
SCIENTIFIC RESEARCH - A FUNDAMENTAL ELEMENT OF ECONOMIC EVOLUTION

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Abstract

In this article, the authors rely on a study of the role of research in economic activity, generally based on the fact that the news does not come from itself. Innovations, innovative ideas are the fruit of a creative work of researchers.

Scientific research is a particularly important element in industrial development, the revolution of transport, construction, agriculture and all fields of activity within a society.

An incursion into the evolution of scientific research will highlight the great values that Romania has had, which have manifested in the interest of the country but some of them with remarkable results at international level.

In the field of aviation, we have three Croies, Traian Vuia, Aurel Vlaicu and Henri Coanda, who are pioneers of the field. Paulescu, despite controversy, is the insulin discoverer. But not only these, but a lot of other scholars have said their word.

Turning to the economic research, we must note that Romania had pioneers Dan Virgil Voiculescu, Gheorghe Păun, Gheorghe Zane, Alexandru D. Xenopol, Gheorghe Iorgu Tășcă, Barbu Zaharescu, Victor Axenciuc, Petre Aurelian Victor Padurescu, Constantin Barbulescu, Vintilă IC Brătianu, Emilian Dobrescu, Ioan Ghica, Aurelian Iancu, Virgil Traian Madgearu, Victor Slăvescu, Nicolas Georgescu Roegen, Eugen Miron Nicolescu, Octav Onicescu, Gheorghe Mihoc, Ștefan Odobleja, Ion Ionescu from Brad, Gheorghe Ionescu Șisești, Nicolae Constantinescu, Gheorghe Dolgu, Dimitrie Gusti and many others.

Thus, in the field of economic scientific research, an impressive number of scholars and valuable scholars have been on the ramp.

The authors then focus on the study of the role of the Romanian Academy, established since 1879, which is the headquarters of the research. There are a number of remarkable results of the Romanian Academy of Sciences and Culture, the Romanian Academy.

One can not neglect in this in-depth study the role and importance of academic and academic research. The training of specialists for the economy can not be done without the involvement of new research specialists. Switching from study, learning to research is a normal and binding process.

Within the article, a number of elements are significant and are presented by the authors in the context in which this year we celebrate the centennial of the Romanian unitary state, and it is good to remember that it has also achieved outstanding results in this field.

Some glances regarding the international context reveal the role that Romanian researchers have had and have at the international level.

There are some assessments about the future, in the sense that there are concrete programs through which Romania will contribute to the development of research in the following periods as well.

Key words: *economic research, innovation, economic development, strategy, knowledge*

JEL Classification: *I25, O30*

Introduction

In this article, based on the study conducted, the authors focus on presenting the secular result of Romanian scientific research in various fields of activity, focusing on research in the economic field.

Successively presented data on the role of research as a fundamental element of the development in the economy. Then there are presented and praised personalities in the field of economic research, which have internally clarified aspects of great importance regarding economy, economic development, strategies and other issues that are important.

The authors sought to highlight the role of the Romanian Academy as the headquarters of the research. It presents the activity of the Romanian Academy underlining the way in which the role of the great personalities, members or corresponding members of the Romanian Academy has evolved, but especially the research activity carried out within the departments' research departments of the Romanian Academy .

The authors also focus on the role and the vocation of research, which must be an attribute of graduates of higher education, regardless of their field.

Some aspects are briefly presented regarding the current situation in which the membership of the European Union of Romania necessitates the intensification of the scientific research as an indestructible and necessary element in relation to Romania's participation in European, European and European economic cooperation and why not in broader sense.

Reference is also made to the fact that economic research is an attribute of knowledge and implementation of adequate strategies for the leadership of the national economy.

The final part of the article presents aspects regarding the concrete scientific research in the field of economics and then the results of the international presence of the Romanian researchers in the field of economics, as well as the way in which the Romanian economic research should be analyzed and considered at the horizon of 2020 and continuation.

