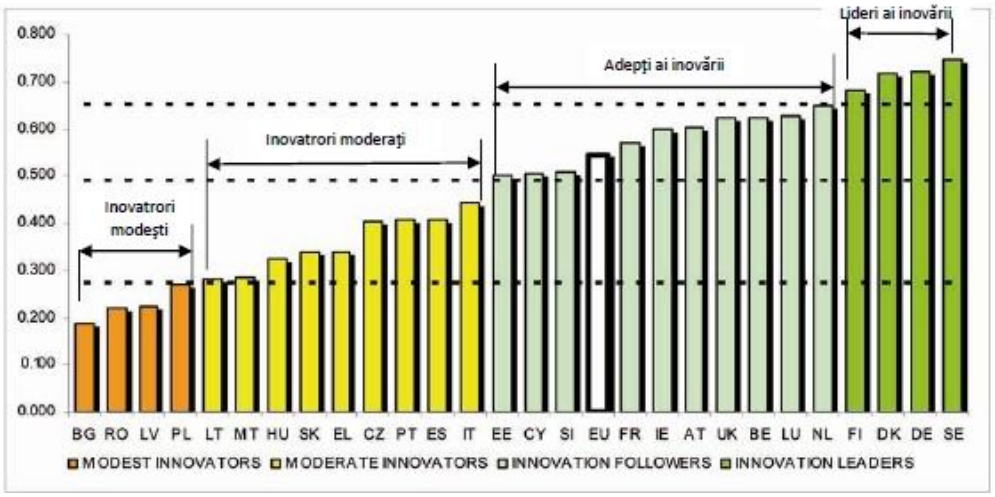

Figure 5. Situation at EU level on innovation performance - IUS 2013

Studies conducted at national level by specialized institutions indicate that innovation is considered to be a competitive advantage alongside other aspects such as employee quality, company management or the relationship with the environment. However, the capacity to innovate becomes an essential criterion for a rather small percentage of Romanian enterprises, the National Council of Private Small and Medium Enterprises identifying in 2016 only 3.28% of enterprises that consider innovation as an important advantage. This is due, on the one hand, to the fact that innovation is often associated with technological progress, and most Romanian companies are engaged in commercial and service activities, fact which has an impact on the final percentage. On the other hand, it is important to mention that previous studies have revealed a higher percentage of enterprises concerned with this issue, by 2015 being attributed 4.22% of the enterprises, from this point of view.

Also, the innovation activity is an entire process that can not be achieved in a short timeframe, but requires the market presence of the enterprise for a longer period of time, therefore concerns about this criterion are more significant for organizations already present on the market for more than 10-15 years.

Even if Romania's global position in 2016 ranks 48 out of more than 100 countries and is therefore above the middle of the ranking, a European analysis shows that among EU member states, Romania is found only on the 25th position, being identified weaknesses in funding, quality of research system, aspect regarding the value of investments in this field. Thus, documents concerning research-development-innovation show a very low level of public investment in research, even if in Romania, the research and innovation system relies heavily on support from the public sector, "private sector research (BERD) representing only 38.3%, half of the EU average (61.5%)" (POS CDI).

Romania is part of “the last group of European countries with reference to competitiveness growth, as it is shown in the European Committee Report” (Ionescu, Dumitru, 2015), among other countries like Bulgaria, the Czech Republic, Poland, Hungary, Slovakia, Latvia and Lithuania.

A sectoral analysis carried out by CNPIMMR shows significant discrepancies in differentiating the competitive advantage of small and medium-sized enterprises. Thus, innovation capacity is appreciated differently from one region to another, as an important asset for the overall progress. According to the White Paper on SMEs, 2016 edition, the most preoccupied development region is the North West region, where this criterion is mentioned by 9.09% of SMEs, while the least concerned region for this aspect is the South region (0.51%).

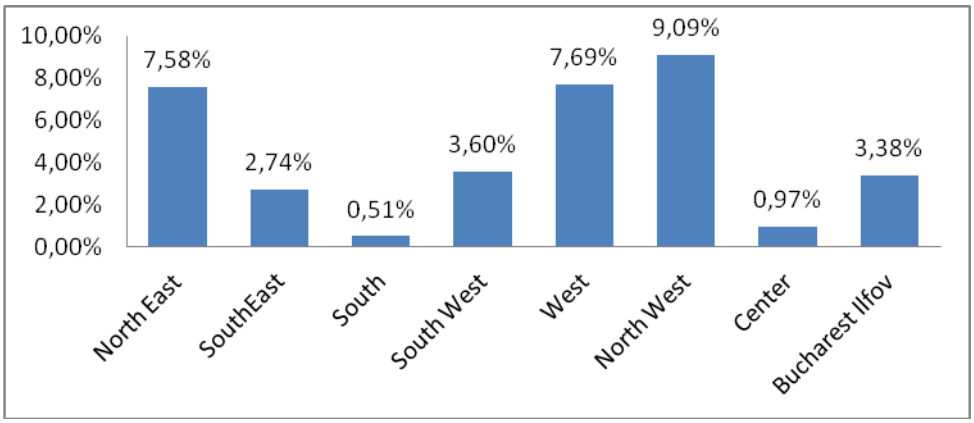

Figure 6
Source: White Book of SMEs, 2016

The level of competitiveness for Romania remains low, the main challenges being not only the under-developed infrastructure but also a “weak business environment” (Ionescu, Dumitru, 2015) and the very low level regarding investment in research and innovation.