Literature review

Anghelache (1998-2017) carried out a complex analysis of the results of the Romanian economy, as well as the perspectives of evolution in the economic and social sphere. Brateş (2014) conducted a study on the work of the great economist N.N. Constantinescu. Haiduc (2006) and Ghiţulescu (2012) analyzed the stage and place of the Romanian research and development system at European level. Iancu (2005) studied the level of development of Romania, under the conditions of competitiveness on the European market. Piketty (2015) conducted a research on the role and modalities of capital manifestation. Vacarel (2016) is a reference paper presenting Romania's economic, social and cultural evolution. Zaman and Georgescu (2014) analyzed the degree of absorption of structural and cohesion funds in Romania.

Research methodology, data, results and discussions

An internationally validated, high-performance, high-performance science raises the attractiveness, pervades the prestige at regional and international level, generates a distinct, unique profile of that state. Investments in this area have massive positive effects in the medium and long term.

Metaphorically speaking, the greatest performance of science is that it survived. In the first 75 years, uniforms, orders and censorship of any kind, and then, in the last 25 years, profound changes of the system of values at the base of the Romanian society and a new census of economic nature, caused by the financial situation of many or difficult research faced, which prevents it from manifesting its true value.

• Personalities in the field of economic research

- Ion Ghica (1816-1897) focused on the study of complex and economic problems, among which we mention the following: Aid for the trader, the farmer and the engineer; Dernière occupation des Principautés danubiennes; Economic talks, 1865 - 1876.

- Petre S. Aurelian (1833-1909) published the Schiță studies on Romania, mainly from the point of view of the rural, industrial and commercial economy, with a map of the Principality of Romania, 1867; Catechism of the political economy, 1869.

- Alexander D. Xenopol (1847-1920) was concerned both with national history and with theoretical problems of historical science. Alexandru D. Xenopol's work, although unitary in meaning, is structured on several distinct sections. The first of these is the great synthesis, which can include the collection of various texts on economic issues printed in 1879, namely Economic Studies.

- Gheorghe Iorgu Tașcă (1875-1951) with research on: The Currency Problem (1919); Economic Liberalism (1923); Romania's Financial Condition after the War (1925); Cooperative Issues - Romanian Capitalism and Co-operation; Devaluation and Inflation (1932).

- Dimitrie Gusti (1880-1955) was a sociologist, philosopher and aesthetician. He founded the monographic research method; has begun the normalization of sociological research, combined with practical social action and social pedagogy; has conceived the idea of the „sociological museum”. Founder of the sociological (monograph) school in Bucharest, he conceived sociology as a „science of the nation.” He is the founder of the Romanian Society of Statistics (1937), which continues its activity today.

- Victor Bădulescu (1892-1953) published studies on Les Finances publiques en Roumanie (1922); The financial situation of the railways (1924); International Monetary Issues (1944); Commercial policy treaty. Foreign Trade and International Trade (1945).

- Gheorghe Zane (1897-1978) is noted in the following studies in the field of economic research: Introduction to the study of the value issue (1925); A century of struggle to conquer the Romanian market (1926); Monetary Issues in the Past of Our National Economy (1927); Exchange economy in the Romanian Principalities (1930); Economic Policy of the Principalities in the Union and Foreign Capital (1959); The Revolutionary Movement of 1840, Prelude to the Revolution of 1848 (1964); The Monetary Issue in Romania and the Reform of 1867 (1968).

- Barbu Zaharescu (1906-2000) with notable research results on: Basic Election of Political Economy (1949); About the Capital of Karl Marx (1948); Karl Marx: The Capital Movement Process (1955).

- Aurel Iancu (1928), a well-known analyst in the macroeconomic field, with extensive studies and works, of which we mention only a few: Maximum economic efficiency. Modeling methods; Economic growth and natural resources; Economic growth and the environment; International

economic exchanges; Energy consumption and production structure; Treated economy in five volumes; Highlights of an efficient economic system.

- Virgil Traian Madgearu (1887-1940) has developed numerous studies devoted to the national economy, businesses, banks and credit, financial policy, foreign trade, agrarian and peasant issues, world economic crisis, etc. Between the published works a special place is occupied by the evolution of the Romanian economy after the world war.

- Victor Slăvescu (1891-1977) has written monographs devoted to various banking institutions in Romania; has developed numerous studies on the thinking of Romanian economists from the 19th and 20th centuries; the role of the state, the economic and financial problems of the country.

- Octav Onicescu (1892-1983), the founder of the Romanian probability theory school, was, along with Gh. Mihoc, the creator of the probabilistic chain concept with complex links. He is the initiator of the Scientific Seminar of Statistics, which is still in full activity today.

- Ion Ionescu from Brad (1818-1891) contributed to the establishment of the first model experimental farms in the country.

- Gheorghe Ionescu-sișești (1885-1967) initiated and led the research for the development of agrotechnics in the main crops.

- Constantin Barbulescu (1927-2010) has been noted through the Strategic Systems of the Enterprise, 1999; Enterprise Performance Pilotage, 2000; Diagnosing enterprises in economic difficulties. Strategies and policies for recovery and dynamization of activity, 2002; To increase the competitiveness of Romanian enterprises on the European Union market, 2005.

- Vintila I.C. Bratianu (1867-1930) published the State Policy in the Oil Industry; Budget: towards a new state financial policy in the Political Library; Oil and State Policy.

- Emilian Dobrescu (1933), the most representative model in the economic field, is distinguished by the publication of studies such as: 50 years that shook the world; Economic integration; Sociology of communication and communication; Economic Sociology; & als., Dictionary of Economic History and History of Economic Thought.

- Victor Axenciuc (n 1928) has carried out in parallel scientific and academic research activity in the field of national and world economy history. In order to obtain the richest and most reliable information, besides studying Romanian and foreign literature, he researched numerous archive funds of important economic and social institutions of the country.

- Iulian Văcărel (n 1928) researched and developed: Problems of Finance Theory (1963); Trends in post-war evolution of public finances:

developed countries, developing countries (1968); Romanian Finance (1974); Finances and Requirements of the Development of Agriculture in the World (1976); Public finances. Theory and Practice (1981). He also participated in the elaboration of many analysis papers.

- Gheorghe Zaman (n 1942) researched and finalized a series of projects on: Post-Doctoral Studies in Economics: Continuing Education Program of Elite Researchers (SPODE) ID 61755; Economics of Knowledge Transfer in Sustainable Development and Environmental Protection; Economic scientific research, support for welfare and human development in European context; Assessment of the competitiveness of the industrial sectors - support for the sectoral development strategy of the manufacturing industry and many others.

- Dan-Virgil Voiculescu (born in 1949), a Romanian and American citizen, is a professor of mathematics at Berkley in the 1980s and a member of the National Academy of Sciences (NAS), a first-rate scientific organization of which 180 prize winners Nobel Prize in 2006, from which he was awarded the NAS Award in Mathematics in 2004. He is part of the Fields Institute Scientific Advisory Board (13 members, including Oxford and Stanford professors), the award winner the same name, considered by those in the field the equivalent of the Nobel Prize in Mathematics, a prize on which shortlist it was, but missed it from pure blame.

- Gheorghe Păun (n. 1950), a mathematician and computer scientist, member of the Writers' Union and a member of the Romanian Academy, has built an exceptional multidisciplinary scientific career in various fields ranging from mathematics, theoretical and bioinformatics to artificial intelligence.

- Nicolae N. Constantinescu (1920-2000) has carried out an intensive scientific activity in the following fields: economic and social history, history of economic thinking, contemporary economic theory, economics of environmental protection, methodology of scientific scientific research, transition from the centralized economy to the economy market, and so on.

- Stefan Odobleja (1902-1978) was the author of the first elaborate version of the generalized cyber conception, a decade before the emergence of Norbert Wiener's work, Cybernetics. He published (in 1938) the work Consonancial Psychology, the first large-scale exposition of some cybernetic principles.