The field of activity can be considered as a criterion for differentiating firms' innovation capacity. Thus, if innovation is considered less possible in the field of tourism, but it prevails in the industrial field, where we find the highest percentage of companies concerned with this aspect, the technical or technological field being considered the most prone to new discoveries and changes more prominent than other areas of activity.

According to the BERD, the weakly developed level of research in Romanian enterprises is mainly due to a low level of competition, but also to the incapacity of companies to take risks, both financially and commercially, at national level, the economy being characterized by low level of competitiveness, medium level technology, and low rate of innovation.

The analyzes conducted by the SME Council show the following situation regarding the share of innovation spending in total investment. The overall evolution is positive, with higher investment in innovation in 2015 than in the previous year, in almost all cases. Only in the case of enterprises allocating more than 50% of the investments to innovation, there is a regress over the previous year.

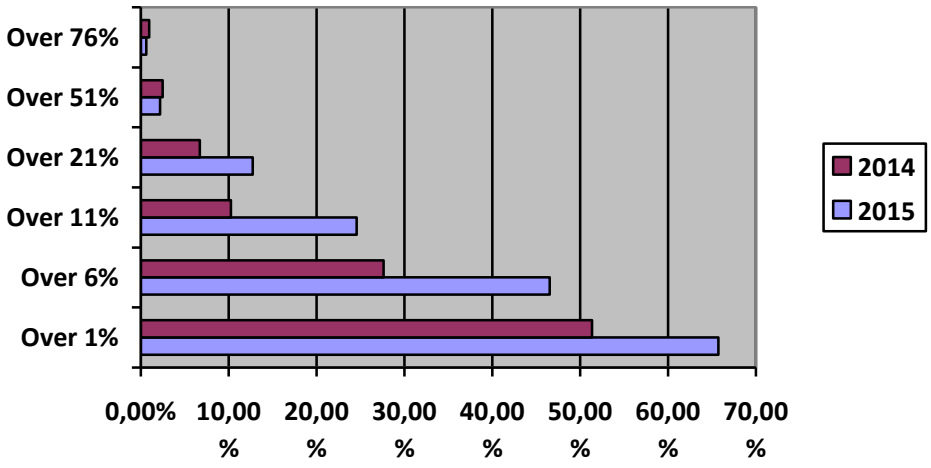

Figure 7
Source: White Book of SMEs, 2016

The ways of achieving innovation in Romanian enterprises are varied, being mainly represented, according to CNIPMMR, by the acquisition and adaptation of novelty elements developed by other organizations, respectively by the development of research and development activities. The financing of the research-development-innovation activities is carried out both from own sources, as well as through loans accessed by banks or by contracting of non-reimbursable funds. Own sources are found especially in companies with a longer presence on the market, with a developed activity and positive results over a long period of time. More "young" businesses resort more often to loans or loans, as well as to accessing non-reimbursable funds, even if market stability is lower than in the oldest.

IV. CONCLUSIONS

"Innovation is the leading force of competitiveness, of growth, of profitability and of the creation of durable values" (Ionescu, Dumitru, 2015).

The nature of the innovation activity carried out in Romanian companies mainly comprises product innovation activities, but attention also goes to the managerial or marketing perspective of the firm, the human resources or the computer systems used. The attention of micro-enterprises and small businesses is particularly focused on the development of new products, while medium-sized enterprises are surprised by the development of new products as well as new technologies as the object of innovation. According to CNIPMMR reports, companies that focus their innovation efforts on new technologies are the most important part of the business, while organizations that emphasize new management and marketing approaches are especially those in the field of tourism.

The intensity of investment in innovation varies from one enterprise to another, depending on a number of criteria, including the size of the business, the scope of activity or the level of profitability. Most small and medium-sized enterprises do not allocate a stable percentage of innovation activity, with little or no investment in some areas or regions.

Research in Romania is mainly carried out in the university environment, but although the number of doctoral graduates is high, a major challenge at the general level remains the underfinancing of this sector. According to Eurostat data, Romania is the last in the European Union as a share of RDI employees in the total active population (0.5%), compared to a European average of 1.5%. Only in the Bucharest-Ilfov region this share is close to the EU average (1.7%). In 2010, only 30% of enterprises had innovation activities, compared to 52.9% in the EU27.

In determining the impact of innovation activity on the dynamics of an SME enterprise, it is also necessary to take into account the influences that may lead to a negative evolution of the activities of an organization (Ciurea, Demyen, 2013), which are mainly the macroeconomic effects of the crisis, the lack of flexibility of the legislative environment, instability and bureaucracy.

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