- Nicolas Georgescu-Roegen (1906-1994) has made important contributions to the development of mathematical economics and the neoclassical economy (especially consumer behavior theory); founded the entropy law and brought arguments to the critique of the neoclassical economy, its mechanistic and arithmomorphic reductionism.

- Gheorghe Mihoc (1906-1981) had original contributions to the theory of probabilities and its applications in actuarial, mathematical statistics

and operational research; has contributed to generalizing the notion of chain; studied the asymptotic behavior of full-length chains and discontinuous movements.

- Gheorghe Dolgu (1929-2017). The scientific contributions are reflected in numerous individual and collective papers, articles, communications at congresses and national conferences on economic themes, interventions in international economic cooperation forums, published at the United Nations, and reputable publishing houses and periodicals in the country.

• The Romanian Academy - the headquarters of the research

The Romanian Academy is the supreme scientific and cultural forum of Romania, bringing together outstanding personalities from the country and abroad from all fields of science, art and literature.

The Romanian society undergoing modernization would need an academy organized in the style of those in Western Europe, that is to say, a forum of eminent personalities of intellectual life, a group of reflection and action that contributes to the general progress of society through science and culture. The first imagined form for this concentration was the societies with general literary and cultural purposes, first emerged from local initiatives in Brasov (1821), Bucharest (1844), Sibiu (1861), Cernăuți (1862). Among them, the Association for Romanian Literature and the Culture of the Romanian People of Transylvania (ASTRA) (1860), established on the initiative of the Blagoiest Greek Catholic Metropolitan, Alexandru Sterca Șuluțiu and the Orthodox Bishop Andrei Șaguna, and was elected in 1861 as the first president of society, whose organization was a true model for the future academic society. The success of these societies undoubtedly encouraged efforts to create a central institution for the promotion of literary and scientific creation, but especially for the preparation of a dictionary and a glossary of the Romanian language. This was the institution founded on 1/13 April 1866 - The Romanian Literary Society - which started its activity in the following year, under the name of Romanian Academic Society.

In 1879, the Romanian Academic Society was declared, under a special law, a national institute, under the name of the Romanian Academy - „a moral and independent person in all works of any kind” - a name that remained uninterrupted until today; only in the period 1948-1989 it received, besides the name „Academie” and the modified name of the Romanian state, such as the Academy of the Romanian People’s Republic (between 1948-1965) and the Academy of the Socialist Republic of Romania (between 1965-1989) ; from 1990 came back to its natural, traditional name, by the Romanian Academy.

The increase after 1948 of the number of research institutes subordinated to the Romanian Academy, but especially their spreading across the country, led to the establishment of some Romanian Academy branches in Iasi and Cluj, to which they joined Bases of 1955 scientific researches in Târgu Mureş and Timișoara, the latter being later transformed into the Romanian Academy Branch.

In the subordination of the Romanian Academy are also functioning: The Library of the Romanian Academy, whose foundations were laid in 1867; Romanian Academy Publishing House, founded in 1948; The House of Scientists, inaugurated in 1951.

After 1990, the Romanian Academy has also been involved in a series of programs of great importance for the future evolution of Romanian society.

They are complemented by the research programs and projects carried out by the 67 institutes, centers and other research units all over the country, subordinated to the Romanian Academy, covering aspects of all fields of scientific and cultural life, many of which have been carried out in cooperation with similar institutions from abroad.

In June 2001, the Supreme Force of Science and Culture of the country chose among his honorable Honorable Pope John Paul II and in October 2004 His Holiness Bartolomeu I, the Ecumenical Patriarch of Constantinople.

In turn, many members of the Romanian Academy have been elected to prestigious international bodies worldwide: the Prussian Academy of Sciences, the Academy of Europaea, the Academy of Sciences of the Academy of Sciences, the Royal Society of London, etc., as well as societies and international associations. The two Romanian Schools, Paris and Rome, founded in 1920 under the auspices of the Romanian Academy, contributed by the illustrious members of the academic institution, Nicolae Iorga and Vasile Pârvan, contributed to the gathering of the Romanian Academy's external links, as well as the participation of Romanian academics at international scientific events.

The Romanian Academy is an internationally active institution. Thus, he has signed over 40 scientific collaboration agreements with scientific institutions around the world and is involved in conducting research projects with prestigious organizations in Europe. He is a member of 30 international professional organizations and bodies; Founder member of the International Academic Union, actively participates in international collaborations with ALLEA (All European Academies), CEEN (Central and East European Network of Academies), IACSEE (Interacademy Council for South-Eastern Europe - Inter-Academic Council of Central and Eastern European Countries), BSEC (Black Sea Economic Council). He is an active member of

IAP (Interacademic Panel - Interactive World Council), EASAC (European Academies Science Advisory Council) and SCAR (Science Council of Antarctic Research). It also has an intense collaboration with the Danube Academies Conference (DAC), a project in which the Romanian Academy plays a key role in the implementation of the Danube Strategy, both in Romania and in Europe.

Members of the Romanian Academy are active at international scientific meetings (congresses, colloquia, debates), presenting the Romanian scientific results, gathering links with foreign partners.

The Library of the Romanian Academy has increased and diversified its relations with foreign partners. Thus, exchanges of publications with libraries and cultural institutions from abroad have intensified, the number of Academic Library's participation in book exhibitions, documents and photos outside the country increased, as well as the specialists engaged in international projects.

In a world that tends to synchronize, and based on the globalization process, a national academy such as the Romanian Academy has today an urgent mission of great responsibility: to properly mediate between the trend of globalization and national identity.

Among the leading academics in the Romanian Academy's Economics Department, with special merits and works, we mention: Lucian Liviu Albu, Petre S. Aurelian, Victor Axinciuc, Victor Bădulescu, Constantin Barbulescu, Vintila IC Bratianu, Mircea C. Cancicov, Nicolae N. Constantinescu, Emilian Dobrescu, Gheorghe Dolgu, Ion Ghica, Aurel Gh. Iancu, Ion Ionescu from Brad, Constantin Ionete, Costin Kiritescu, Ion I. Lapedatu, Virgil Traian Madgearu, Vasile Malinschi, Tudorel Tudorache Postolache, Ion Rachmuth, Ion Răducanu, Victor Slăvescu, Vasile Stănescu, Gheorghe Iorgu Tașcă, Iulian Văcărel, Alexandru D. Xenopol, Barbu Zaharescu, Gheorghe Zăman, Gheorghe Zane.

• Research in higher education

The main actors in the knowledge market - universities, public research and development institutes, as well as other public and / or private law research entities - are strongly involved in the struggle for excellence in research and innovation structures. All of them are in a continuous process of transformation, attracting and developing leading human resources and concentrating important material, financial and informational resources for research.

In Romania, the whole system of Research, Development and Innovation (RDI) has traversed an extremely difficult period after 1989, a

situation resulting from the under-financing and late restructuring of the field, which has diminished the chance of our country joining the world trends in science and technology, implicitly European, with only relatively isolated cases of remarkable achievements.

After Romania's accession to the EU, the adopted reforms influenced the dynamics of the total number of R & D employees in higher education. Structure by type of occupations of full-time employees, increasing the share of the number of researchers (by 2.0%) and the share of technicians and assimilated (by 2.9%).

Teachers involved in R & D activity in higher education institutions mainly aim to publish in international visibility journals, participate in national and international research grants, work in international research teams, and establish partnerships with the business environment for initiating joint projects and / or capitalizing on research results. This flexible and dynamic system allows opportunities to be created so that each teacher, in the course of his / her academic career, depending on the accumulated knowledge base, can make his / her own contribution to the RDI activity of the higher education institutions where he / and at the same time to be motivated. At the same time, universities have created research institutes of excellence - in strategic areas, doctoral and postdoctoral schools.

Since 1995, project-based funding has begun through competition, which has essentially led to increased performance and changing researchers' mentality on access to resources. The evaluation criteria have been increasingly focused on both the scientific performance demonstrated by the researcher (through articles published and introduced in the mainstream of international knowledge, scientific papers quoted, papers at scientific conferences of great professional prestige, participation in projects obtained through international competition, etc.) as well as the novelty and credibility of the proposed research themes, but especially through the possible impact on knowledge. Fundamentally, research funding criteria are geared to increasing institutional capacity precisely to provide applicants with an appropriate environment and the infrastructure needed to create and develop strong research cores with international visibility and capable of providing the framework appropriate to the training of future generations of young researchers.

The potential of universities to develop the research system and to implement Intelligent Specialization Strategies is a challenge to the current programming period, but also a central component of cohesion policy. At the same time, the participation of higher education institutions in the design of Intelligent Specialization Strategies provides an „ex-ante condition” for their access to European funds for research and innovation. In the 2014-2020

programming period, the new Intelligent Specialization Agenda, which differs as an emphasis and design of previous regional innovation policies, gives universities the role of „pivotal potential” for creating dynamic economic structures based on creativity and „exploitation” new ideas. In the EC vision, higher education institutions with R & D activities must be able to connect to global value chains, seize opportunities, conquer new markets, and create new, high-quality jobs locally.

• Considerations on economic science research

Starting from the fact that in the near future there appeared some comments regarding the Romanian scientific research without relying on its deep knowledge and on this basis with the tendency to introduce a series of conceptual and methodological confusions and to suggest unacceptable institutional changes in the structures of the Academy as well as in the academic ones as well as for the correct information of those interested and of the decision makers in the field, we present the considerations below.

Since Romania has been a member of the European Union for more than two years, it aspires to an appropriate place in the European political context, but at the same time it is a country from which significant added value is expected in the institutional, scientific, cultural, of European civilization.

Considering that the main processes of European compatibility of Romania in this period are the economic convergence (real and nominal) and the sustainable development of the country of importance is the economic scientific research. We will present five significant aspects regarding the Romanian scientific research, namely: fundamental economic research and applied economic research; academic economic research versus university economic research; publicly funded economic research vs. privately funded economic research; permanent economic research and occasional economic research and a brief assessment of academic academic scientific research.

A delicate issue that arises in connection with economic science research is about how to finance it. The opinion on this issue is the following. Public funding for research appears when serving to produce or distribute a public good. The results of the fundamental economic scientific research are of a public good nature and therefore this kind of economic scientific research must be publicly funded. Private assets are privately funded. In the case of applied economic scientific research it is pertinent to evaluate the efficiency of research activity in the case of fundamental economic scientific research, such an efficiency analysis is not pertinent.

In academic academic research, concerns and outcomes can be found which are among the top concerns and results of international economic

science research (sustainability of growth and development, quantification of living standards and living standards, organic agriculture and sustainable rural development, specialization of the national economy, economic modeling and prognosis, automatic stabilizers of adjustment policies, integration and globalization, assessment of the national economy, etc.).

In order for the national wealth of intellectual capital not to be lost and fructified, it is necessary to restructure academic academic scientific research into centers of excellence and to define the fields and themes of research in the economic field.

At the level of the Romanian Academy, economic research can be restructured by: setting up advanced study structures so that the strict specialization of each institute or center ensures at the level of the Romanian Academy an exact coverage of the areas of interest, economic research; structuring each institute or center on three categories of essential scientific activities, namely: fundamental research activities, applied research activities and rapid response activities; the creation of a portfolio of fundamental economic research themes, in the long term, to be constituted in the fundamental economic research programs of the Romanian Academy; reconsidering the role and functions of academic academic scientific research by public authorities.

• **Economic scientific research**

In order for the conclusions of the analysis to express as accurately as possible the results, they will be based on the official indicators published by the National Institute of Statistics and Eurostat respectively.

The material and human potential of the R & D activity was assessed using the following statistical indicators: the total number of employees employed in R & D activity; current expenditure on staff expenditure, material expenses and other current expenditure on R & D operations; capital expenditure, which includes investments in land and buildings, equipment and appliances; expenditure on software procurement for research and development, and other current expenditure on R & D operations.

We will present the indicators of human potential and those who characterize the material potential.

R & D indicators are analyzed on a total of four sectors: business, government, higher education and the non-profit private sector.

The total number of employees in the R & D activity showed a sinuous evolution, determined by the global economic and financial crisis, which also affected Romania. From its peak, registered in 2008, it drops by 10.2% by 2010, after which it gradually recovers. The maximum number of employees working in the business environment, registered in 2007, is gradually

decreasing by 35.5% by 2010, only 11.7% is recovering. In the government sector, the highest number of employees was registered in 2017, when it exceeded the peak of the start-up period (2008) by 20.1% and the lowest level of the whole period 2010. In higher education, between the highest number of employees registered in 2009 and the lowest in 2017, the gap was 18.3%.

In the total employed in research, men in most cases had a slightly higher share than women. Thus, during 2007-2010, the share of men in total employees increased from 54% to 54.8%, ie by 0.8 percentage points, and the share of women decreased from 46% to 45%.

• Romanian economic research in the 2020 horizon

In an interview published in 1996, former French Socialist Prime Minister Michel Rocard stated that there are six powers in modern contemporary society: the three fundamental powers described by Montesquieu - legislative, executive, legal - and three more important: the technical scientific, financial and media.

The heart of the so-called technical-scientific power of any nation is the system of research, development and innovation, and the way in which a state or society as a whole approaches this system transmits directly and precisely the attitude that that state or society has its own economic and social development, present and future.

In the early 1990s, the concept of a knowledge-based society emerged, a logical consequence of the rapid and wide-ranging evolution of technology, informatics and communications in particular in the context of an increased globalization. The knowledge society is the pinnacle of the development of human society and comes to replace the industrial society, focused on the production of material values, which in turn has replaced it with the agrarian one.

The European Union, which is in full transition to a knowledge-based Europe, has embraced this concept, setting the research, innovation and education as the most important knowledge pillars of utmost importance.

Although in recent years Romania has adopted and implemented the most current concepts, has (re) activated counseling, observation and control bodies, has conceived programs and strategies from the most diverse ones, launched calls for proposals projects, procedures and evaluation indicators, certified and accredited research entities, has facilitated their access to international research networks, the results are modest, timid, far below the expected level, and Romania is almost every year one of the last places among European countries in most relevant statistics in the field.

After 1989, over the past two decades and a half, in the background of a stagnant and deficient financing, with pronounced chronology and the

delay of real and coherent restructuring, a series of deficiencies in the field of economic research emerged.

The Romanian research system has some positive features. In the space of Romanian research there are research entities of different dimensions (national institutes or belonging to the Romanian Academy, collectives of research from universities) performing the human resources and the latest generation equipment necessary for the creation of new poles of excellence, besides the existing ones, well developed qualitatively and quantitatively.

The evolution of these research entities would not have been possible without a regulatory and certification system and is in many cases a natural consequence of solid traditions and significant human capital in some areas of research. This development has been stimulated and supported by the operation of financing instruments (national, European and international) under competitive conditions.

Romanian research has an organizational structure similar to that of other countries, although the specificity of its constituent elements differs significantly from them. For example, although Romanian higher education is well developed, there is a relatively small number of universities that, on the basis of commonly accepted performance indicators, can be categorized as research entities. Neither the national research institutes nor those belonging to the Romanian Academy are in a special international position.

Romania has ranked 19 in terms of the size of funding attracted within the programs corresponding to the EU Framework Program 7, conducted in the years leading up to the current European strategy. Although the number of Romanian participants in these competitions was encouraging - 704 Romanian entities with projects amounting to 96 million Euros - the success rate was slightly above 14%, below the EU average of almost 22%.

Even if we were late in the Horizon 2020 competitions, we believe we can hope for an improvement in the current situation.

According to a European Commission analysis, „the number of Romanian co-authors in publications in other European countries is one of the lowest in Europe”.

The last two decades have witnessed a significant migration process of performing researchers to other professional areas in the country and especially to research institutions, public or private, from abroad (16 000 Romanian researchers working abroad). It is worth mentioning that Romania is part of the group of countries that hold the highest percentage of export of researchers, but it has an almost irrelevant percentage of invited researchers.

The departure of young students (PhD students, postdoctoral students) and Romanian researchers in countries with higher net CDI systems (especially in Europe and the USA) comes as a confirmation of the quality

of human capital in this area. The problem is related to repatriation, almost impossible under the current conditions, despite the efforts made in recent years. It is hard to estimate how many of the over 23,000 Romanian PhD students left Romania during or at the end of their studies, and especially how many of those who left would choose to return.

The annual Eurostat data places Romania constantly on one of the last places in the European Union in terms of the share of RDI employees among the active population, a value close to the European one being recorded only in the Bucharest-Ilfov region.

After briefly reviewing these issues, we must emphasize that the situation is more pleasant in terms of the quality of the results of contemporary Romanian research.

A report by the European Commission (Research and innovation performance in Romania, Country profile, CE, 2013) - interpreted, debated and completed with own analysis in a report of the Group of Analysis, attitude and action in the science policy of Romania, made up of members important academics and academics - emphasizes that Romania's potential in science and production technologies. It is shown that:

„... The scientific specialization index of Romania, citations and the impact of its scientific publications ... show that the main scientific fields are mathematics and statistics, information technology and computers.

As can be seen from the above described, the problems and challenges faced by the national CDI system do not open clear perspectives on the direction towards which Romanian research is directed and it is necessary to define a clear, coherent and realistic strategy for the development of research (one of the most appropriate actors in the system capable of laying the cornerstone of a strategy in this field is the Romanian Academy) and the realization of a correct reform that will allow the objectives of this strategy to be achieved.

According to the Ministry of National Education, the document supports the strategic role and the priority position of research as an engine for increasing economic competitiveness and aims to connect to the new priorities of science and technology in the European Union, as set out in the Europe 2020 Strategy.

„In 2020, Romania is competitive at the regional and global level through research, generating wealth for citizens”.

In order to stimulate scientific research, especially in the economic field, it is necessary to consider the following priorities: „provision of resources at the level of 1% of GDP; taking on a set of strategic priorities at national level; predictability; credibility of the public-private partnership and overcoming the critical mass of researchers.

Research should be connected to improving the functioning of the Romanian educational system, and, by extension, the academic system. The private system can not function without these two components, as there is little probability of attracting foreign specialists, especially in areas under-represented in the national research system.

Romania must become a country whose social and economic characteristics are strong enough to allow the development of economic research.

Conclusion

From the study carried out in this article, it follows that research and innovation in Romania have followed an ascending course, have undergone successive stages from the 19th century to the present.

Research, development and innovation are necessary elements that have to coexist with the everyday economic activity, the activity of production, the activity in any economic sector, in order to identify and show up the premises for the superior development of the economic activity from our country.

Another conclusion is that as a member of the European Union, our country needs to intensify its research activity in all fields so as to actively participate in the development of scientific projects, economic projects within the Union.

We know the dictum that only the specialization gives access to European and international economic and technical-scientific cooperation.

In this context, the role of research, development and innovation becomes very important, and in this context, the Romanian Academy, the higher education system, the system of scientific research institutions must intensify their efforts in order to achieve the results, namely Romania's participation in international economic projects.

The final conclusion is that higher education without research will never yield results.

Also, without the intense activity of the Romanian Academy, the supreme forum of Romanian research and culture can not achieve results.

The conjugation and financing of these activities I have mentioned are the only ones that can give results and prospects to the evolution of the Romanian economy.

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